Assignment-04-(a)

December 6, 2024

1 Assignment#4: Conditional Statement

1.1 Question(1):

Write a program that prompts the user to input a number and display if the number is even or odd.

[6]:
```
num = int(input("Enter the number:"))

if num%2==0:
    print(f"{num} is even number")
else:
    print(f"{num} is odd number")
```

```
Enter the number: 9876548

9876548 is even number
```

1.2 Question(2):

Write a Python program that takes an age as input and determines whether a person is eligible to vote. If the age is 18 or above, print "You are eligible to vote." Otherwise, print "You are not eligible to vote yet.

[11]:
```
age = float(input("Enter your age:"))

if age >= 18:
    print("You are eligible to vote")
else:
    print("You are not eligible to vote yet!")
```

```
Enter your age: 19

You are eligible to vote
```

1.3 Question(3):

Write a program that prompts the user to input two integers and outputs the largest.

[15]:
```
num1 = int(input("Enter your 1st number:"))
num2 = int(input("Enter your 2nd number:"))

if num1>num2:
    print(f"Large number is {num1}")
else:
    print(f"Large number is {num2}")
```

```
Enter your 1st number: 234
Enter your 2nd number: 987

Large number is 987
```

1.4 Question(4):

Write a program that prompts the user to enter a number and determines whether it is positive, negative, or zero. The program should print "Positive" if the number is greater than 0, "Negative" if the number is less than 0, and "Zero" if the number is 0.

[20]:
```
num = float(input("Enter the number:"))

if num > 0:
    print("Positive")
elif num<0:
    print("Negative")
elif num == 0:
    print("Zero")
else:
    print("Invalid")
```

```
Enter the number: 45

Positive
```

1.5 Question(5):

Write a program that prompts the user to enter their age and prints the corresponding age group. The program should use the following age groups: 0-12: Child 13-19: Teenager 20-59: Adult 60 and above: Senior Citizen

[25]:
```
age = float(input("Enter your age:"))

if 0 < age <= 12:
    print("The user is Child")
elif 13 <= age <= 19:
    print("The user is Teenager")
elif 20 <= age <= 59:
    print("The user is Adult")
elif age >= 60:
    print("The user is Senior Citizen")
```

```
else:
    print("Invalid Input!!!")
```

```
Enter your age: 95

The user is Senior Citizen
```

1.6 Question(6):

Write a program that prompts the user to input a number from 1 to 7. The program should display the corresponding day for the given number. For example, if the user types 1, the output should be Sunday. If the user types 7, the output should be Saturday. If the number is not between 1 to 7 user should get error message as shown in sample output.

[29]:
```
num = int(input("Enter the number"))

if num==1:
    print("Sunday")
elif num==2:
    print("Monday")
elif num==3:
    print("Tuesday")
elif num==4:
    print("Wednesday")
elif num==5:
    print("Thursday")
elif num==6:
    print("Friday")
elif num==7:
    print("Saturday")
else:
    print("Invalid Input!!!")
```

```
Enter the number 7

Saturday
```

1.7 Question(7):

Write a program that prompts the user to enter their weight (in kilograms) and height (in meters). The program should calculate the Body Mass Index (BMI) using the formula: BMI = weight / (height * height). The program should then classify the BMI into one of the following categories: less than 18.5 - Underweight BMI between 18.5 and 24.9 - Normal weight BMI between 25 and 29.9 - Overweight BMI 30 or greater - Obesity

[2]:
```
w = float(input("Enter the weight in (Kg):"))
h = float(input("Enter the hight in (meter):"))

BMI = round(w/(h*h),2)
```

```
if BMI < 18.5:
    print(f"The BMI {BMI} show that user is Underweight")
elif 18.5 <= BMI <= 24.9:
    print(f"The BMI {BMI} show that user is Normal weight")
elif 25 <= BMI <= 29.5:
    print(f"The BMI {BMI} show that user is Overweight")
elif BMI >= 30:
    print(f"The BMI {BMI} show that user is Obesity")
else:
    print("Invalid Input!!!")
```

```
Enter the weight in (Kg): 70
Enter the hight in (meter): 6
```

```
The BMI 1.94 show that user is Underweight
```

1.8 Question(8):

The marks obtained by a student in 3 different subjects are input by the user. Your program should calculate the average of subjects and display the grade. The student gets a grade as per the following rules: Average Grade 90-100 A 80-89 B 70-79 C 60-69 D 0-59 F

[5]:
```
m1 = float(input("Enter the marks in English:"))
m2 = float(input("Enter the marks in Urdu:"))
m3 = float(input("Enter the marks in Physics:"))

avg = (m1+m2+m3)/3

if 90<= avg <= 100:
    print("The average grade is A")
elif 80<= avg <= 89:
    print("The average grade is B")
elif 70<= avg <= 79:
    print("The average grade is C")
elif 60<= avg <= 69:
    print("The average grade is D")
elif age<=59:
    print("The average grade is F")
else:
    print("invalid input!")
```

```
Enter the marks in English: 68
Enter the marks in Urdu: 90
Enter the marks in Physics: 85
```

```
The average grade is B
```

1.9 Question(9):

The roots of the quadratic equation ax2 + bx + c = 0, a 0 are given by the following formula:

In this formula, the term b2- 4ac is called the discriminant. If b2- 4ac = 0, then the equation has two equal roots. If b2- 4ac > 0, the equation has two real roots. If b2- 4ac < 0, the equation has two complex roots. Write a program that prompts the user to input the value of a (the coefficient of x2), b (the coefficient of x), and c (the constant term) and outputs the roots of the quadratic equation.

[7]:
```
a = float(input("Enter the value of a:"))
b = float(input("Enter the value of b:"))
c = float(input("Enter the value of c:"))

dc = b**b - 4*a*c

if dc == 0:
    print(f"As the value of discriminant is {dc}, Hence the Equation has two␣
 ↪equal roots")
elif dc > 0:
    print(f"As the value of discriminant is {dc}, Hence the Equation has two␣
 ↪real roots")
elif dc < 0:
    print(f"As the value of discriminant is {dc}, Hence the Equation has two␣
 ↪complex roots")
else:
    print("Invalid Input!!!")
```

```
Enter the value of a: 4
Enter the value of b: 5
Enter the value of c: 9
```

```
As the value of discriminant is 2981.0, Hence the Equation has two real roots
```

1.10 Question(10):

Write a program that prompts the user to enter three numbers and sorts them in ascending order. The program should print the sorted numbers.

[20]:
```
a = float(input("Enter the value of a:"))
b = float(input("Enter the value of b:"))
c = float(input("Enter the value of c:"))

num = [a,b,c]
num.sort()

print("The Sorted Number Is:",num)
```

```
Enter the value of a: 65
Enter the value of b: 55
Enter the value of c: 90
```

```
The Sorted Number Is: [55.0, 65.0, 90.0]
```

1.11 Question(11):

Write a program that prompts the user to input three integers and outputs the largest.

[33]:
```
a = float(input("Enter the value of a:"))
b = float(input("Enter the value of b:"))
c = float(input("Enter the value of c:"))

num = max(a,b,c)

print("The large number is:",num)
```

```
Enter the value of a: 456
Enter the value of b: 234
Enter the value of c: 876

The large number is: 876.0
```

1.12 Question(12):

Write a program that prompts the user to input a character and determine the character is vowel or consonant.

[44]:
```
char = input("Enter the character:").lower()

if char in 'aeiou':
    print("The character is Vowel")
else:
    print("The Character is Consonant")
```

```
Enter the character: o

The character is Vowel
```

1.13 Question(13):

Write a program that prompts the user to input a year and determine whether the year is a leap year or not. Leap Years are any year that can be evenly divided by 4. A year that is evenly divisible by 100 is a leap year only if it is also evenly divisible by 400. Example: 1992 Leap Year 2000 Leap Year 1900 NOT a Leap Year 1995 NOT a Leap Year

[46]:
```
y = int(input("Enter the year:"))

if y%100==0 and y%400==0:
    print(f"{y} is the Leap Year!")
else:
    print(f"{y} is not the Leap Year!")
```

```
Enter the year: 2000

2000 is the Leap Year!
```

1.14 Question(14):

Write a program that prompts the user to input number of calls and calculate the monthly telephone bills as per the following rule: Minimum Rs. 200 for up to 100 calls. Plus Rs. 0.60 per call for next 50 calls. Plus Rs. 0.50 per call for next 50 calls. Plus Rs. 0.40 per call for any call beyond 200 calls

[54]:
```
call = int(input("Enter the number of calls:"))

bill = 200

if call <= 100:
    print("The bill is",bill)
elif call > 100:
    extra_charges = min(call - 100,50)
    bill += extra_charges * 0.60
    print("The bill is",bill)
elif call > 150:
    extra_charges = min(call - 150,50)
    bill += extra_charges * 0.50
    print("The bill is",bill)
elif call > 200:
    extra_charges = call - 200
    bill += extra_charges * 0.40
    print("The bill is",bill)
else:
    print("Invalid Input!")
```

```
Enter the number of calls: 800

The bill is 230.0
```

[ ]:
```

```