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Practical Book for the guidance of Computer students & teacher's assistance

PREFACE

Assalamulaikum, This book is prepared to fulfill the practical needs of class XI i.e. intermediate (part1) in accordance with the newly introduced computer science book by Sindh Text Book Board (STBB), to guide students and assist teachers.

It is classified into five(05) parts along with the appendices (A-G). It covers the new curriculum topics.

Practical given in this book belong to all the six(06) units of the theory book which is **introduced book by Sindh Text Book Board (STBB) in September 2026**.

Part1(Logic Gates): It covers Unit1 "Computer Systems"

Part 2(Python Programming): It covers Unit2, Unit3 "Conceptual Thinking & Algorithm" and "Programming Fundamentals".

Part 3(Databases): It covers the Unit4 "Data & Analysis".

Part 4(Artificial Intelligence): It covers the Unit5 "Applications & Impacts of Computing".

Part 5(Digital Literacy Survey): It covers the Unit6 "Digital Literacy".

Appendices(A-G): It provides general information regarding useful links, basic data types in Python,

Arithmetic/Relational/Logical/Bitwise operators used in Python, which helps in doing practical

There are 27 practical in total.

First 5 practical provide knowledge regarding Logic Gates, with their truth table in spread sheet(MS-Excel) and simulation in LogiSim.

Subsequent 15 practical provide understanding regarding Algorithm and Python Programming.

Then there are 5 practical belong to Databases(MS-Access).

After these, there are 1 practical each of Artificial Intelligence and Digital Literacy

In this way it can be said that **this practical book is in accordance with the newly introduced STBB text book of XI Computer Science**.

I am hopeful that reader of this book will find it beneficial as far as practical needs of class XI (Intermediate Part) are concern.

WHATS NEW IN THIS BOOK

- All practical have been tested.
- All practical have QR-Code which corresponds to their video tutorial.

  (Just scan those QR-codes to see the video)
- Part-1: Logic gates, 5th practical video tutorial is also available in SINDHI language (will extend it to remaining practical in upcoming editions).
- Part-2: In Python Programming all practical have **colored variable names** in their **algorithms** and **programs**(codes) to make understanding easy.
- Part-3: **Screen shots** in all Database practical are given for easy learning.
- Part-4 Practical#01(Artificial Intelligence): "Mind Reading Game" can be played in any of these languages English/Urdu/Sindhi.

- Part-5 (Digital Literacy Survey): Screen shots are also given in this part for quick references.
- All practical are classified into parts.
- It is written by keeping in mind of students so, to explain each step, video assistance is also given with all practical, to make learning easy. Even student alone can teach him/her self.

TO WHOM IS THIS BOOK FOR

Assalam Alykum, This book is specially for the

Intermediate(XI/XII) Computer Teachers and Students

- Computer Science students

and

- For all those people who are new to the computer sciences and want to learn practical implementation of Sindh Text Book Board's (STBB) Computer Book for intermediate class.

TRIBUTE

This book is a Tribute

From my side

To All the

Computer Teachers of Sindh Colleges

including both Government and Private colleges

IN MEMORIES OF.....

Following teaching and non-teaching staff of Shipowners' Govt. College is not with us today in this world but they will be remembered as assets of the college.

Prof. Asif Hasan (late) **(Botany Department)**	**Mr. Mushtaq Ahmed (late)** **(Lab Attendant)** **(Computer Department)**
Mr. Muhammad Ahmed (late) **(Clerk)** **(Administration)**	**Mr. Muhammad Ismail (late)** **(Lab Attendant)** **(Zoology/Botany Department)**
Mr. Yaseen (late) **(Naib Qasid)**	**Mr. Abbas (late)** **(Naib Qasid)** **(Physics Department)**
Mr. Aslam **(Mali)**	

DEDICATION

Although most of the following Professors have been left/retired or getting retired from Sindh Education Department but they are not retired from my memories. This book is dedicated to the following Professors as a token of remembrance and love:

This book is dedicated to:

Prof. Abdul Rasheed Shaikh (Principal PSGC) (getting Retd. Soon)	***Prof.(Rtd.) Sana Ullah (Commerce)***
Prof.(Rtd.) Salah uddin Sani (Islamic Studies)	***Prof.(Rtd.) Saif uddin (Chemistry)***
Prof.(Rtd.) Ahsan Shaikh (Economics)	***Prof.(Rtd.) Asher Saeed Alam (English)***
Prof.(Rtd.) Zia Ul Haq (Physics)	***Prof.(Rtd.) Syed Shah Safdar Hasan (Islamic Studies)***
Prof.(Rtd.) Nasir Qaimkhani (Islamic Studies)	***Prof. Dr. Hameed Khan (Mathematics Department) Federal Govt. Teacher***
Prof. Aziz Ahmed Shaikh (Commerce)	***Prof. Syed Muhammad Fahad (Pakistan Studies)***

SPECIAL THANKS

I am thankful to **Prof. Munir Ahmed Channa** of *Botany Department,* who specially recorded his voice on my request for SINDHI language video tutorial.

I am thankful to **Prof. Arif Khalil** of *Statistics Department,* for doing prayers for me in Kingdom of Saudi Arabia (KSA).

I am also thankful to **Prof. Ejaz Ur Rehman**(Lecturer), **Mr. Waseem**, **Mr. Ejaz and Mr. Zuhaib** of my ***Computer Science Department*** for their assistance during preparation of this book.

And

Above all I am thankful to **ALMIGHTY ALLAH** for making me eligible to prepare this book in very shot span of time. Sindh Text Book Board (STBB) issued new text book of computer science for intermediate students in September 2026 and this practical book " **The Beginning of New Era** *(1st Edition)*" in going to be launched in this November 2026, insha ALLAH.

REQUEST

I would like to **request all of my Senior, Counterpart and Junior colleagues** of **Computer Science** department **generally** and **following Professors specially** to come up with your great ideas then advise me, suggest me and correct me for the betterment of this book. Bi-Lingual (Urdu/Sindhi) video tutorial in Part-1, **practical#05 at page number 18**.

Similarly, Tri-Lingual(English/Urdu/Sindhi) executing program in Part-4, practical#01 "**Mind Reading Game**" at **page number 78** are present for your ready references.

Together we can achieve BIG GOALS. We can make it multi-language video tutorial book. So, please come forward with your ideas. **Do criticize as well for betterment**. I appreciate **positive** criticism.

Prof.(Rtd.) Shafqat	**Prof. Shahzada Waseem**
Prof. Munir Ahmed Shaikh	**Prof. Asif Munir**
Prof. Khawar Hussain	**Prof. Asif Ali Sanghi**
Prof. Nadir Ali Kalwar	**Prof. Rasool Bux Channa**
Prof. Imran Baig	**Prof. Jamshed Hashmi**
Prof. Syed Kashif	**Prof. Sameen Ather**
Prof. Farhan Mubin	**Prof. Rahim Faisal**
Prof. Faraz Ahmed Qureshi	**And generally, Rest of ALL Professors /Lecturers of *Govt. & Private colleges*.**

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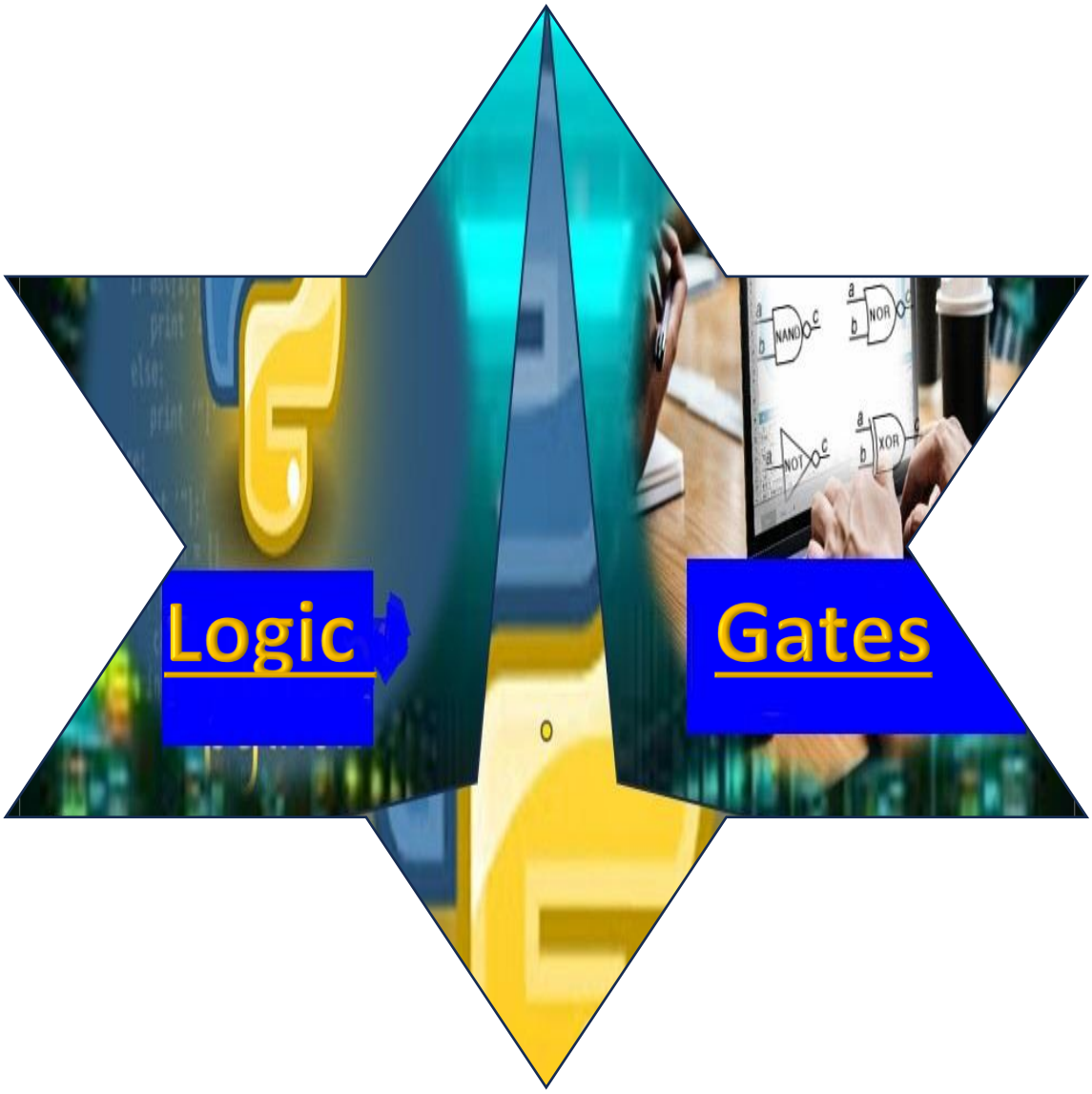
EXPECTED MARKS DISTRIBUTION:

Although no clear policy for the newly introduced curriculum practical marks distribution has been given yet but following could be expected from my point of view.

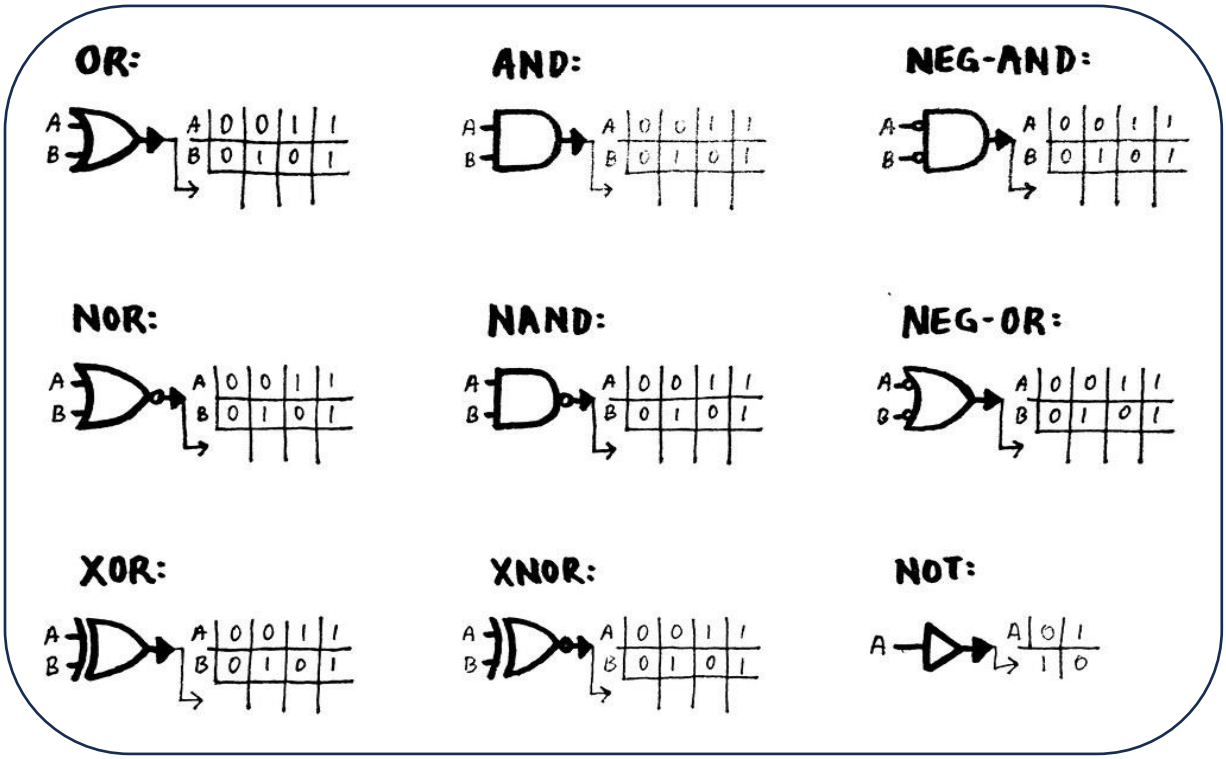
Title/Caption		Marks
File/Journal		05 marks
Viva/Questions		05 marks
Logic Gates (04 marks)	Truth Table (in Excel)	02 marks
	Simulation (in Logisim)	02 marks
Python Programming (07 marks)	Algorithm	02 marks
	Programming	03 marks
	Output	02 marks
Database (04 marks)	Procedure	02 marks
	Output	02 marks
Total		25 marks

Part-1 Logic Gates

Logic gates is topic from Unit01 “Computer Systems” of STBB text book published in September 2026.



Logic Gates



Practical No.1: OR,AND,NOT Gates

Object:

Complete the following Truth Table of OR, AND, NOT gates. Use **IF(),OR(),AND(),NOT()** logical functions or any suitable function, also write its procedure.

Input	Input	OR	AND	NOT
A	**B**	**X=A+B**	**Y=A.B**	**Z=Ā**
0	0	0	0	1
0	1			
1	0			
1	1			

Procedure:

Switching on Computer and Open MS-Excel

Switch on your computer.Use your mouse double **click the MS-Excel icon** to open MS-Excel, click again at "**Blank workbook"** to open new spread sheet having workbook name **"Book1"** and spread sheet name **"Sheet1"**.

Goto or click into the cell **"A3"** then start typing the complete data/ information already given in the object as shown above.

Evaluating Output of the OR gate (X=A+B)

OR gate outputs **"1"**, if there is **1** in anyone or more input, otherwise it gives "**0**" output.

Generally OR = A+B or X=A+B

C6 = OR(A6,B6)

Converting result from "FALSE/TRUE" into required output form of "0/1"

C6 = IF(OR(A6,B6) = TRUE,1,0)

Extend formula to rest of the cells by dragging C6 cell to rest of the remain C7,C8,C9. Or by typing above formula in C7,C8,C9 with (A7,B7),(A8,B8),(A9,B9) respectively.

Evaluating Output of the AND gate (Y=A.B)

AND gate outputs **"1"**, if there are **1s in all of the inputs**, otherwise it gives "**0**" output.

Generally AND = A.B or Y=A.B

D6 = AND(A6,B6)

Converting result from **"FALSE/TRUE"** into required output form of **"0/1"**

D6 = IF(AND(A6,B6) = TRUE,1,0)

Extend formula to rest of the cells by dragging D6 cell to rest of the remain D7,D8,D9. Or by typing above formula in D7,D8,D9 with (A7,B7),(A8,B8),(A9,B9) respectively.

Evaluating Output of the NOT gate ($Z=\overline{A}$)

NOT gate outputs "**1**", if there is 0 in input, otherwise it gives "**0**" output.

(It's unary input gate)

Generally NOT = $\overline{A}$ or Z=$\overline{A}$

E6 = NOT(A6)

Converting result from **"FALSE/TRUE"** into required output form of **"0/1"**

E6 = IF(NOT(A6) = TRUE,1,0)

Extend formula to rest of the cells by dragging E6 cell to rest of the remain E7,E8,E9. Or by typing above formula in E7,E8,E9 with (A7,B7),(A8,B8),(A9,B9) respectively.

Saving the Document

Pressing **"Ctrl" with "S"** to save.

Printing the Document

Press **"Ctrl" with "P"** to print.

Output:

Input	Input	OR	AND	NOT
A	B	X=A+B	Y=A.B	Z=$\bar{A}$
0	0	0	0	1
0	1	1	0	1
1	0	1	0	0
1	1	1	1	0



Practical No.2: OR, NOR and XOR Gates

Object:

Complete the following Truth Table of OR, NOR, XOR Gates, use **IF(),OR(),NOT()** & **XOR()** logical functions or any suitable function, also write its procedure.

Input	Input	OR	NOR	XOR
A	**B**	**X=A+B**	**$Y=\overline{A+B}$**	**$Z=A \oplus B$**
0	0	0	0	1
0	1			
1	0			
1	1			

Procedure:

Switching on Computer and Open MS-Excel

Switch on your computer.Use your mouse double **click the MS-Excel icon** to open MS-Excel, click again at "**Blank workbook"** to open new spread sheet having workbook name **"Book1"** and spread sheet name **"Sheet1"**.

Start typing the text from the left top position, in my case first column, third row "A3"(alphabet 'A' represents column, digit '3' represents row). Now type-in the data information already given in the object as shown above in the object from A3 cell address.

Evaluating Output of the OR gate (X=A+B)

OR gate outputs "1", if there is 1 in anyone or more input(s), otherwise it gives "0" output.

Generally OR = A+B or X=A+B

C6 = OR(A6,B6)

Converting result from **"FALSE/TRUE"** into required output form of **"0/1"**

C6 = IF(OR(A6,B6)=TRUE,1,0)

Extend formula to rest of the cells by dragging C6 cell to rest of the remain C7,C8,C9. Or by typing above formula in C7,C8,C9 with (A7,B7),(A8,B8),(A9,B9) respectively.

Evaluating Output of the NOR gate ($Y=\overline{X}$)

NOR gate outputs 1 if there are 0 in all inputs, it is the inverse of OR gate

Generally NOR =$\overline{A+B}$ or Y=$\overline{A+B}$ or Y=$\overline{X}$

D6 = NOT(C6)

Converting result from "FALSE/TRUE" into required output form of "0/1"

D6 =IF(NOT(C6)=TRUE,1,0)

Extend formula to rest of the cells by dragging D6 cell to rest of the remain D7,D8,D9. Or by typing above formula in D7,D8,D9 with (C7,C8,C9) respectively.

Evaluating Output of the XOR gate ($Z=A\oplus B$)

XOR gate outputs 1 if there are ODD number of 1s in the input, otherwise it gives "0" output.

Generally XOR = A⊕B or Z=A⊕B

E6 = XOR(A6,B6)

Converting result from “FALSE/TRUE” into required output form of “0/1”

E6 =IF(XOR(A6,B6)=TRUE,1,0)

Extend formula to rest of the cells by dragging E6 cell to rest of the remain E7,E8,E9. Or by typing above formula in E7,E8,E9 with (A7,B7),(A8,B8),(A9,B9) respectively.

Saving the Document

Save the file by pressing “Ctrl” with “S”

Printing the Document

If you want to print the document press “Ctrl” with “P”

Output:

Input	Input	OR	NOR	XOR
A	B	X=A+B	$Y=\overline{A+B}$	$Z=A \oplus B$
0	0	0	1	0
0	1	1	0	1
1	0	1	0	1
1	1	1	0	0



Practical No.3: AND, NAND and XNOR Gates

Object:

Complete the following Truth Table of AND, NAND, XNOR GATES, use **IF(),AND(),NOT()** & **XOR()** logical gates/functions or any suitable function and write its procedure.

Input	Input	AND	NAND	XNOR
A	**B**	**X=A.B**	**Y=** $\overline{A.B}$	**Z=** $\overline{A \oplus B}$
0	0	0	1	0
0	1			
1	0			
1	1			

Procedure:

Switching on Computer and Open MS-Excel

Switch on your computer.Use your mouse double **click the MS-Excel icon** to open MS-Excel, click again at "**Blank workbook"** to open new spread sheet having workbook name **"Book1"** and spread sheet name **"Sheet1"**.

Start typing the text from the left top position, in my case first column, third row "A3"(alphabet 'A' represents column, digit '3' represents row). Now type-in the data information already given in the object as shown above in the object from A3 cell address.

Evaluating Output of the AND gate (X=AB)

AND gate outputs "1", if there are 1s in all of the inputs, otherwise it gives "0" output.

Generally AND = A.B or X=A.B

C6 = AND(A6,B6)

Converting result from "FALSE/TRUE" into required output form of "0/1"

C6 = IF(AND(A6,B6) = TRUE,1,0)

Extend formula to rest of the cells by dragging D6 cell to rest of the remain C7,C8,C9. Or by typing above formula in C7,C8,C9 with (A7,B7),(A8,B8),(A9,B9) respectively.

Evaluating Output of the NAND gate ($Y=\overline{X}$)

NAND gate outputs 1 always except there are 1s in all inputs, it is the inverse of AND gate

Generally NAND =$\overline{A.B}$ or Y=$\overline{AB}$ or Y=$\overline{X}$

D6 = NOT(C6)

Converting result from "FALSE/TRUE" into required output form of "0/1"

D6 =IF(NOT(C6)=TRUE,1,0)

Extend formula to rest of the cells by dragging D6 cell to rest of the remain D7,D8,D9. Or by typing above formula in D7,D8,D9 with (C7,C8,C9) respectively.

Evaluating Output of the XNOR gate ($Z=\overline{A \oplus B}$)

XNOR gate outputs 1 if there are all zeros in input or EVEN number of 1s in the input, otherwise it gives "0" output.

Generally XNOR =$\overline{A \oplus B}$ or Z=$\overline{A \oplus B}$

E6 =NOT(XOR(A6,B6))

Converting result from "FALSE/TRUE" into required output form of "0/1"

E6 =IF(NOT(XOR(A6,B6))=TRUE,1,0)

Extend formula to rest of the cells by dragging E6 cell to rest of the remain E7,E8,E9. Or by typing above formula in E7,E8,E9 with (A7,B7),(A8,B8),(A9,B9) respectively.

Saving the Document

Save the file by pressing “Ctrl” with “S”

Printing the Document

If you want to print the document press “Ctrl” with “P”

Output:

Input	Input	AND	NAND	XNOR
A	B	X=A.B	$Y = \overline{A.B}$	Z=$\overline{\mathbf{A} \oplus \mathbf{B}}$
0	0	0	1	0
0	1	0	1	1
1	0	0	1	1
1	1	1	0	0

Scan it for Practical video.
پریکٹیکل کی ویڈیو کے لئے اسکین کریں

P3_AND_NAND_XNOR

Practical No.4: OR / AND gates with 3 input

Object:

Complete the following Truth Table of OR, AND, with 3 inputs, use **IF(),AND(),NOT()** & **XOR()** logical gates/functions or any suitable function and write its procedure.

Input	Input	Input	OR	NOR	AND	NAND
A	**B**	**C**	**W=A+B+C**	$X = \overline{A + B + C}$	**Y=A.B.C**	$Z = \overline{A.B.C}$
0	0	0	0	1	0	1
0	0	1				
0	1	0				
0	1	1				
1	0	0				
1	0	1				
1	1	0				
1	1	1				

Procedure:

Switching on Computer and Open MS-Excel

Switch on your computer.Use your mouse double **click the MS-Excel icon** to open MS-Excel, click again at "**Blank workbook"** to open new spread sheet having workbook name **"Book1"** and spread sheet name **"Sheet1"**.

Goto or click into the cell **"A3"** then start typing the complete data/ information already given in the object as shown above.

Evaluating Output of the OR gate (W=A+B+C)

OR gate outputs "1", if there is 1 in anyone or more input(s), otherwise it gives "0" output.

Generally OR = A+B+C or W=A+B+C

D6 = OR(A6,B6,C6)

Converting result from "FALSE/TRUE" into required output form of "0/1"

D6 = IF(OR(A6,B6,C6) = TRUE,1,0)

Extend formula to rest of the cells by dragging C6 cell to rest of the remain C7,C8,C9. Or by typing above formula in D7,D8,D9…and so on till D13 with (A7,B7,C7), (A8,B8,C8), (A9,B9,C9) respectively.

Evaluating Output of the NOR gate $X=\overline{A+B+C}$

NOR gate Outputs 1, if there are all 0s, in inputs.

Generally $OR=\overline{A+B+C}$ **or** $X=\overline{A+B+C}$

D6 = OR(A6,B6,C6)

Converting result from "FALSE/TRUE" into required output form of "0/1"

D6 = IF(OR(A6,B6,C6) = TRUE,1,0)

Extend formula to rest of the cells by dragging C6 cell to rest of the remain C7,C8,C9. Or by typing above formula in D7,D8,D9…and so on till D13 with (A7,B7,C7), (A8,B8,C8), (A9,B9,C9) respectively.

Evaluating Output of the NOR gate (Y=A.B)

AND gate outputs “1”, if there are 1s in all of the inputs, otherwise it gives “0” output.

Generally AND = A.B.C or Y=A.B.C

E6 = AND(A6,B6,C6)

Converting result from “FALSE/TRUE” into required output form of “0/1”

E6 = IF(AND(A6,B6,C6) = TRUE,1,0)

Extend formula to rest of the cells by dragging D6 cell to rest of the remain D7,D8,D9. Or by typing above formula in E7,E8,E9…and so on till E13 with (A7,B7,C7), (A8,B8,C8), (A9,B9,C9) respectively.

Saving the Document

Pressing **“Ctrl” with “S”** to save.

Printing the Document

Press **“Ctrl” with “P”** to print.

Output:

Input	Input	Input	OR	NOR	AND	NAND
A	B	C	W=A+B+C	$X = \overline{A + B + C}$	Y=A.B.C	$Z = \overline{A.B.C}$
0	0	0	0	1	0	1
0	0	1	1	0	0	1
0	1	0	1	0	0	1
0	1	1	1	0	0	1
1	0	0	1	0	0	1
1	0	1	1	0	0	1
1	1	0	1	0	0	1
1	1	1	1	0	1	0



Practical No.5: OR / AND combination gates with 3 inputs

Object:

Complete the following Truth Table of OR, AND combination with 3 inputs, where Y=A.B+C use **IF(), AND(), OR(), NOT()** logical gates/functions or any suitable function and write its procedure.

Input	Input	Input	A.B	Y=A.B+C
A	**B**	**C**		
0	0	0	0	0
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Procedure:

Switching on Computer and Open MS-Excel

Switch on your computer.Use your mouse double **click the MS-Excel icon** to open MS-Excel, click again at "**Blank workbook"** to open new spread sheet having workbook name **"Book1"** and spread sheet name **"Sheet1"**.

Goto or click into the cell **"A3"** then start typing the complete data/ information already given in the object as shown above.

Evaluating Output of the NAND gate for Inputs (A.B)

AND gate outputs “1”, if there are 1s in all of the inputs, otherwise it gives “0” output.

Generally AND = A.B or Let X=A.B

D6 = AND(A6,B6)

Right now, no need to convert result into required Output form of 0/1

Extend formula to rest of the cells by dragging D6 cell to rest of the remain D7,D8,D9 and so on till D13 Or by typing above formula in D7,D8,D9 and so on till D13 with (A7,B7), (A8,B8) and (A13,B13) respectively.

Evaluating Consolidated Output of the AND OR gates (Y=AB+C)

OR gate outputs “1”, if there is 1 in anyone or more input(s), otherwise it gives “0” output.

So, from above we have D6=A6.B6 or X=A6.B6

D6 = AND(A6,B6)

Converting result from “FALSE/TRUE” into required output form of “0/1”

Now E6=A6.B6+C6

Because D6=A6.B6

Therefore E6=D6+C6

Finally E6= IF(OR(D6,C6) = TRUE,1,0)

Extend formula to rest of the cells by dragging E6 cell to rest of the remain E7,E8,E9 and so on till E13 Or by typing above formula in same cell addresses with (D7,C7) and so on till (D13,C13) respectively.

Saving the Document

Pressing **"Ctrl" with "S"** to save.

Printing the Document

Press **"Ctrl" with "P"** to print.

Output:

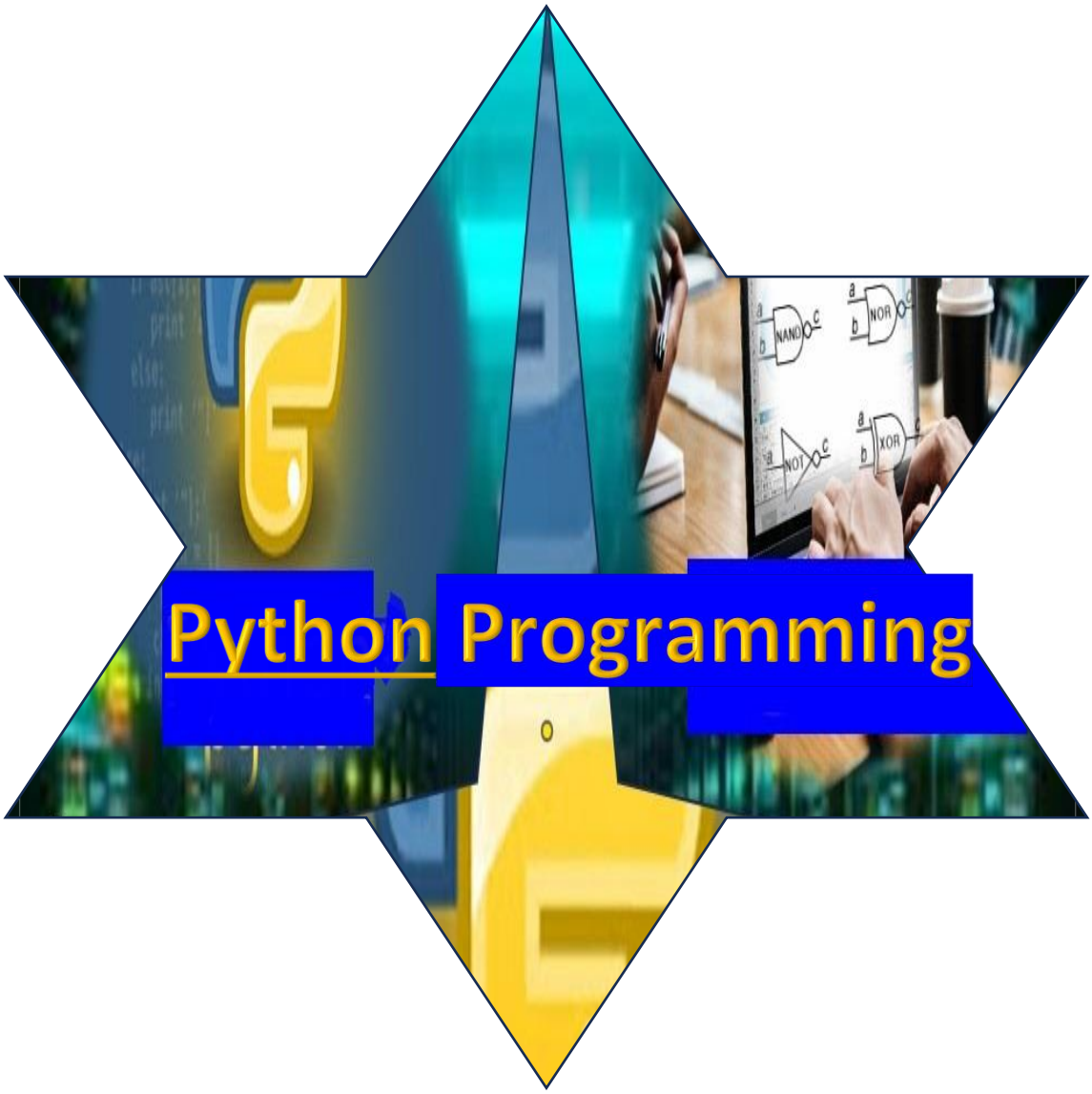
Input	Input	Input	NOR	NAND
A	**B**	**C**	**X=A+B+C**	**X=A.B.C**
0	0	0	1	1
0	0	1	0	1
0	1	0	0	1
0	1	1	0	1
1	0	0	0	1
1	0	1	0	1
1	1	0	0	1
1	1	1	0	0





Part-2 Python Programming

Python Programming along with algorithms are the topics from Unit02 & Unit03 “Conceptual Thinking” & “Programming Fundamentals” of STBB text book published in September 2026



Practical#01 Object: (Leap Year)

Write a program in Python language which takes input of a year from user and shows whether the inputted year is leap year or not.

Algorithm:

Step1: Start
Step2: Input **year**
Step3: If **year** MOD 4=0 then
Print "Given year ",**year**," is LEAP year"
Else
Print "Given year", **year**," ISN'T leap year"
Step4: End

Python Program:

```
# This is Python program of LEAP YEAR Practical.
year=int(input("Enter any year to check whether it's LEAP year or NOT? "))
if year%4==0:
  print(f"\n\t Given Year {year} is LEAP YEAR")
else:
  print(f"Given Year {year} is NOT a Leap year!")

# print(f"Given Year ",year," is NOT a Leap year!")
```

Output of program:

```
Enter any year to check whether it's LEAP year or NOT? 2026

Given year 2026 ISN'T leap year
```

Program video:

Scan the QR-Code for the video of the practical.

Practical#02 Object: (Area & Volume Computing)

Write a Python program which takes input of base, height and radius to calculate the area of triangle[***area of a triangle=(1/2)Base x Height***] and volume of sphere[***volume of sphere=(4/3 x pi x radius x radius x radius)***] respectively, by uses arithmetic operators.

Algorithm:

Step1:Start
Step2:DECLARE constant PI AS 3.14
Step3:Print "Enter Base of a triangle? "
Step4:Input **base**
Step5:Print "Enter Height of a triangle? "
Step6:Input **height**
Step7:SET **areaOfTriangle**= (1.0/2.0)***base*height**
Step8:Print "Enter radius of an sphere? "
Step9: Input **radius**
Step10: SET **volumeOfSphere**= (4.0/3) * PI * $radius^3$
Step11: Print " Area of Triangle[base=]", **base**, "height= ", **height**, "] is ",
areaofTriangle
Step12:Print " Volume of Sphere[radius= ", **radius** ,"] is ", **volumeOfSphere**
Step13: End

Python Program:

```
#This is Python program for calculating Area/Volume.local variables declaration.
PI=3.142
base = int(input("Enter base of Triangle? "))
height= int(input("Enter height of Triangle?"))
radius = float(input(f"\nEnter radius of sphere?"))
areaOfTriangle=1/2*base*height
volumeOfSphere=4/3*PI*radius*radius*radius
print(f"\nArea of Triangle={areaOfTriangle} Base={base} Height= {height}")
print(f"\nVolume of sphere={volumeOfSphere:.2f}\n\t\t where Radius={radius}")
```

Output of program:

```
Enter Base of a triangle? 2
```

Enter Height of a triangle? 2

Enter radius of an sphere? 2.0

Area of Triangle[base=2 height=2] is 2.00

Volume of Sphere[radius=2] is 33.49

Program video:

Scan the QR-Code for the video of the practical.



Practical#03 Object: (Print name multiple times)

Write a Python program which takes input of a name from user and display it multiple times(i.e. 10 times).

Algorithm:

Step1: Start
Step4: Input **name**
Step5: FOR **numOfTimes**=1 to 10 Step=1
Step6: Print "Your Name", **name** , " is printed", **numOfTimes**, " times
Step8: End

Python Program:

```
# This is Python program of printing name multiple times.
name=input("\n\t Enter Name to Print? ")
for count in range(10):
  print(f"\n\t Name:{name} is Printed{count+1} time(s)")
# print(f"\n\t Name:",name,"is Printed",count+1,"time(s)") ,this can also be written.
```

Output of program:

```
Enter your name ? MOHSIN
Your Name MOHSIN is printed 1 time(s)
Your Name MOHSIN is printed 2 time(s)
Your Name MOHSIN is printed 3 time(s)
Your Name MOHSIN is printed 4 time(s)
Your Name MOHSIN is printed 5 time(s)
Your Name MOHSIN is printed 6 time(s)
Your Name MOHSIN is printed 7 time(s)
Your Name MOHSIN is printed 8 time(s)
Your Name MOHSIN is printed 9 time(s)
Your Name MOHSIN is printed 10 time(s)
```

Program video:

Scan the QR-Code for the video of the practical.



Practical#04 Object: (Table of an inputted number)

Write a Python program which generates a table of a given number, by inputting the number from user.

Algorithm:

Step1: Start
Step4: Input **number**
Step5: FOR **multiple**=1 TO 12 STEP 1
Step6: Print **number**,"*",**multiple**,"=",(**number*multiple**)
Step7: NEXT **multiple**
Step8: End

Python Program:

```
# This is Python program of printing table of an inputted number.

number=int(input("\n\t Enter Number to Display it's table? "))

for multiple in range(12):

  print(f"{number} X {(multiple+1)} =  {(multiple+1)*number}")

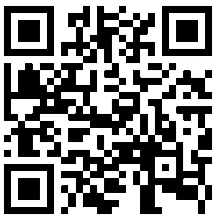
# print(f"",number," X",(multiple+1),"=",(multiple+1)*number) this can also be written.
```

Output of program:

```
Enter any number to generate it's table? 5
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
5 * 11 = 55
5 * 12 = 60
```

Program video:

Scan the QR-Code for the video of the practical.



Practical#05 Object: (Greatest/Smallest inputted number)

Write a Python program that finds out the greatest or smallest number among three inputted number.

Algorithm:

Step1: Start
Step2: Input **num1**
Step3: Input **num2**
Step4: Input **num3**
Step5: If **num1**> **num2** then GOTO Step6 Else Step10
Step6:If **num1**> **num3** then Step7 Else Step8
Step7:Print "number1=",**num1**," is GREATEST among all three inputted Numbers"
Step8:Print "number3=",**num3**," is GREATEST among all three inputted Numbers"
Step9: EndIf rem *** eof step7 if-structure ***
Step10:If **num2>num3** then GOTO Step11 Else Step12
Step11:Print "number2=",**num2**," is GREATEST among all three inputted Numbers"
Step12:Print "number3=",**num3**," is GREATEST among all three inputted Numbers"
Step12:EndIf rem *** eof step10 if-structure ***
Step13:EndIf rem *** eof step5 if-structure ***
Step14:End

Python Program:

```
# This is Python program for finding greatest in inputted 3 numbers.

number1=int(input("Enter number1?"))
number2=int(input("Enter number2?"))
number3=int(input("Enter number3?"))
if number1>number2:
 if number1>number3:
   print(f"\n\nNumber1=[{number1}] is greater than Number2=[{number2}] &
Number3=[{number3}]")
 else:
    print(f"\n\nNumber3=[{number3}] is greater than Number1=[{number1}] &
Number2=[{number2}]")
elif number2>number3:
  print(f"\n\nNumber2=[{number2}] is greater than Number1=[{number1}] &
Number3=[{number3}]")

else:
```

```
  print(f"\n\nNumber3=[{number3}] is greater than Number1=[{number1}] &
Number2=[{number2}]")
```

Output of program:

```
Enter number1?22

Enter number2?1

Enter number3?33


number3[33] is greater than number1[22] & number2[1]
```

Program video:

Scan the QR-Code for the video of the practical.

Practical#06 Object: (Factorial of an inputted number)

Write a Python program that computes the factorial of an inputted number.

Algorithm:

Step1:Start
Step2:Input num
Step3:SET factorial=1
Step4:IF num=1 or num=0 then Print “Factorial of”, num, “ = " factorial goto End.
Step5:FOR multiple=num down to 1 STEP=-1
Step6:SET factorial=factorial*multiple
Step7:NEXT multiple
Step8:Print “Factorial of”, num, “ = " ,factorial
Step9:End

Python Program:

```
# This is Python program for showing factorial of an inputted number .
num = int(input("\n\t Enter any number to display it's factorial? "))
factorial = num*1
if num == 0 or num == 1:
 print("Factorial of", num, "is", 1)
elif num<0:
  print("There is No Factorial of negative numbers!")
else:
 for multiple in range(num-1,1,-1):
  factorial=factorial*multiple
 print(f"\n\tFactorial of [{num}] is [{factorial}]")
```

Output of program:

```
Enter any number to display it's factorial? 5

Factorial of [5] is [120]
```

Program video:

Scan the QR-Code for the video of the practical.

Practical#07 Object: (Chess Board without match case)

Write a Python program which generates a chess board.

Algorithm:

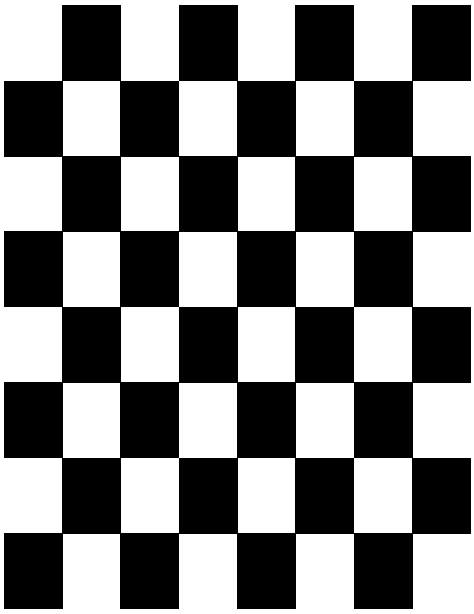
Step1: Start
Step3: FOR row=1 TO 8 STEP=+1
Step4: Print LINE
Step5: FOR col=1 TO 8 STEP=+1
Step6: SET result=(row+col) MOD 2
Step7: If result= 0 then Print “ “ Else Print ” ”
Step8: End If
Step9: NEXT col
Step10:NEXT row
Step11:Input character
Step12: End

Python Program:

```
# This is Python program for drawing CHESS board/Shatranj.

for col in range(8):
 print("")
 for row in range(8):
  if (row+col)%2==0:
   print("  ",end="")
  else:
   print("",end="")
```

Output of program:



Program video:

Scan the QR-Code for the video of the practical.

Practical#08 Object: (Pattern printing)

Write a Python program using nested loop to print the following output.

```
*
* *
* * *
* * * *
* * * * *
```

Algorithm:

Step1:Start
Step3: FOR row=0 TO 4 STEP=+1
Step4: Print LINE
Step5: FOR col=0 TO row STEP=+1
Step6: Print " * "
Step7: NEXT col
Step8: NEXT row
Step10: End

Python Program:

```
for row in range(5):
 print("")
 for col in range(row+1):
  print("*",end="")
"""
input("\n\t\tPress Enter button to see next pattern")

for row in range(5):
 print("")
 for col in range(5):
  if row <= col:
   print("*",end="")

input("\n\t\tPress Enter button to see next pattern")
for row in range(5):
```

```
 print("")
 for col in range(5):
  if row >= col:
   print(row+1,end="")

input("\n\t\tPress Enter button to see next pattern")
for row in range(5):
 print("")
 for col in range(5):
  if row <= col:
   print(row+1,end="")

input("\n\t\tPress Enter button to see next pattern")
for row in range(5):
 print("")
 for col in range(5):
  if row <= col:
   print(col+1,end="")

input("\n\t\tPress Enter button to see next pattern")
for row in range(5):
 print("")
 for col in range(5):
  if row <= col:
   print(col+1,end="")
"""
```

Output of program:

```
    *
    * *
    * * *
    * * * *
    * * * * *
```

Program video:

Scan the QR-Code for the video of the practical.



Practical#09 Object: (ASCII codes)

Write a program in Python language that generate characters corresponding to ASCII codes from 32 to 127 (using any loop).

Algorithm:

Step1: Start
Step3: FOR **asciiCode**=32 to 127 Step=1
Step4: Print “Code: “,**asciiCode**,” [”, char(**asciiCode)** ,”]”
Step5: End

Python Program:

```
# This is Python program of printing Ascii characters from 32-127.
for asciiCode in range(32,128):
 print(f"Code:",asciiCode," [",chr(asciiCode),"]")
```

Output of program:)

```
Code: 32  [  ]
Code: 33  [ ! ]
Code: 34  [ " ]
....
Code: 111  [ o ]
Code: 112  [ p ]
Code: 113  [ q ]
Code: 114  [ r ]
Code: 115  [ s ]
Code: 116  [ t ]
Code: 117  [ u ]
Code: 118  [ v ]
Code: 119  [ w ]
Code: 120  [ x ]
Code: 121  [ y ]
Code: 122  [ z ]
Code: 123  [ { ]
Code: 124  [ | ]
Code: 125  [ } ]
Code: 126  [ ~ ]
Code: 127  [ □ ]
```

Program video:

Scan the QR-Code for the video of the practical.

Practical#10 Object: (Prime number checking)

Write a Python program which takes input of a whole number(integer) from user and then check whether the inputted number is Prime number or Not.

Algorithm:

Step1: Start
Step4: Input number
Step5: flag=1
Step6: FOR divisor=number/2 to 2 STEP= -1
Step7: If (number MOD divisor)= 0 then
Step8: SET flag=0
Step9: Print divisor," absolutely divide", number
Step10: GOTO Step 13
Step11: End If
Step12: NEXT divisor
Step13: If flag=1 then Print " Given Number ",number , " is PRIME Number " Else Print ",Hence given Number", number , " is NOT a prime number"
Step14: EndIf
Step15: End

Python Program:

```
# This is Python program for checking the inputted number whether it's prime
# number or not.
number=int(input("\nEnter Number to check whether it's PRIME or NOT?"))
flag=True
for divisor in range(int(number/2),2,-1):
 if number%divisor==0:
    flag=False
if flag==True:
   print(f"\n\tGiven number {number} is PRIME number -_/-")
else:
   print(f"\n\tGiven number {number} is NOT a Prime number -X-")
```

Output of program:

Enter Number to check whether its PRIME OR NOT? 7
Given Number 7 is PRIME number

Program video:

Scan the QR-Code for the video of the practical.

Practical#11 Object: (Marks sheet)

Write a Python program that read marks of 5 subjects, calculate the total marks, percentage & state whether candidate is Pass or Fail.

Algorithm:

Step1: Start
Step2: Set total=0, percentage=1.0
Step3: Input name
Step4: Input rollno
Step5: FOR counter=0 to 4
Step6: Input marks[counter]
Step7: SET total= total + marks[counter]
Step8: NEXT counter
Step9: SET percentage = total * 100.0/500
Step10: Print name
Step11: Print rollno
Step12: FOR counter=0 to 4
Step13:Print " Subject[", (counter+1), "= " ,marks[counter]
Step14: NEXT counter
Step15: Print " Total= ",total, "out of 500"
Step16:Print " Percentage= ",percentage
Step17: If percentage<33 then Print "FAIL" Else Print "PASS"
Step18:Input character
Step19:End

Python Program:

```
# This is Python program of student's Marks sheet.
Arrayofsubjects = []

# Number of subjects
num_subjects = 5
name=input("\nEnter student name? ")
rollno=input("\nEnter student roll no?")

# Take input for each subject
for counter in range(num_subjects):
    mark = float(input(f"Enter marks for subject {counter+1}: "))
    Arrayofsubjects.append(mark)
```

```
# Display the marks sheet of student
print("\nName of student:",name)
print("Roll no of student:",rollno)
for counter in range(num_subjects):
    print(f"Subject {counter+1}: {Arrayofsubjects[counter]}")

# Calculate total and average
total = sum(Arrayofsubjects)
percentage = total / num_subjects


print(f"\nTotal Marks: {total}")
print(f"Percentage: {percentage:.2f}%")
if percentage<33:
    print("FAIL")
else:
    print("PASS")
```

Output of program:

```
Name of student:Aziz Ahmed Shaikh
Roll no of student:15559
Enter Subject [1] marks? 70
Enter Subject [2] marks? 60
Enter Subject [3] marks? 80
Enter Subject [4] marks? 90
Enter Subject [5] marks? 100

Subject[1] marks= 70
Subject[2] marks= 60
Subject[3] marks= 80
Subject[4] marks= 90
Subject[5] marks= 100

Total= 400 out of 500
Percentage= 80.00
        PASS
```

Program video:

Scan the QR-Code for the video of the practical.

Practical#12 Object: (Vowel with Match case)

Write a Python program which takes input of an English alphabet and then determines whether it's a vowel or not:

Algorithm:

Step1: Start
Step2: Input alphabet
Step3: If alphabet= 'a' or 'A' then Print "Inputted character a or A is vowel"
Else if alphabet= 'e' or 'E' then Print "Inputted character e or E is vowel"
Else if alphabet= 'i' or 'I' then Print "Inputted character i or I is vowel"
Else if alphabet= 'o' or 'O' then Print "Inputted character o or O is vowel"
Else if alphabet= 'u' or 'U' then Print "Inputted character u or U is vowel"
Else Print "Inputted character is NOT A vowel"
End if
Step4: End

Python Program:

```
alphabet=input("Enter an English alphabet to identify it's vowel or not?")
match alphabet:
 case 'a'|'A':
   print(f"inputted character {alphabet} is vowel")
 case 'e'|'E':
       print(f"inputted character {alphabet} is vowel")
 case 'i'|'I':
       print(f"inputted character {alphabet} is vowel")
 case 'o'|'O':
       print(f"inputted character {alphabet} is vowel")
 case 'u'|'U':
       print(f"inputted character {alphabet} is vowel")
 case _:
       print(f"inputted character {alphabet} is NOT A vowel")
```

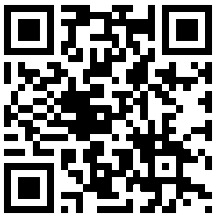
Output of program:

Enter an English alphabet to identify it's vowel or not? U

inputted character U is vowel

Program video:

Scan the QR-Code for the video of the practical.



Practical#13 Object: (Escape Sequence with datatypes)

Write a Python program which takes input of Name, Age, Height, Gender in different data types and display it using escape sequences.

Algorithm:

Step1: Start
Step2: Input **name, age, height, gender**
Step3: Print **name, age, height, gender**
Step6: End

Python Program:

```
name=input("Enter your complete name? ")   #string data type
age=int(input("Enter your age? "))                          #integer data type
height=float(input("Enter your height (5.8 for 5foot 8inch)? "))  #float data type

gender=bool(input("Enter your gender (Male/Female)?\n\t NOTE: Press SPACE
button then ENTER button for Female "))   #boolean data type

print(f"\n\n\t Your name is {name}\n*******\r\t You are {age} year old \n\tYou are
{height} feet high \n You are:",end="")

if gender==True:
 print("Male" )
else:
 print("Female")
```

Output of program:

```
Enter your complete name? Shaikh Saleem Ahmed
Enter your age? 43
Enter your height (5.8 for 5foot 8inch)? 6.1
Enter your gender (Male/Female)?
        NOTE: Press SPACE button then ENTER button for Female Male

        Your name is Shaikh Saleem Ahmed
        You are 43 year old
       You are 6.1 feet high
 You are:Male
```

Program video:

Scan the QR-Code for the video of the practical.

Practical#14 Object: (Fibonacci Series)

Write a Python program to generate a Fibonacci series upto the inputted terms given by the user.

Algorithm:

Step1: Start
Step2: Input the number of terms **numberOfTerms** from the user.
Step3: Initialize two variables:

- **firstNumber** = 0
- **secondNumber** = 1

Step4: Display "Fibonacci Series:".
Step5: Repeat the following steps **numberOfTerms** times:

- Display the value of **firstNumber**.
- Store the current value of **secondNumber** in **firstNumber**.
- Store the sum of the previous values of **firstNumber** and **secondNumber** in **secondNumber**.

Step6: Input character
Step7: End.

Python Program:

```
# Program to print Fibonacci Series

numberOfTerms = int(input("Enter the number of terms ?  "))
firstNumber = 0
secondNumber = 1
print("Fibonacci Series:")
for i in range(numberOfTerms):
   print(firstNumber, end=" ")
   temp = firstNumber
   firstNumber = secondNumber
   secondNumber = temp+firstNumber


'''

Tuple Assignment Statement to avoid using temp variable

 firstNumber , secondNumber = secondNumber, firstNumber + secondNumber

'''
```

Output of Program

Enter the number of terms: 25
Fibonacci Series:
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711 28657 46368

Program video:

Scan the QR-Code for the video of the practical.

Practical#15 Object: (Digital Watch/Nested loops)

Write a Python program which displays digital watch like timings using nested loops.

Algorithm:

Step1: Start
Step2: Import the time, os module.
Step3: Initialize **hours** = 0, **minutes** = 0, and **sec** = 0.
Step4: Display a blank line.
Step5: Repeat for **hours** from 0 to 11:

- Repeat for **minutes** from 0 to 59:
  - Set **sec** = 0.
  - While **sec** < 60:
    - Display **hours**, **minutes**, and **sec** in HH:MM:SS format.
    - Increment **sec** by 1.
    - Pause execution for a very short time (1/10000 seconds).

Step 6: After all loops finish, display "End of loops".
Step 7: End.

Python Program:

```
# This is Python program for Watch making

hours=minutes=sec=0
print("\n")

for hours in range(2):

 for minutes in range(11):
  sec=0

  while sec<10:
   print(f"\r{hours:02}",end="")
   print(f":{minutes:02}",end="")
   print(f":{sec:02}",end="")
   sec+=1
   time.sleep(1/10000)
print("\n\t End of loops")

'''
import time
```

```
import os
hours=minutes=sec=0
print("\n")
for hours in range(2):
 for minutes in range(11):
  sec=0
  while sec<60:
   os.system('cls')
   print("\r\t\t\t\t_____________")
   print(f"\r\t\t\t\t[{hours:02}",end="")
   print(f":{minutes:02}",end="")
   print(f":{sec:02}]")
   sec+=1
   print("\r\t\t\t\t`````````````")
   time.sleep(1/10000)
```

Output of program:

```
11:59:59
        End of loops
```

Program video:

Scan the QR-Code for the video of the practical.

Part-3 MS-Access Database

MS-Access Data is the topic from Unit04 “Data Analysis” of STBB text book published in September 2026



Practical#01 (Teacher Database MS-Access)

Object Write a procedure to create a table Teacher having the following fields

FacultyId, TeacherName, Designation, Department.

Queries

1. Assign primary key to a suitable column.
2.Input several records
3. Dispay all records having same Department
4. List all the records with designation Lecturer.

Procedure

Switching on Computer

1- Switch on your computer. Wait till the operation system **"Windows"** let you give access to interact with the computer.

Searching and Opening MS-Access

2-With the help of mouse click **"Start"** Icon, generally present at bottom left side of the computer screen.

3-Use Mouse click **"Search Bar"**, type **"Microsoft Office Access"** in it with the help of computer keyboard to search and open **MS-Access**.

Creating Database

4-Point Mouse Cursor to Blank Database, it will be highlighted then click it with mouse.

5- New panel at right hand side will be open, point your mouse cursor to the file name location, type new name **"TeacherDatabase"** there then click **"Create"** button.

Creating & Renaming Table

6-Another big new panel at right hand side will be open, point your mouse cursor to **"Table1: Table"** icon, it will be highlighted then right click it, with the mouse. A **"drop-down menu"** will be open, click second option **"Design View"** from it.
7- Now **"Save As"** panel will be open, give new name **"Teacher"** in the text box to Save **"Table1"** as **"Teacher"**, then press **"ok"** Button.

8-Type in the **"Field Name"** text value **"FacultyID"**.

9- Use mouse to point the cell below **"Data Type"**, select there **"Auto Number"** from the available **"combo box"** option list.
10- Use mouse to point the next cell present under **"Description"** heading, type the description whatever you want to write for your future reference or let it remain empty.

11- Repeat above steps till all the remaining **fields (TeacherName, Designation, Department) with "data types" and "description"** are properly typed into the corresponding cell of Database Design Window. Always use **"Text"** data type for fields like [Name, Address, Contact, Email etc.], **"AutoNumber"** for automatic assignment of numbers. **"Numeric"** for fields on which calculation are performed, **"Currency"** for fields like [wages, salary], **"Date"** for fields which are supposed to store dates, **"Hyperlink"** for fields holding [websites / urls etc.], **"OLE Object"** for picture, photographs, **"Yes/No"** for status showing field, **"Attachment"** for external files, **"Memo"** for descriptive fields.**"Lookup Wizard"** for foreign fields from other tables of the database.

12-

Requirement#1- Assigning Primary Key

to the suitable field i.e **"FacultyId"** which can be capable of identifying each record uniquely. If it is already assigned by computer then no need to re-assign it.

Teacher

Field Name	Data Type	Description
FacultyId	AutoNumber	identification Number
TeacherName	Text	Name of teacher
Designation	Text	Rank,Designation of computer
Department	Text	Department of computer

13-Save the Table once again to update changes.

14

Requirement#2- Entering Five(5) Records

14-Now double click **"Teacher"** table to open it. Enter valid data into it. Use mouse to toggle b/w the fields of each record. Continue adding the record until you complete entering desired records. After it, close & finish record entry.

Teacher

FacultyId	TeacherName	Designation	Department
1	Mohsin Ahmed Khan Ghori	Lecturer	Computer Science
2	Shahzada Waseem	Assistant Professor	Computer Science
3	Khawar	Assistant Professor	Computer Science
4	Jamshid Hashmi	Lecturer	Physics
5	Asad Munir	Assistant Professor	Physics

Queries Design

15-With the help of mouse click **"Create"**, then point and left click **"Query Design"**.

17- **"Show table"** panel will be open, select **" Table"** tab from **"Table/Query/Both"**. Point and double left click the desired tables from available list of tables, to add these tables then left click **"cross/close"** present on top-right hand side of the panel, to close it.

18- Select field name from the available list of "combo-box", which you want to display or manipulate. Table name of that particular field will automatically be added after your selection of field. Mention the criteria if you want. Uncheck the "CheckBox" if you don't want to display this field.

19- Do repeat above step number 19 for each and every field, you want more to display or manipulate until you complete all desired field entries

20- Now in the **"criteria"** cell of field **"Department"** enter the contents **"Computer Science"** to create the query of "all records having same department" and then Left click the **"Cross/Close"** button to close the Query Panel, left click **"Yes"** Button to save the Query1 with the new name **"TeacherQuery1"**, again left click **"Ok"** Button. You can save query with your desired name as well.

21- Repeat from above step number 17 to 21 for creating remaining queries, just remove the contents of criteria cell, as per your requirement i.e. remove the contents of field "Department" and enter the contents **"Lecturer"** in the criteria cell of **"Designation"** field, to "list all the records with designation (Lecturer)".

Obtaining Query Results

22-Double click any query to display its result, if there is a need of passing any value then just type-in the value you want to pass into the panel that appears before you.

Output

Requirement#3. Teachers of same Department.

Teachers of same department

FacultyId	TeacherName	Designation	Department
1	Mohsin Ahmed Khan Ghori	Lecturer	Computer Science
2	Shahzada Waseem	Assistant Professor	Computer Science
3	Khawar	Assistant Professor	Computer Science

Requirement#4. Teachers of same Designation.

Teachers of same department | Teachers of same designation

FacultyId	TeacherName	Designation	Department
1	Mohsin Ahmed Khan Ghori	Lecturer	Computer Science
4	Jamshid Hashmi	Lecturer	Physics

Database01-04

Practical#02 (Student Database MS-Access)

Object Write a procedure to create a table Student having the following fields

StudentId, StudentName, Address, Cellno

Queries

1. Assign primary key to a suitable column.
2.Input several records
3. Dispay all records
4. Search record with StudentID.

Procedure

Switching on Computer

1- Switch on your computer. Wait till the operation system **"Windows"** let you give access to interact with the computer.

Searching and Opening MS-Access

2-With the help of mouse click **"Start"** Icon, generally present at bottom left side of the computer screen.

3-Use Mouse click **"Search Bar"**, type **"Microsoft Office Access"** in it with the help of computer keyboard to search and open **MS-Access**.

Creating Database

4-Point Mouse Cursor to Blank Database, it will be highlighted then click it with mouse.

5- New panel at right hand side will be open, point your mouse cursor to the file name location, type new name **"StudentDatabase"** there then click **"Create"** button.

Creating & Renaming Table

6-Another big new panel at right hand side will be open, point your mouse cursor to **"Table1: Table"** icon, it will be highlighted then right click it, with the mouse. A **"drop-down menu"** will be open, click second option **"Design View"** from it.
7- Now **"Save As"** panel will be open, give new name **"Student"** in the text box to Save **"Table1"** as **"Student"**, then press **"ok"** Button.

8-Type in the **"Field Name"** text value **"StudentId"**.

9- Use mouse to point the cell below **"Data Type"**, select there **"Auto Number"** from the available **"combo box"** option list.
10- Use mouse to point the next cell present under **"Description"** heading, type the description whatever you want to write for your future reference or let it remain empty.

11- Repeat above steps till all the remaining **fields (StudentName, Address, Cellno) with "data types" and "description"** are properly typed into the corresponding cell of Database Design Window. Always use **"Text"** data type for fields like [Name, Address, Contact, Email etc.], **"AutoNumber"** for automatic assignment of numbers. **"Numeric"** for fields on which calculation are performed, **"Currency"** for fields like [wages, salary], **"Date"** for fields which are supposed to store dates, **"Hyperlink"** for fields holding [websites / urls etc.], **"OLE Object"** for picture, photographs, **"Yes/No"** for status showing field, **"Attachment"** for external files, **"Memo"** for descriptive fields.**"Lookup Wizard"** for foreign fields from other tables of the database.
12-

Requirement#1- Assigning Primary Key

to the suitable field i.e **"StudentId"** which can be capable of identifying each record uniquely. If it is already assigned by computer then no need to re-assign it.

Student

Field Name	Data Type	Description
StudentId	AutoNumber	identification Number
StudentName	Text	Name of Student
Address	Text	Address of student
Cellno	Text	phone number

13-Save the Table once again to update changes.

Requirement#2- Entering Five(5) Records

14-Now double click **"Student"** table to open it. Enter valid data into it. Use mouse to toggle b/w the fields of each record. Continue adding the record until you complete entering desired records. After it, close & finish record entry.

Student

StudentId	StudentName	Address	Cellno
1	Noman	R-2000/2 Azizabad Federal-B Area	(+92)3002535970
2	Junaid Ur Rehman	D-121 Block A North Nazimabad	(+92)3002535971
3	Adul Samad Shafiq	Flat No.1 Orangi Town Karachi	(+92)3332535970
4	Wasif Ghori	A-539 Block I North Naziambad	(+92)3002535983
5	Syed Azhar Ul Islam	B-490 Model Colony Malir	(+92)3303535970

Queries Design

15-With the help of mouse click **"Create"**, then point and left click **"Query Design"**.

17- **"Show table"** panel will be open, select **" Table"** tab from **"Table/Query/Both"**. Point and double left click the desired tables from available list of tables, to add these tables then left click **"cross/close"** present on top-right hand side of the panel, to close it.

18- Select field name from the available list of "combo-box", which you want to display or manipulate. Table name of that particular field will automatically be added after your selection of field. Mention the criteria if you want. Uncheck the "CheckBox" if you don't want to display this field.

19- Do repeat above step number 19 for each and every field, you want more to display or manipulate until you complete all desired field entries

20- Now in the **"criteria"** cell of field **"StudentId"** enter the contents **"[Enter Student Id?]"** to create the query of "Showing student record by Student Id" and then Left click the **"Cross/Close"** button to close the Query Panel, left click **"Yes"** Button to save the Query1 with the new name **"Student By ID"**, again left click **"Ok"** Button. You can save query with your desired name as well.

21- Repeat from above step number 17 to 21 for creating remaining queries, just remove/change the contents of criteria cell, as per your requirement.

Field:	StudentId	StudentName	Address	Cellno
Table:	Student	Student	Student	Student
Sort:				
Show:	☑	☑	☑	☑
Criteria:	[Enter Student Id?]			
or:				

Obtaining Query Results

22-Double click any query to display its result, if there is a need of passing any value then just type-in the value you want to pass into the panel that appears before you.

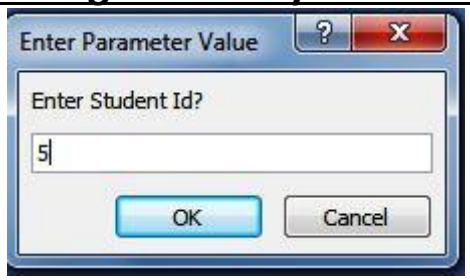
Output

Requirement#3- Showing all Five(5) Records

Student

StudentId	StudentName	Address	Cellno
1	Noman	R-2000/2 Azizabad Federal-B Area	(+92)3002535970
2	Junaid Ur Rehman	D-121 Block A North Nazimabad	(+92)3002535971
3	Adul Samad Shafiq	Flat No.1 Orangi Town Karachi	(+92)3332535970
4	Wasif Ghori	A-539 Block I North Naziambad	(+92)3002535983
5	Syed Azhar Ul Islam	B-490 Model Colony Malir	(+92)3303535970

Requirement#4- Showing Record by Student Id



Student By ID

StudentId	StudentName	Address	Cellno
5	Syed Azhar Ul Islam	B-490 Model Colony Malir	(+92)3303535970

Database01-04

Practical#03 (Student Database2 MS-Access)

Object Write a procedure to create a table Students having the following fields

StudentId, Name, Class, Group, Gender.

Queries

1. Assign primary key to StudentId.
2.Input several records
3. Display all records of Female students
4. List all the records of students

Procedure

Switching on Computer

1- Switch on your computer. Wait till the operation system **"Windows"** let you give access to interact with the computer.

Searching and Opening MS-Access

2-With the help of mouse click **"Start"** Icon, generally present at bottom left side of the computer screen-

3-Use Mouse click **"Search Bar"**, type **"Microsoft Office Access"** in it with the help of computer keyboard to search and open **MS-Access**.

Creating Database

4-Point Mouse Cursor to Blank Database, it will be highlighted then click it with mouse.

5- New panel at right hand side will be open, point your mouse cursor to the file name location, type new name **"StudentsDatabase"** there then click **"Create"** button.

Creating & Renaming Table

6-Another big new panel at right hand side will be open, point your mouse cursor to **"Table1: Table"** icon, it will be highlighted then right click it, with the mouse. A **"drop-down menu"** will be open, click second option **"Design View"** from it.
7- Now **"Save As"** panel will be open, give new name **"Students"** in the text box to Save **"Table1"** as **"Students"**, then press **"ok"** Button.

8-Type in the **"Field Name"** text value **"StudentID"**.

9- Use mouse to point the cell below **"Data Type"**, select there **"Auto Number"** from the available **"combo box"** option list.
10- Use mouse to point the next cell present under **"Description"** heading, type the description whatever you want to write for your future reference or let it remain empty.

11- Repeat above steps till all the remaining **fields (StudentName, Class, Group, Gender) with "data types" and "description"** are properly typed into the corresponding cell of Database Design Window. Always use **"Text"** data type for fields like [Name, Address, Contact, Email etc.], **"AutoNumber"** for automatic assignment of numbers. **"Numeric"** for fields on which calculation are performed, **"Currency"** for fields like [wages, salary], **"Date"** for fields which are supposed to store dates, **"Hyperlink"** for fields holding [websites / urls etc.], **"OLE Object"** for picture, photographs, **"Yes/No"** for status showing field, **"Attachment"** for external files, **"Memo"** for descriptive fields.**"Lookup Wizard"** for foreign fields from other tables of the database.
12-

Requirement#1- Assigning Primary Key

to the suitable field i.e **"StudentID"** which can be capable of identifying each record uniquely. If it is already assigned by computer then no need to re-assign it.

Students

Field Name	Data Type	Description
StudentID	AutoNumber	identification Number
StudentName	Text	Name of Student
Class	Text	Student Class
Group	Text	Pre-Engineering , Pre-Medical, Science General, Commerce etc.
Gender	Text	Male / Female

13-Save the Table once again to update changes.

Requirement#2- Entering Five(5) Records

14-Now double click **"Students"** table to open it. Enter valid data into it. Use mouse to toggle b/w the fields of each record. Continue adding the record until you complete entering desired records. After it, close & finish record entry.

AllStudentsList | Students

StudentID	StudentName	Class	Group	Gender
1	Abdul Samad Shfiq	XII	Science General	Male
2	Imran	XII	Science General	Male
3	Osama	XII	Science General	Male
4	Huma Khan Khuwachakzai	XII	Science General	Female
5	Fatima Soomro	XII	Science General	Female

Queries Design

15-With the help of mouse click **"Create"**, then point and left click **"Query Design"**.

17- **"Show table"** panel will be open, select **" Table"** tab from **"Table/Query/Both"**. Point and double left click the desired tables from available list of tables, to add these tables then left click **"cross/close"** present on top-right hand side of the panel, to close it.

18- Select field name from the available list of "combo-box", which you want to display or manipulate. Table name of that particular field will automatically be added after your selection of field. Mention the criteria if you want. Uncheck the "CheckBox" if you don't want to display this field.

19- Do repeat above step number 19 for each and every field, you want more to display or manipulate until you complete all desired field entries

20- Now in the **"criteria"** cell of field **"Gender"** enter the contents **"Female"** to create the query of "all female records" and then Left click the **"Cross/Close"** button to close the Query Panel, left click **"Yes"** Button to save the Query1 with the new name **"FemaleStudents"**, again left click **"Ok"** Button. You can save query with your desired name as well.

21- Repeat from above step number 17 to 21 for creating remaining queries, just remove/change the contents of criteria cell, as per your requirement.

Obtaining Query Results

22-Double click any query to display its result, if there is a need of passing any value then just type-in the value you want to pass into the panel that appears before you.

Output

Requirement#3- Showing all records of female students

FemaleStudents

StudentID	StudentName	Class	Group	Gender
4	Huma Khan Khuwachakzai	XII	Science General	Female
5	Fatima Soomro	XII	Science General	Female

Requirement#4- Showing all Five(5) Records

AllStudentsList

StudentID	StudentName	Class	Group	Gender
1	Abdul Samad Shfiq	XII	Science General	Male
2	Imran	XII	Science General	Male
3	Osama	XII	Science General	Male
4	Huma Khan Khuwachakzai	XII	Science General	Female
5	Fatima Soomro	XII	Science General	Female

Database01-04

Practical#04 (Library Database MS-Access)

Object Write a procedure to create a table Library having the following fields

BookId, Name, Reference or Lending, BookIssued.

Queries

1. Assign primary key to a suitable column.
2.Input several records
3. Dispay all books which are not for lending
4. Find list of books issued.

Procedure

Switching on Computer

1- Switch on your computer. Wait till the operation system **"Windows"** let you give access to interact with the computer.

Searching and Opening MS-Access

2-With the help of mouse click **"Start"** Icon, generally present at bottom left side of the computer screen.

3-Use Mouse click **"Search Bar"**, type **"Microsoft Office Access"** in it with the help of computer keyboard to search and open **MS-Access**.

Creating Database

4-Point Mouse Cursor to Blank Database, it will be highlighted then click it with mouse.

5- New panel at right hand side will be open, point your mouse cursor to the file name location, type new name **"LibraryDatabase"** there then click **"Create"** button.

Creating & Renaming Table

6-Another big new panel at right hand side will be open, point your mouse cursor to **"Table1: Table"** icon, it will be highlighted then right click it, with the mouse. A **"drop-down menu"** will be open, click second option **"Design View"** from it.
7- Now **"Save As"** panel will be open, give new name **"Library"** in the text box to Save **"Table1"** as **"Library"**, then press **"ok"** Button.

8-Type in the **"Field Name"** text value **"BookId"**.

9- Use mouse to point the cell below **"Data Type"**, select there **"Auto Number"** from the available **"combo box"** option list.
10- Use mouse to point the next cell present under **"Description"** heading, type the description whatever you want to write for your future reference or let it remain empty.

11- Repeat above steps till all the remaining **fields (BookName, Reference, Issued) with "data types" and "description"** are properly typed into the corresponding cell of Database Design Window. Always use **"Text"** data type for fields like [Name, Address, Contact, Email etc.], **"AutoNumber"** for automatic assignment of numbers. **"Numeric"** for fields on which calculation are performed, **"Currency"** for fields like [wages, salary], **"Date"** for fields which are supposed to store dates, **"Hyperlink"** for fields holding [websites / urls etc.], **"OLE Object"** for picture, photographs, **"Yes/No"** for status showing field, **"Attachment"** for external files, **"Memo"** for descriptive fields.**"Lookup Wizard"** for foreign fields from other tables of the database.

12-

Requirement#1- Assigning Primary Key to the suitable field i.e **"BookId"** which can be capable of identifying each record uniquely. If it is already assigned by computer then no need to re-assign it.

13-Save the Table once again to update changes.

Requirement#2- Entering Five(05) Records

14-Now double click **"Library"** table to open it. Enter valid data into it. Use mouse to toggle b/w the fields of each record. Continue adding the record until you complete entering desired records. After it, close & finish record entry.

Library

BookId	BookName	Reference	Issued
1	C Language by Robert Lafore	☑	☐
2	XII Book by Prof.Shahzada Wasim	☐	☑
3	The 10 Programmings by Mohsin Ahmed Khan Ghori	☐	☐
4	C Language by Robert Lafore	☑	☐
5	C++ Language by Naba Barkakati	☐	☑

Queries Design

15-With the help of mouse click **"Create"**, then point and left click **"Query Design"**.

17- **"Show table"** panel will be open, select **" Table"** tab from **"Table/Query/Both"**. Point and double left click the desired tables from available list of tables, to add these

tables then left click **"cross/close"** present on top-right hand side of the panel, to close it.

18- Select field name from the available list of "combo-box", which you want to display or manipulate. Table name of that particular field will automatically be added after your selection of field. Mention the criteria if you want. Uncheck the "CheckBox" if you don't want to display this field.

19- Do repeat above step number 19 for each and every field, you want more to display or manipulate until you complete all desired field entries

20- Now in the **"criteria"** cell of field **"Reference"** enter the contents **"Yes"** to create the query of "all books not for lending (Reference Books)" and then Left click the **"Cross/Close"** button to close the Query Panel, left click **"Yes"** Button to save the Query1 with the new name **"Reference Books(Not for Lending)"**, again left click **"Ok"** Button. You can save query with your desired name as well.

21- Repeat from above step number 17 to 21 for creating remaining queries, just remove/change the contents of criteria cell, as per your requirement.

Field:	BookId	BookName	Reference	Issued
Table:	Library	Library	Library	Library
Sort:				
Show:	☑	☑	☑	☑
Criteria:			No	Yes
or:				

Obtaining Query Results

22-Double click any query to display its result, if there is a need of passing any value then just type-in the value you want to pass into the panel that appears before you.

Output

Requirement# 3- Showing Reference Books which are not for lending

Reference Books(Not for Lending)

BookId	BookName	Reference	Issued
1	C Language by Jamshid Hashmi	☑	☐
4	C Language by Robert Lafore	☑	☐

Requirement#4- List of issued Books

Lending Books

BookId	BookName	Reference	Issued
2	XII Book by Prof.Shahzada Wasim	☐	☑
3	The 10 Programmings by Mohsin Ahmed Khan Ghori	☐	☑

Database01-04

Practical#05 (Bank Account Database MS-Access)

Object Write a procedure to create a two tables having the following fields

Table1:AccountNo, AccountName, HolderAddress, Contact, Email.
Table2:AccountNo, AccountStatus.

Queries
1. Input several records
2. Search the desired AccountNo
3. Delete the desired AccountNo
4. Update desired AccountId.

Procedure

Switching on Computer

1- Switch on your computer. Wait till the operation system **"Windows"** let you give access to interact with the computer.

Searching and Opening MS-Access

2-With the help of mouse click **"Start"** Icon, generally present at bottom left side of the computer screen-

3-Use Mouse click **"Search Bar"**, type **"Microsoft Office Access"** in it with the help of computer keyboard to search and open **MS-Access**.

Creating Database

4-Point Mouse Cursor to Blank Database, it will be highlighted then click it with mouse.

5- New panel at right hand side will be open, point your mouse cursor to the file name location, type new name **"BankAccountDatabase"** there then click **"Create"** button.

Creating & Renaming Tables

6-Another big new panel at right hand side will be open, point your mouse cursor to **"Table1: Table"** icon, it will be highlighted then right click it, with the mouse. A **"drop-down menu"** will be open, click second option **"Design View"** from it.
7- Now **"Save As"** panel will be open, give new name **"BankAccount"** in the text box to Save **"Table1"** as **"BankAccount"**, then press **"ok"** Button.

8-Type in the **"Field Name"** text value **"AccountNo"**.

9- Use mouse to point the cell below **"Data Type"**, select there **"Auto Number"** from the available **"combo box"** option list.
10- Use mouse to point the next cell present under **"Description"** heading, type the description whatever you want to write for your future reference or let it remain empty.

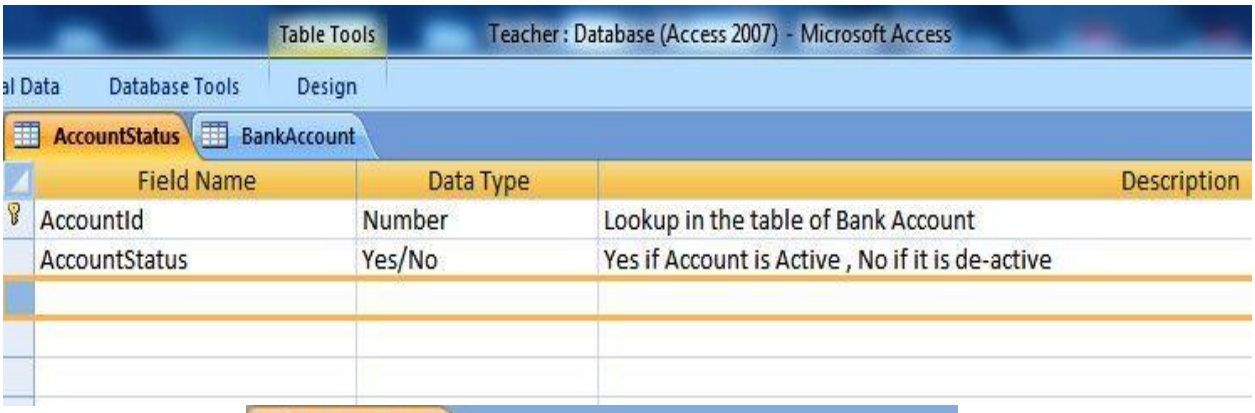
11- Repeat above steps till all the remaining **fields (AccountName, HolderAddress, Contact, Email) with "data types" and "description"** are properly typed into the corresponding cell of Database Design Window. Always use **"Text"** data type for fields like [Name, Address, Contact, Email etc.], **"AutoNumber"** for automatic assignment of numbers. **"Numeric"** for fields on which calculation are performed, **"Currency"** for fields like [wages, salary], **"Date"** for fields which are supposed to store dates, **"Hyperlink"** for fields holding [websites / urls etc.], **"OLE Object"** for picture, photographs, **"Yes/No"** for status showing field, **"Attachment"** for external files, **"Memo"** for descriptive fields.**"Lookup Wizard"** for foreign fields from other tables of the database.
12- Repeat steps 6 to 11 for "AccountStatus" Table having fields (AccountNo as Foreign Key from BankAccount Table, AccountStatus)

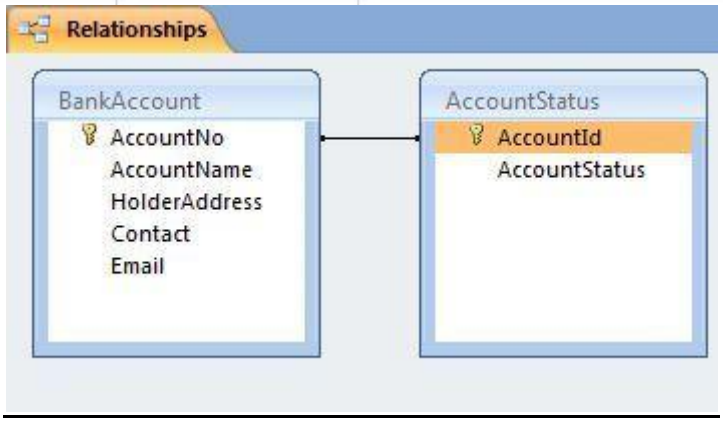
13-
Assigning Primary Key to the suitable field i.e **"AccountNo" in "BankAccount"** table as well as in **"Account Status"** table which can be capable of identifying each record uniquely.

14-Save the Tables once again to update changes.

AccountStatus | BankAccount

Field Name	Data Type	Description
AccountNo	AutoNumber	Account Number
AccountName	Text	Title of Account
HolderAddress	Text	Address of Account Holder
Contact	Text	phone,mobile number of account holder
Email	Text	Email Address of account holder





Requirement#1- Entering Five(5) Records

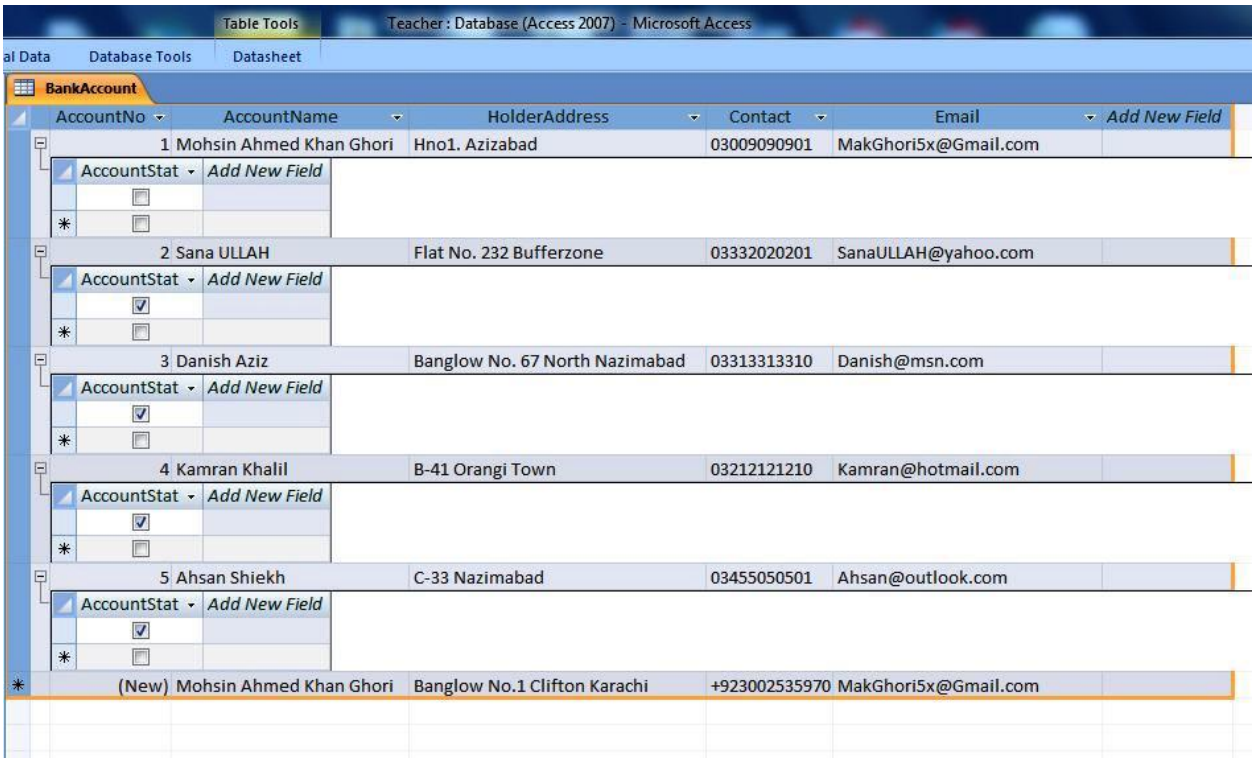
15-Now double click **"BankAccount"** and **"Account Status"** tables repectively, to open it. Enter valid data into it. Use mouse to toggle b/w the fields of each record. Continue adding the record until you complete entering desired records. After it, close & finish record entry.

BankAccount

AccountNo	AccountName	HolderAddress	Contact	Email	Add New Field
1	Mohsin Ahmed Khan Ghori	Hno1. Azizabad	03009090901	MakGhori5x@Gmail.com	
2	Sana ULLAH	Flat No. 232 Bufferzone	03332020201	SanaULLAH@yahoo.com	
3	Danish Aziz	Banglow No. 67 North Nazimabad	03313313310	Danish@msn.com	
4	Kamran Khalil	B-41 Orangi Town	03212121210	Kamran@hotmail.com	
5	Ahsan Shiekh	C-33 Nazimabad	03455050501	Ahsan@outlook.com	
(New)	Mohsin Ahmed Khan Ghori	Banglow No.1 Clifton Karachi	+923002535970	MakGhori5x@Gmail.com	

AccountStatus

AccountId	AccountStat	Add New Field
Mohsin Ahmed Khan Ghori	☐	
Sana ULLAH	☑	
Danish Aziz	☑	
Kamran Khalil	☑	
Ahsan Shiekh	☑	
	☐	



AccountNo	AccountName	HolderAddress	Contact	Email	Add New Field
1	Mohsin Ahmed Khan Ghori	Hno1. Azizabad	03009090901	MakGhori5x@Gmail.com	
2	Sana ULLAH	Flat No. 232 Bufferzone	03332020201	SanaULLAH@yahoo.com	
3	Danish Aziz	Banglow No. 67 North Nazimabad	03313313310	Danish@msn.com	
4	Kamran Khalil	B-41 Orangi Town	03212121210	Kamran@hotmail.com	
5	Ahsan Shiekh	C-33 Nazimabad	03455050501	Ahsan@outlook.com	
(New)	Mohsin Ahmed Khan Ghori	Banglow No.1 Clifton Karachi	+923002535970	MakGhori5x@Gmail.com	

AccountStat | Add New Field

Queries Design

16-With the help of mouse click **"Create"**, then point and left click **"Query Design"**.

17- **"Show table"** panel will be open, select **" Table"** tab from **"Table/Query/Both"**. Point and double left click the desired tables from available list of tables, to add these tables then left click **"cross/close"** present on top-right hand side of the panel, to close it.

18- Select field name from the available list of "combo-box", which you want to display or manipulate. Table name of that particular field will automatically be added after your selection of field. Mention the criteria if you want. Uncheck the "CheckBox" if you don't want to display this field.

19- Do repeat above step number 19 for each and every field, you want more to display or manipulate until you complete all desired field entries

20- Now in the **"criteria"** cell of field **"AccountNo", table "BankAccount"** enter the contents **"[BankAccount].[givenAccount]"** to create the query of "all records having same department" and then Left click the **"Cross/Close"** button to close the Query Panel, left click **"Yes"** Button to save the Query1 with the new name **"BankRecord Display By Id"**, again left click **"Ok"** Button. You can save query with your desired name as well.

21- Repeat from above step number 17 to 21 for creating remaining queries, just remove the contents of criteria cell, as per your requirement.

Field:	AccountNo	AccountName	HolderAddress	Contact	Email
Table:	BankAccount	BankAccount	BankAccount	BankAccount	BankAccount
Delete:	Where	Where	Where	Where	Where
Criteria:	[BankAccout].[givenAccount]				
or:					

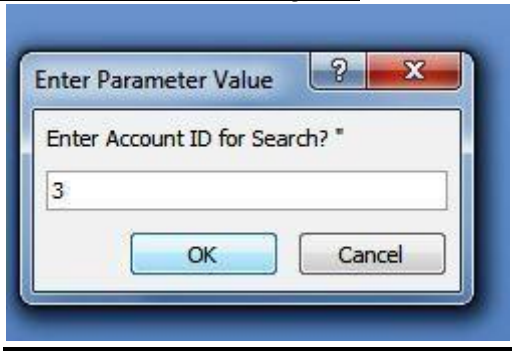
Field:	AccountName
Table:	BankAccount
Update To:	"Mohsin Ghori"
Criteria:	Like "Mohsin *"
or:	

Obtaining Query Results

22-Double click any query to display its result, if there is a need of passing any value then just type-in the value you want to pass into the panel that appears before you.

Output

Requirement#2-Search Account by ID



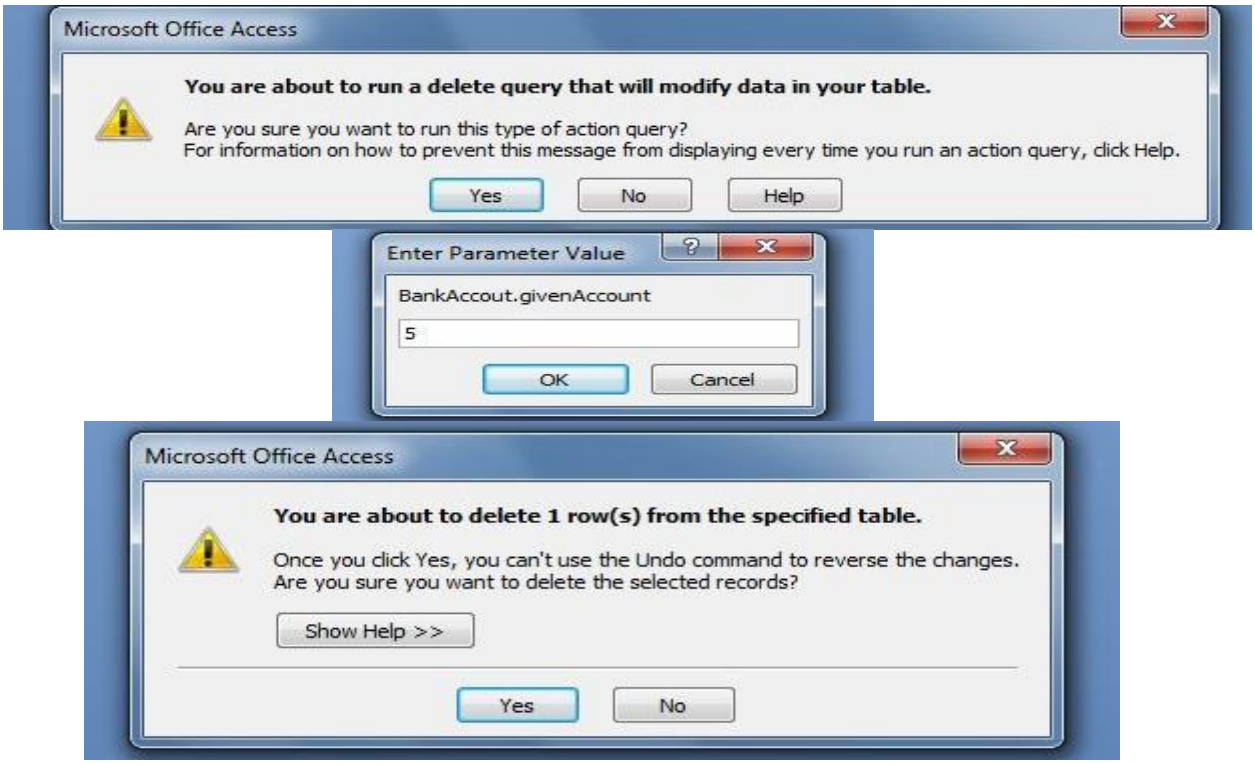
BankAccount Display by ID

AccountNo	AccountName	HolderAddress	Contact	Email
3	Danish Aziz	Banglow No. 67 North Nazimabad	03313313310	Danish@msn.com
(New)	Mohsin Ahmed Khan Ghori	Banglow No.1 Clifton Karachi	+923002535970	MakGhori5x@Gmail.com

Requirement#3- Delete Account by ID

BankAccount

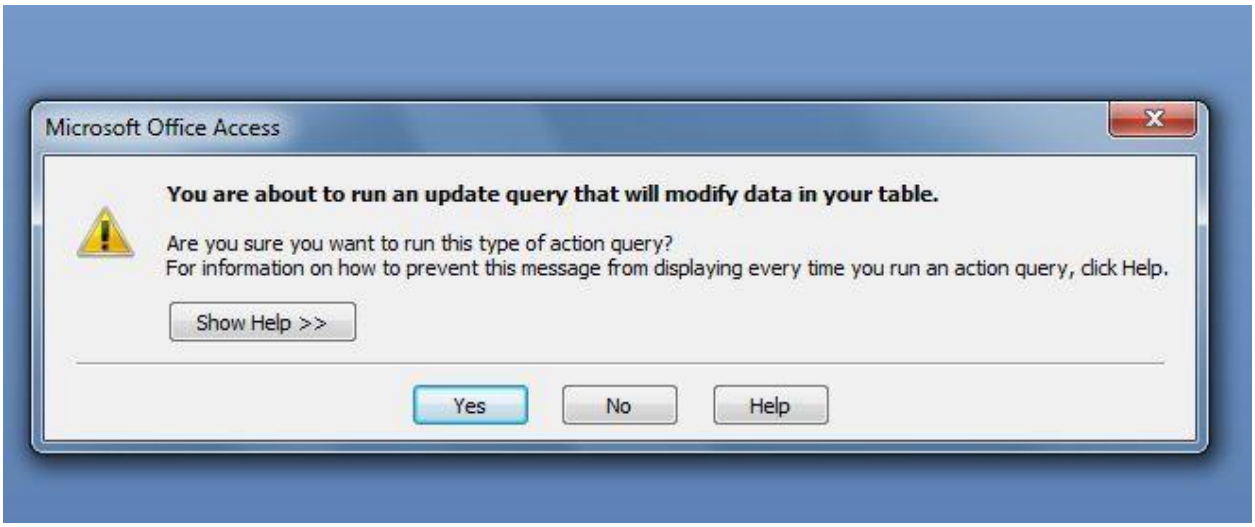
AccountNo	AccountName	HolderAddress	Contact	Email	Add New Field
1	Mohsin Ahmed Khan Ghori	Hno1. Azizabad	03009090901	MakGhori5x@Gmail.com	
2	Sana ULLAH	Flat No. 232 Bufferzone	03332020201	SanaULLAH@yahoo.com	
3	Danish Aziz	Banglow No. 67 North Nazimabad	03313313310	Danish@msn.com	
4	Kamran Khalil	B-41 Orangi Town	03212121210	Kamran@hotmail.com	
5	Ahsan Shiekh	C-33 Nazimabad	03455050501	Ahsan@outlook.com	
(New)	Mohsin Ahmed Khan Ghori	Banglow No.1 Clifton Karachi	+923002535970	MakGhori5x@Gmail.com	



BankAccount

AccountNo	AccountName	HolderAddress	Contact	Email
1	Mohsin Ahmed Khan Ghori	Hno1. Azizabad	03009090901	MakGhori5x@Gmail.com
2	Sana ULLAH	Flat No. 232 Bufferzone	03332020201	SanaULLAH@yahoo.com
3	Danish Aziz	Banglow No. 67 North Nazimabad	03313313310	Danish@msn.com
6	Kamran Khalil	B-41 Orangi Town	+923002535970	Kamran@hotmail.com

Requirement#4- Update Account by ID





BankAccount

AccountNo	AccountName	HolderAddress	Contact	Email
1	Mohsin Ghori	Hno1. Azizabad	03009090901	MakGhori5x@Gmail.com
2	Sana ULLAH	Flat No. 232 Bufferzone	03332020201	SanaULLAH@yahoo.com
3	Danish Aziz	Banglow No. 67 North Nazimabad	03313313310	Danish@msn.com
4	Kamran Khalil	B-41 Orangi Town	03212121210	Kamran@hotmail.com
(New)	Mohsin Ahmed Khan Ghori	Banglow No.1 Clifton Karachi	+923002535970	MakGhori5x@Gmail.com

Part-4 Artificial Intelligence

Artificial Intelligence is the topic from Unit05 “Application & Impacts of Computing of STBB text book published in September 2026.



Practical1 Object: (Artificial Intelligence)

Write a logical game program in Python language which ask user to think of a number and then determines the number which user thought via mathematical logic. Use international, national and regional languages for this game playing.

Python Program:

```
# This is Python program of Artificial Intelligence Practical.
# This is AI program to determining the number in your mind via Mathematics logic
# in 3 Languages(Sindhi, Urdu, English)
import random
print("\n\t================================")
print("\t GET READY FOR MIND READING GAME ")
print("\t================================\n")
language=input("\n\t Which language do you want to Play (English/Urdu/Sindhi)?
").strip().upper()
print(f"\n\t\t You have selected {language} Language!")
makNumber= 2*(random.randint(1,100))

if language=="SINDHI":
 print("\t\t[ ذهن پڑهڻ جو راند شروع ٿي چُڪي آهي ]\n")
 print("\t\t``````````````````````````````\n")
 print("پنهنجي ذهن ۾ ڪنهن به نمبر بابت سوچيو جيڪو 1 کان 1000 جي وچ ۾ هجي")
 print("هاڻي ان کي ڪاغذ تي لکو يا ڪنهن کي ٻڌايو جيئن ياد رهي\t\t")
 print("جڏهن اوهين نمبر سوچي چڪا آهيو ته پوءِ ")
 input("دبايو ENTER ")
 print("هيٺ ڏنل هدايتن تي تمام احتياط سان عمل ڪريو\t\t")
 print("``````````````````````````````````")
 print("هن نمبر کي جيڪو توهان سوچي رهيا آهيو کي ٻيڙو ڪريو پوءِ \n\t")
 input("دبايو ENTER ")

 print(f"هاڻي اس (دگنے شده نمبر) مينمون کي پوءِ\t\t {makNumber} شامل ڪريو.")
 input("دبايو ENTER ")
 print("حاصل ڪيل نتيجو کي پوءِ 2 سان ورهايو\t\t")
 input("دبايو ENTER ")

 print("================================")
remainder = float(input("هاڻي جيڪو نتيجو توهان وٽ آيو آهي ان کي هتي داخل ڪري ٻڌايو؟\n\t\t "))
thought_number = remainder - makNumber/2
print("\n\t**********************************")
print("ها! ها! هاا! مون توهانجو ذهن پڑهي چڏيو\t\t")
```

```
 print("\t**********************************")
 print(f"\n\t هو سوچيو توهان جيڪو نمبر آهي :[{thought_number:g}]")
 print("\n\t\t راند ختم ٿي وئي، توهان جو شڪريو")
 print("\n\t\t*****************")

elif language=="URDU":
 print("\t\t\t_____________________________\n")
 print("\t\t\t[ ذہن پڑھنے کا کھیل شروع ہوچاکا ہے۔ ]")
 print("\t\t\t````````````````````````````\n")
 print("اپنے ذہن میں کسی بھی نمبر کے بارے میں سوچیں جو (1 سے 1000) کے درمیان ہو۔")
 print("اب اسے کاغذ پر لکھیں یا کسی کو بتا دیں تاکہ یاد رہے۔")
 input("جب آپ نمبر سوچ چکیں اس کے بعد ENTER دبائیں")
 print("\n\t\t\tنیچے دی گئی ہدایات پر بہت احتیاط سے عمل کریں")
 print("\n\t\t````````````````````````````````````")
 input("\n\t ابھی جس نمبر کو آپ نے سوچا ہے اسے دگنا کریں پھر ENTER دبائیں.")

 print(f"\t\t\tاب اس (دگنے شدہ نمبر) میں {makNumber} جمع کریں پھر.")
 input(" دبائیں Enter ")
 print("\t\t\t حاصل شدہ نتیجے کو 2 سے تقسیم کردیں پھر ")
 input(" دبائیں Enter ")


 print("==================================")
 remainder = float(input("\n\t\t\t\t\tاب جو نتیجہ آپ کے پاس آیا ہے وہ مجھے بتائیں؟ "))
 thought_number = remainder - makNumber/2
 print("\n\t**********************************")
 print("\t\t ہا! ہا! ہاہا! میں نے آپ کا ذہن پڑھ لیا")
 print("\t**********************************")
 print(f"\n\t یہ ہے آپ نے جو نمبر سوچا تھا :[{thought_number:g}]")
 print("\n\t\t گیم ختم ہوا آپ کا شکریہ")
 print("\n\t\t*****************")

else:
 # This is ENGLISH SECTION

 print("\n\t========================")
 print("\t MIND READING GAME ")
 print("\t=========================\n")
 print("Think of any NUMBER in between (1-1000) in your mind.")
 print("Write it on a piece of paper or")
 print("tell it to someone to remember it.\n")
 input("Press ENTER when you have thought of a number...")
 print("\n\tFollow the below INSTRUCTIONS VERY CARAFULLY!")
```

```
input("\n1. DOUBLE the number you just thought then Press ENTER...")
input(f"\n2. Now ADD {makNumber} to the this (doubled number). Press ENTER...")
input("3. DIVIDE the total by 2 (take half). Press ENTER...")

print("\n===================================")
print("Now tell me the remaining number!")
print("===================================")

remainder = float(input("\nEnter the remainder : "))
thought_number = remainder - makNumber/2

print("\n\t**********************************")
print("\t HA! HA! HA! I HAVE READ YOUR MIND!")
print("\t**********************************")
print(f"\n\tYour imagined number was:\"{thought_number:g}\"")
print("\nThanks for playing!")
```

Output of program:

```
================================
 GET READY FOR MIND READING GAME
================================

 Which language do you want to Play (English/Urdu/Sindhi)? Sindhi

      You have selected SINDHI Language!
     [ ذهن پڑهڻ جو راند شروع ٿي چُڪي آهي. ]

     ````````````````````````````````

پنهنجي ذهن ۾ ڪنهن به نمبر بابت سوچيو جيڪو 1 کان 1000 جي وچ ۾ هجي
هاڻي ان کي ڪاغذ تي لکو يا ڪنهن کي ٻڌايو جيئن ياد رهي.
جڏهن اوهين نمبر سوچي چڪا آهيو ته پوءِ
دبايوء ENTER

هيٺ ڏنل هدايتن تي تمام احتياط سان عمل ڪريو

````````````````````````````````

هن نمبر کي جيڪو توهان سوچي رهيا آهيو کي ٻيڻو ڪريو پوءِ
```

دبايوء ENTER

هاڻي اس (دڳنے شده نمبر) مينمون کي پوءِ 62 شامل ڪريو.

دبايوء ENTER

حاصل ڪيل نتيجو کي پوءِ 2 سان ورهايو

دبايوء ENTER

==========

هاڻي جيڪو نتيجو توهان وٽ آيو آهي ان کي هتي داخل ڪري ٻڌايو؟35

**********

ها! ها! هاا! مون توهانجو ذهن پڙهي ڇڏيو

**********

[4]: اهو آهي نمبر جيڪو توهان سوچيو هو

راند ختم ٿي وئي، توهان جو شڪريو

**********

## *Program video:*

Scan the QR-Code for the video of the practical.

## Part-5 Digital Literacy Survey

Digital Literacy Survey is the topic of Unit06 “Digital Literacy” of STBB text book published in September 2026.



# Practical: Digital Literacy Survey

## Object:

Use your desktop, laptop, smart mobile, smart watch or any suitable gadget and create online forms to conduct a "Digital Literacy Survey" about how students use digital tools for learning in daily life. Ask the following three questions with given option written underneath it.

1.Do you use computer or smartphone every day?
- Yes
- No

2.How often do you use internet for study purpose
- Daily
- A few times a week
- Rarely
- Never

3. Which device do you use most frequently for online learning?
- Smartphone
- Laptop
- Desktop
- Tablet
- Other

## Pre-requisites:

| | |
|---|---|
| 1. | Any working smart device like (smart watch, smart phone, laptop, desktop, digital gadget etc) |
| 2. | Internet access/connection |
| 3. | Valid authorized email address |

## Procedure

### Switch on device and sign-in to your google account

Switch on your device and connect it to the internet.

Open your google account in your “chrome” web browser by signing in to your account.

### Start a new form

Click the Nine(09) dots at top right of your screen just beside your display picture-DP.

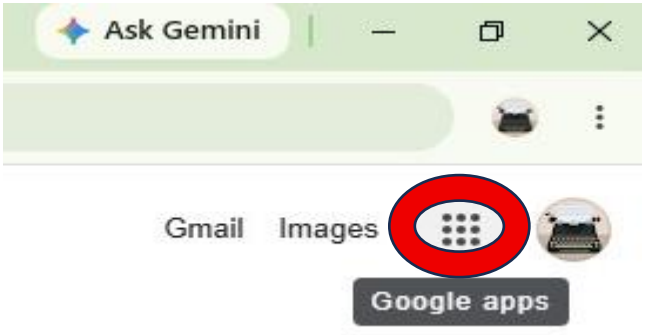



Figure 6.1

A drop-down menu as shown below in figure 6.2 will be open.




Figure 6.2

....

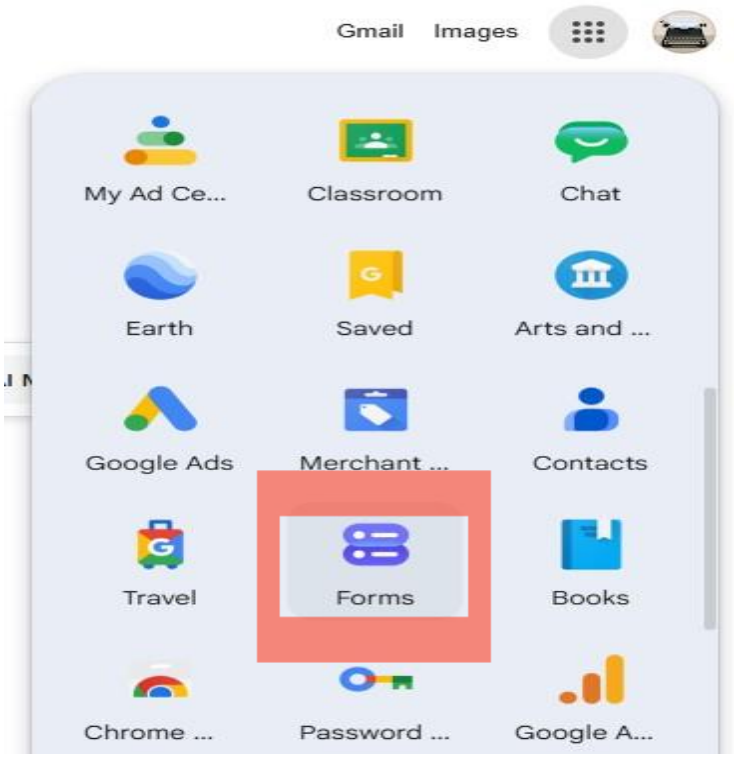



Figure 6.3

Here check out the caption "Form" in this menu, normally present at the bottom of the menu and then click it.

New items in the same window will be open where icons of Blank form(under the heading Start a new form) and other available forms will be present as shown in figure 6.4.

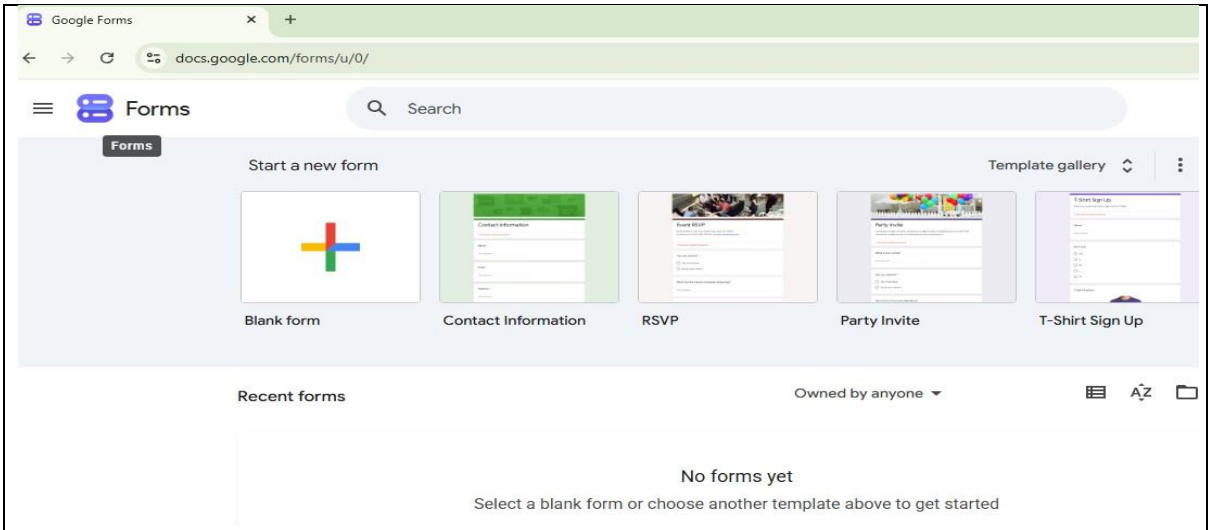



Figure 6.4

## *Writing Form Contents*

Click the Blank form then new items in same window will be open with title "Untitled form" as shown below in the figure 6.5.

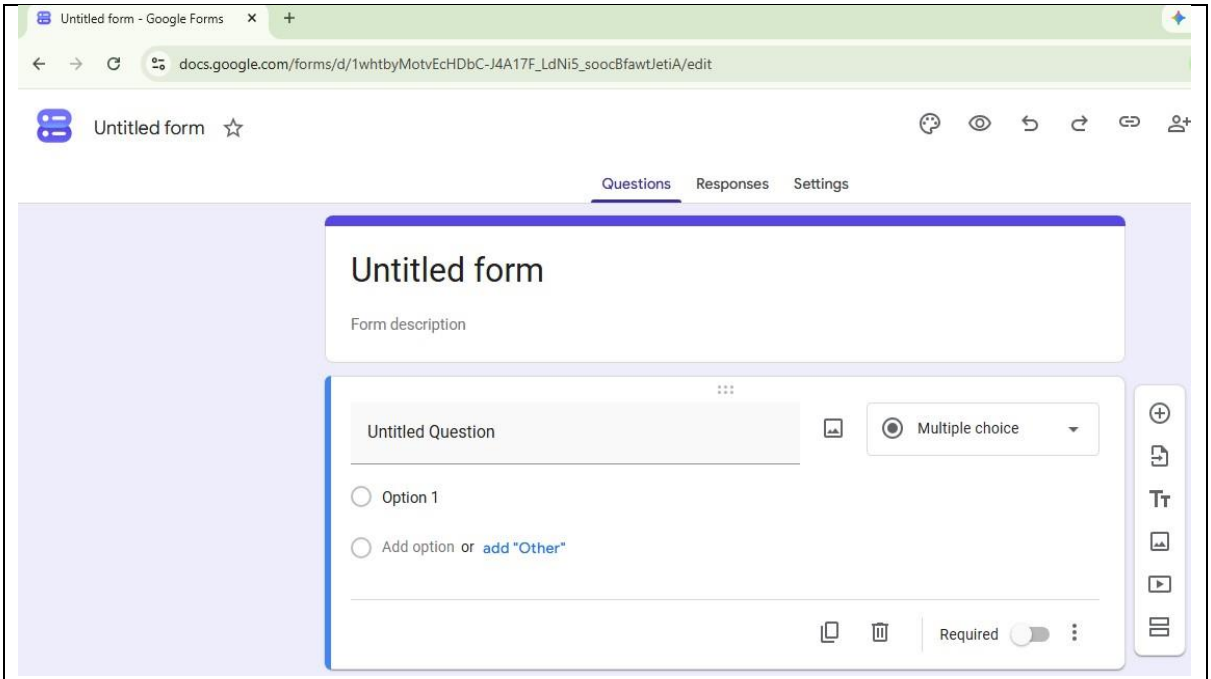



Figure 6.5

Change by clicking this "Untitled form" title to "Digital Literacy Survey" also write the description under it, by same way.

Now Move to Question section writing by clicking the "Untitled Question". Remove old content and Write your desired question " ".

Now move to it's options by clicking "Option 1", remove it and type your own "YES" then click "Add option" and then write second option "NO".

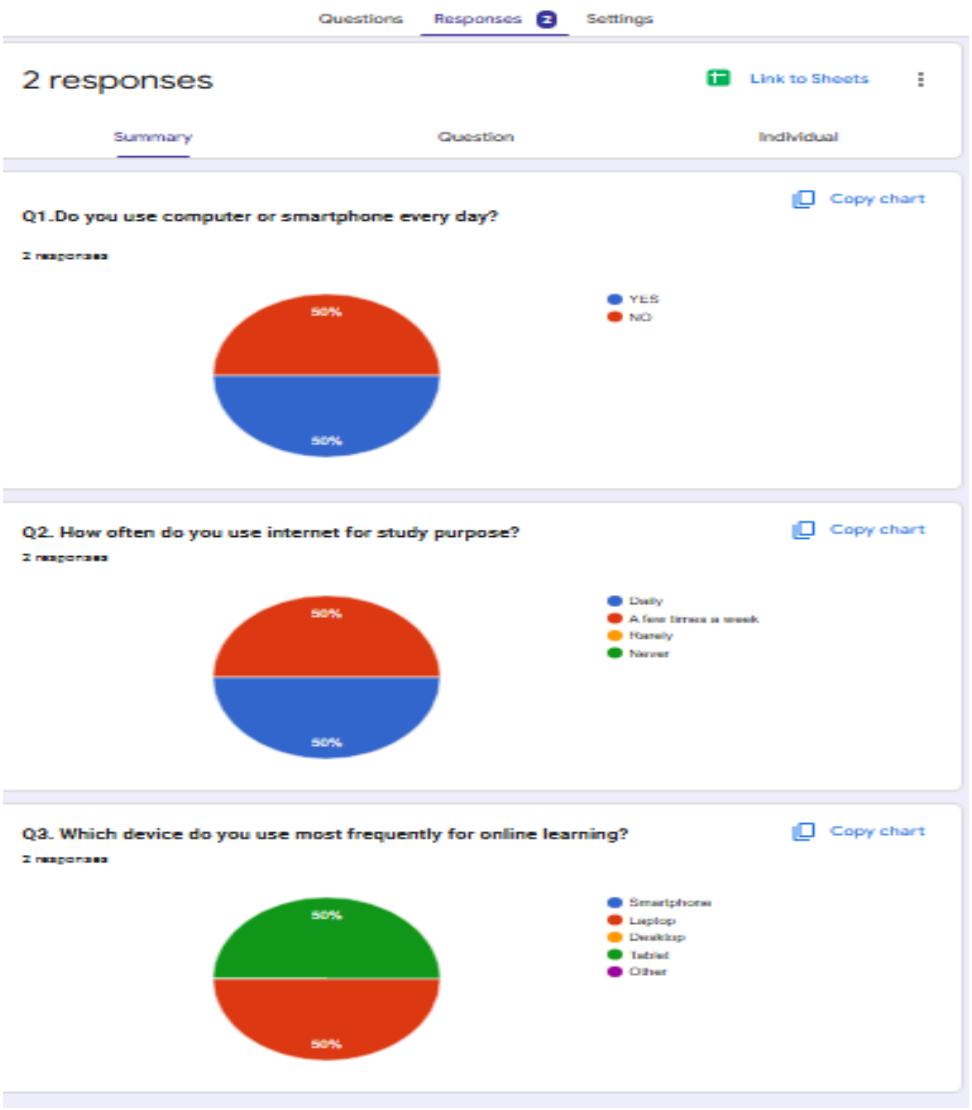
Use plus "+" sign to add Q2,Q3 and so on if needed.

and repeat the above steps to write the questions and it's options.

Press the Publish button in blue to save and publish the form and note down the URL. Share this URL to let others respond to this form.

Check the responses given by the respondents by clicking the “Response” tab in the middle at the top as shown below in the output.

## Output:




## Program video:

Scan the QR-Code for the video of the practical.

# Appendices

## Appendix A: Useful links for practical activities

| *Software* | *Useful Links for online/offline practical work* |
|---|---|
| LogiSim (Online) | https://logisim.app/ |
| LogiSim (Offline) (Download) | For offline work (Download Software) https://github.com/logisim-evolution/logisim-evolution/releases |
| | |
| Python (Online) | https://www.programiz.com/python-programming/online-compiler/ |
| Python (Offline) (Download) | https://www.anaconda.com/download<br>https://code.visualstudio.com/<br>https://www.python.org/downloads<br>https://www.jetbrains.com/pycharm/<br>https://jupyter.org/install |

# Appendix B: Data types in Python

Following data types in Python are built-in by default, illustrated category wise

| Data Types | Denoted in Python as follows | Example |
|---|---|---|
| None Type: | NoneType | x = None |
| Boolean Type: | bool | x = True , x=False<br>x = input("Enter True/False? ").strip().lower()<br>if x in ["true", "t", "yes", "1"]: x = True<br>elif x in ["false", "f", "no", "0"]: x = False<br>else: x = False |
| Binary Types: | bytes<br>bytearray<br>memoryview | x = b"Hello"<br>x = bytearray(5)<br>x = memoryview(bytes(5)) |
| Numeric Types: | int<br>float<br>complex | X=15559<br>X=78.65<br>X= 29j |
| Text Type: | Str | x = "This is Practical Book by Mohsin" |
| Sequence Types: | list<br>tuple<br>range | x = ["alto", "silver", "vxl"]<br>x = ("Mohsin", "Ahmed", "Ghori")<br>x = range(6) |
| Mapping Type: | Dict | x = {"name" : "Faraz", "age" : 36} |
| Set Types: | set<br>frozenset | x = {"Khawar", "Munir", "Nadir"}<br>x = frozenset({"Mohsin", "Jamshed", "Shahzada"}) |

## Appendix C: Escape Sequence in Python

| Escape Sequence | Description | Example Code | Output |
|---|---|---|---|
| \n | **Newline** (moves text to the next line) | print("Hello\nWorld") | Hello<br>World |
| \t | **Horizontal Tab** (inserts whitespace) | print("Name:\tAlice") | Name: Alice |
| \' | **Single Quote** | print('It\'s raining.') | It's raining. |
| \" | **Double Quote** | print("He said, \"Hi!\"") | He said, "Hi!" |
| \\ | **Literal Backslash** | print("C:\\Users\\Profile") | C:\Users\Profile |
| \b | **Backspace** (erases the previous character) | print("AB\bC") | AC |

## Appendix D: Seven Arithmetic Operators in Python

| S.No. | Operator Sign | Name | Let A=6 & B=3 | |
|---|---|---|---|---|
| 1 | + | Addition | A+B=9 | |
| 2 | - | Subtraction | A-B=3 | |
| 3 | * | Multiplication | A*B=18 | |
| 4 | / | Division | A/B=2 | |
| 5 | % | Modulus (Remainder) | A%B=0 (remainder) | |
| 6 | ** | Exponent | A**B= A*A*A=256 | |
| 7 | // | Floor(Division) | A//B= 2 | |

# Appendix E: Six Relational (Comparison) Operators in Python

Python provides six relational (comparison) operators ==, !=, >, <, >=, and <= — which compare two values and return a Boolean result (True or False). These operators work with numbers, strings, and many built-in types, forming the basis of conditional logic in Python.

Python also permit chained relation operations as shown in last of the following table. It also allows comparison of strings(Alpha numeric values) Unicode of first alphabet is compared.

| Sno. | Operation Sign | Operator Name | Example | Result |
|---|---|---|---|---|
| 1 | == | Equal to | A==B | False |
| 2 | != | Not equal to | A!=B | True |
| 3 | > | Greater than | A>B | True |
| 4 | < | Less than | A<B | False |
| 5 | >= | Greater than equal to | A>=B<br>(A>B or A==B) | True |
| 6 | <= | Less than qual to | A<=B<br>(A<B or A==B) | False |
| | | 1<B<A | | |

# Appendix F: Logical Operators in Python

Python has three main logical operators (and, or, and not), which evaluate Boolean expressions and return True or False. They are used to combine conditions in if statements and other control-flow structures. For example, and requires both conditions to be true, or requires at least one, and not reverses a condition.

| Sno | Operator Sign | Operator Name | Example |
|---|---|---|---|
| 1 | And | AND operator | |
| 2 | Or | OR Operator | |
| 3 | Not | NOT Operator | |

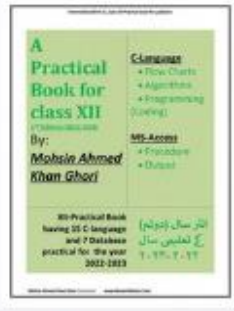
# Appendix G: Bitwise Operator

| Sno | Sign | Name | Explanation | Example |
|---|---|---|---|---|
| 1 | & | AND | Sets each bit to 1 if both bits are 1 | x & y |
| 2 | \| | OR | Sets each bit to 1 if one of two bits is 1 | x \| y |
| 3 | ^ | XOR | Sets each bit to 1 if only one of two bits is 1 | x ^ y |
| 4 | ~ | NOT | Inverts all the bits | ~x |
| 5 | << | Left Shift | Shift left by pushing zeros in from the right and let the leftmost bits fall off | x << 2 |
| 6 | >> | Right Shift | Shift right by pushing copies of the leftmost bit in from the left, and let the rightmost bits fall off | X >> 2 |

# SOMETHINGS FROM PAST

| Book/Booklet/File/Journal<br><br>Thumbnail | QR-Code | URL |
|---|---|---|
| <br>GWBasic Practical Book 3rd Edition<br>by MOHSIN AHMED KHAN GHORI | | https://archive.org/details/gwbasic-practical-book-3rd-edition |
| <br>GW-Basic Practical Book 2nd Edition (English & Urdu)<br>by Mohsin Ahmed Khan Ghori | | https://archive.org/details/ixpractical-book-2nd-edition |
| <br>Step by Step Practical's Solution for IX Students<br>by Mohsin Ahmed Khan Ghori | | https://archive.org/details/gwbasic-IXpractical |

Continues…..

| URL | QR-Code | Book/Booklet/File/Journal Thumbnail |
|---|---|---|
| https://archive.org/details/xii-practical-c-access-2nd-edition/mode/2up | |  XII Practical C-Langauge & Access 2nd Edition by Mohsin Ahmed Khan Ghori |
| https://archive.org/details/xi-2020-practical-file | |  XI 2020 Practical File by Mohsin Ahmed Khan Ghori |
| https://archive.org/details/brief-introduction-to-arduino-uno-edition-1/mode/2up | |  Brief Introduction To Arduino UNO Edition 1 by Mohsin Ahmed Khan Ghori |
| https://archive.org/details/tasbeeh-125 | | Digital Counter/ Tasbeeh-125 Mobile application for counting |

| | |
|---|---|
| ***Book Title*** | ***The Beginning of New Era (1st Edition 2026-27)*** |
| ***Published in*** | ***November 2026*** |
| ***Number of Publications*** | ***01 (Online Only One)*** |
| ***Mode in which published:*** | ***Online*** |
| ***Price/Cost*** | ***Free of cost available for download*** |

***Scan the below QR-Code for the video playlist of all practical***

اوپر موجود QR-code کو اسکین کر کے اس کتاب میں موجود تمام پریکٹیکل کے ویڈیوز تک رسائی حاصل کریں۔

**مٿي ڏنل QR ڪوڊ اسڪين ڪندي هن ڪتاب ۾ موجود سڀني عملي (پريڪٽيڪل) وڊيوز تائين رسائي حاصل ڪريو۔**