2 DIGITAL SKILLS

Activity - 1

Consider the following worksheet containing scores of top five Pakistani batsmen against New Zealand.

	A	B	C	D	E	F	G
1							
2							
3							
4	S.No	Name	First match	Second match	Third match	Total score	Average score
5	1	Babur Azam	57	34	105		
6	2	Fahar Zaman	42	34	71		
7	3	Muhammad Hafeez	23	85	65		
8	4	Sarfraz Ahmed	45	12	41		
9	5	Shoaib Malik	6	75	49		
10		Maximum Score					
11		Minimum Score					

1. Write a formula to calculate total score of Babar Azam in F5.
2. Write a function to calculate total score of Muhammad Hafeez in F7.
3. Write a function to calculate Average score of Muhammad Hafeez in G7.
4. Write a function to calculate Maximum score in second match in D10.
5. Write a function to calculate Minimum score in third match in E11.
6. Draw a bar chart to show average score of each batsman.

Solution:

1. Write a formula to calculate total score of Babar Azam in F5.

Ans: =SUM(C5:E5)

2. Write a function to calculate total score of Muhammad Hafeez in F7.

Ans: =SUM(C7:E7)

3. Write a function to calculate Average score of Muhammad Hafeez in G7.

Ans: =AVERAGE(C7:E7)

4. Write a function to calculate Maximum score in second match in D10.

Ans: =MAX(D5:D9)

5. Write a function to calculate Minimum score in third match in E11.

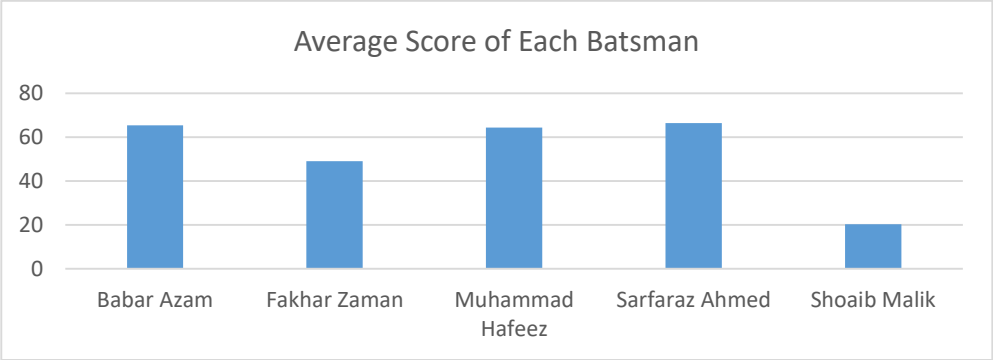
Ans: =MIN(E5:E9)

6. Draw a bar chart to show average score of each batsman.

Ans:

Steps:

1. Select the range: B5:B9 (Names) and G5:G9 (Average Scores).
2. Click the Chart button from the Insert tab.
3. Click the required type of Chart.



Activity - 2

Prepare the following worksheets and also draw charts

i. Height of Students in a class ii. Home budget iii. Electricity Bill

i. Height of Students in a class:

	A	B	C	D	E	F	G
1	Month	Units Consumed	Rate per Unit	TOTAL BILL			
2	January	150	10				
3	February	175	10				
4	March	200	15				
5	April	220	15				
6	May	250	15				
7	June	300	15				

1. Write a formula to calculate TOTAL BILL of January in D2
2. Write a formula to calculate June in D7

Solution:

1. Write a formula to calculate TOTAL BILL of January in D2

Ans: =B2*C2

2. Write a formula to calculate June in D7

Ans: =B7*C7

ii. Home budget:

	A	B	C	D	E	F	G
1	Category	Amount					
2	Rent	12000					
3	Groceries	5000					
4	Utilities	3000					
5	Transport	2000					
6	Entertainment	1500					
7	TOTAL EXPENSES						
8	TOTAL INCOME	25000					
9	SAVING						
10							

1. Write a formula to calculate TOTAL EXPENSES in B7
2. Write a formula to calculate TOTAL SAVING in B8

Solution:

1. Write a formula to calculate TOTAL EXPENSES in B7

Ans =SUM(B2:B6)

2. Write a formula to calculate TOTAL SAVING in B8

Ans =B8-B7

Activity - 3

Consider the following worksheets and also draw charts

	A	B	C	D	E	F	G	H	I	J
1	Roll #	Student Name	English Marks	Science Marks	Math Marks	Urdu Marks	Obtained Marks	Average	%age	Remark (Pass/Fail)
2	1001	Danish	18	17	19	14				
3	1002	Akram	13	12	8	13				
4	1003	Saleem	15	17	18	16				
5	1004	Asim	18	19	20	17				
6	1005	Asad	12	14	15	13				
7	Max Marks									
8	Min Marks									

1. Write a formula to calculate the Obtained Marks of Dainsh in G2.
2. Write a formula to calculate the Average Marks of Saleem in H4.
3. Write a formula to calculate the Percentage Marks of Asim in I5.
4. Write a formula to print "Pass" if %age is greater than 40 else "Fail" of Dainsh in J2.
5. Write a formula to calculate the Max Marks of Science in D8.
6. Write a formula to calculate the Max Marks of Math in E9.

Solution:

1. =SUM(C2:F2)
2. =AVERAGE(C4:F4)
3. =G5/80*100
4. =IF(I1>=40, "Pass", "Fail")
5. =MAX(D2:D6)
6. = MIN(E2:E6)

4 An Overview of Textual Programming Language Python

Program # 1

Write a program in Python that convert Temperature from Celsius to Fahrenheit?

Python Program:

```
1. celsius = eval(input("Enter temperature in Celsius: "))
2. fahrenheit = (celsius * 9/5) + 32
3. print("Temperature in Fahrenheit:", fahrenheit)
```

Output:

```
Enter temperature in Celsius: 25
Temperature in Fahrenheit: 77.0
```

Program # 2

Write a program in Python for assigning and updating values of variables?

Python Program:

```
1. x=3
2. y=4
3. z=x + y
4. z=z+1
5. x=y
6. y=5
7. print ("Value of x: ", x)
8. print ("Value of y:", y)
9. print ("Value of z:", z)
```

Output:

```
Value of x: 4
Value of y: 5
Value of z: 8
```

Program # 3

Write a program in Python that Guess the number?

Python Program:

```
1. number = 5
2. guess = eval(input("Enter your Guess:"))
3. if guess == number:
4.    print("You got it right")
```

Output:

```
Enter your Guess: 5
You got it Right
```

Program # 4

Write a program in Python that Guess the number (if else)?

Python Program:

```
1. number = 5
2. guess = eval(input("Enter your Guess:"))
3. if guess == number:
4.    print("You got it right")
5. else:
6.    print("Wrong guess!!! Correct number was", number)
```

Output:

```
Enter your Guess: 9
Wrong guess!!! Correct
number was
```

Program # 5

Write a program in Python that Display a Sequence Multiple Times?

Python Program:

```
1. for i in rang (3):
2.    print (i+1, " - - Hello !!!")
```

Output:

```
- - Hello !!!
- - Hello !!!
- - Hello !!!
```

Program # 6

Write a program in Python that Calculate the Square of numbers?

Python Program:

```
1. for i in rang (3):
2.    number = eval(input("Enter a Number: "))
```

Output:

```
Enter a Number: 2
The Square of your number is 4
Enter a Number: 4
```

```
3. print ("The Square of your number is ", number * number)
4. print ("This loop is now done")
```

```
The Square of your number is 16
Enter a Number: 5
The Square of your number is 25
This loop is now done
```

Program # 7

Write a program in Python that prints table of numbers

Python Program:

```
1. num = int(input("Enter a number: "))
2. for i in range(1, 11):
3.     print(num, "x", i, "=", num * i)
```

Output:

```
Enter a number: 5
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

Program # 8

Write a program in Python to Show Math Library Functions?

Python Program:

```
1. from math import sin, pi
2. print("Value of PI is roughly ", pi)
3. print(abs(-4.3))
4. print(round(3.336,2))
5. print(round(345.2,-1))
```

Output:

```
Value of PI is roughly
3.141592653589793
4.3
3.34
350.0
```

Program # 9

Write a program in Python to print right angled triangle of '*'

Python Program:

```
1. for i in range (0,6):
2.     for j in rang (0, i+1):
3.         print ("*", end="")
4.     print("\r")
```

Output:

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

Program # 10

Write a program in Python to print right angled triangle of numbers (starting form 1)

Python Program:

Output:

```
1. num = 1                                  1
2. for i in range (0,6):                    1 2
3. num = 1                                  1 2 3
4.      for j in rang (0, i+1)              1 2 3 4
5.          print (num, end="")             1 2 3 4 5
6.          num = num + 1                   1 2 3 4 5 6
6.      print("\r")
```

Program # 11

Write a program in Python that to calculate square of a number

Python Program:

```
num = float(input("Enter a number: "))
square = num * num
print("Square of", num, "is", square)
```

Output:

```
Enter a number: 5
Square of 5.0 is 25.0
```

SRQ # 1

For the following code block a sprite will turn 30 degrees. How many clicks are required for a sprite to complete a full cycle?

Answer: A full cycle is 360 degrees. 360 ÷ 30 = 12 clicks are required.

SRQ # 2

What is the difference in outputs of following code-blocks, having 4 backdrops?

Answer:

- In the first code block, the backdrop switches 4 times with a wait of 0.5 seconds, and then the sprite moves 10 steps. This process repeats continuously.
- In the second code block, the backdrop switches and the sprite moves 10 steps each time inside the repeat loop. So, the sprite moves 10 steps 4 times while switching backdrops.

SRQ # 3

For the maze game, duplicate the map "maze-map" and rename it as "maze-map2". Next, change the color of lines in new map from Blue to Red. Add scripts such that the game becomes a multi-level game with the 2 distinct images.

Answer:

Steps:

1. Duplicate the maze-map and rename it maze-map2.
2. Change the line color from blue to red in maze-map2.
3. Add scripts to switch to the next backdrop when the player reaches the goal.
4. This will create multiple levels using different maze maps.

SRQ # 4

Take a 4-digit number as input for a year and check if year is a leap year or not.

Answer:

Python Program:

```
1. year = eval(input("Enter a 4-digit year: "))
2. if (year % 4 == 0 and year % 100 != 0) or (year
% 400 == 0):
3.    print("The year", year, "is a leap year")
4. else:
5.    print("The year", year, "is not a leap year")
```

Output:

```
Enter a 4-digit year: 2020
The year 2020 is a leap year
```

SRQ # 5

Take length and width as input from the user for a quadrilateral and check if it is a square or rectangle.

Answer:

Python Program:

```
1. length = eval(input("Enter length: "))
2. width = eval(input("Enter width: "))
3. if length == width:
4.    print("It is a square")
5. else:
6.    print("It is a rectangle")
```

Output:

```
Enter length: 5
Enter width: 5
It is a square
```

SRQ # 6

Write a program in python for the following output (print a triangle).

Answer:

Python Program:

```
1. rows = 5
2. for i in range(1, rows + 1):
3.     print("* " * i)
```

Output:

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

SRQ # 7

Write a program in python which displays square of the numbers and prints in the form of a triangle, as shown below.

Python Program:

```
1. num = 1
2. for i in range(1, 5):
3.    for j in range(1, i + 1):
4.        print(num * num, end=" ")
5.        num += 1
6.    print()
```

Output:

```
1
4 9
16 25 36
49 64 81 100
```