Lab Assignment
Python Programming (CSEN2153)
3rd Semester, CSE(AIML), HTIK

24th and 25th July 2024(Gr I and Gr II)

Variable, Operator and Expression, Conditional Statements

1. Write a program that prompts the user to enter two integers and display their sum on the screen.

2. Write a program add.py that takes 2 numbers as command line arguments and prints its sum.

3. Write a program that prompts the user to input a Celsius temperature and outputs the equivalent temperature in Fahrenheit.
The formula to convert the temperature is: **F = 9/5 C + 32** where F is the Fahrenheit temperature and C is the Celsius temperature.

4. Write a program which accept two variables through command line and demonstrates the use of the relational operators (<, ==, !=, >, >=, <=) , identity operator(is, is not), membership operators (in, not in).

5. Write a program to determine whether a person is eligible to vote or not . If he/she is not eligible, display how many years are left to be eligible.

6. Write a program to find the maximum, minimum and average of three numbers.

7. Write a program that accepts seconds from keyboard as integer. Your program should convert seconds in hours, minutes and seconds. Your output should like this :

```
Enter seconds: 13400
Hours: 3
Minutes: 43
Seconds: 20
```

8. **Finding the distance between two points whose coordinates are given**
Take coordinates of two points (in two dimension) from the user giving prompt. Find out the distance between the given points using the standard formula. Display the distance to the user in appropriate format.
Sample Input and Output:

```
Enter x-coordinate1:0
Enter y-coordinate1:0
Enter x-coordinate2:3
Enter y-coordinate2:4
The distance is  5.0
```

9. Vivek went to a movie with his friends in a theatre and during break time he bought pizzas, puffs and cool drinks. Consider the following prices :• Rs.100/pizza• Rs.20/puffs• Rs.10/cool drink

Generate a bill for What Vivek has bought.

Sample Input 1:

```
• Enter the no of pizzas bought:10
• Enter the no of puffs bought:12
• Enter the no of cool drinks bought:5
```

Sample Output 1:

```
Bill Details
• No of pizzas:10
• No of puffs:12
• No of cooldrinks:5
• Total price=1290
ENJOY THE SHOW!!!
```

10. **Finding the roots of a quadratic equation**

Take the coefficients *a, b,* and *c* of a quadratic equation $ax^2+bx+c=0$ from the user.
Find the roots (could be real & equal, real & unequal, or complex conjugate). Display the roots to the user in a proper format. Make at least 3 attempts to input the values of a, b, and c such that all the above three cases arise.

Sample input and Output

```
Enter the coefficient of x^2:1
Enter the coefficient of x:-2
Enter the constant term:1
Roots are real and equal
Root 1 is  1.0 Root2 is  1.0

Enter the coefficient of x^2:1
Enter the coefficient of x:7
Enter the constant term:12
Roots are real and distinct
Root 1 is  -3.0 Root2 is  -4.0

Enter the coefficient of x^2:1
Enter the coefficient of x:1
Enter the constant term:1
Roots are imaginary
Root1 is  -0.5 +i 0.8660254037844386
Root2 is  -0.5 -i 0.8660254037844386
```

11. Kolkata college wants to recognize the department which has succeeded in getting the maximum number of placements for this academic year. The departments that have participated in the recruitment drive are CSE,ECE, MECH. Help the college find the department getting maximum placements. Check for all the possible output given in the sample snapshot

Note : If any input is negative, the output should be “Input is Invalid”. If all department has equal number of placements, the output should be “None of the department has got the highest placement”.

Sample Input 1:

```
• Enter the no of students placed in CSE:90
• Enter the no of students placed in ECE:45
• Enter the no of students placed in MECH:70
```

Sample Output 1:

```
• Highest placement
CSE
```

Sample Input 2:

```
• Enter the no of students placed in CSE:55
• Enter the no of students placed in ECE:85
• Enter the no of students placed in MECH:85
```

Sample Output 2:

```
• Highest placement
ECE
MECH
```

Sample Input 3:

```
• Enter the no of students placed in CSE:0
• Enter the no of students placed in ECE:0
• Enter the no of students placed in MECH:0
```

Sample Output 3:

```
• None of the department has got the highest placement
Sample Input 4:
• Enter the no of students placed in CSE:10
• Enter the no of students placed in ECE:-50
• Enter the no of students placed in MECH:40
```

Sample Output 4:

```
• Input is Invalid
```

12. In a theater, there is a discount scheme announced where one gets a 10% discount on the total cost of tickets when there is a bulk booking of more than 20 tickets, and a discount of 2% on the total cost of tickets if a special coupon card is submitted. Develop a program to find the total cost as per the scheme. The cost of the k class ticket is Rs.75 and q class is Rs.150. Refreshments can also be opted by paying an additional of Rs. 50 per member.

Hint: k and q and You have to book minimum of 5 tickets and maximum of 40 at a time. If fails display “Minimum of 5 and Maximum of 40 Tickets”. If circle is given a value other than ‘k’ or ‘q’ the output should be “Invalid Input”. The ticket cost should be printed exactly to two decimal places.

Sample Input 1:

```
• Enter the no of ticket:35
• Do you want refreshment:y
• Do you have coupon code:y
• Enter the circle:k
```

Sample Output 1:

- `Ticket cost:4065.25`

Sample Input 2:

- `Enter the no of ticket:1`

Sample Output 2:

- `Minimum of 5 and Maximum of 40 Tickets`