Name : Akshay Prashant Teke
Roll no.: 35
Batch – C2

Assignment 4

1. Write a program to check whether a given number is positive, negative, or zero using if-else.

```
n = int(input("Enter a number : "))
if n > 0:
    print("Positive")
elif n < 0:
    print("Negative")
else:
    print("The number is zero.")
```

```
Enter a number :  -5
Negative
```

2. Write a program to check whether a number is even or odd using if-else.

```
n = int(input("Enter a number : "))
if n%2 == 0:
    print("Even")
elif n%2 != 0:
    print("Odd")
```

```
Enter a number :  3
Odd
```

3. Write a program to find the largest of three numbers using nested if statements.

```
a = int(input("Enter a number : "))
b = int(input("Enter a number : "))
c = int(input("Enter a number : "))

if a > b:
    if a > c:
        print(a," is greatest")

    else:
        print(c," is greatest")
else:
    if b > c:
        print(b," is greatest")

    else:
        print(c," is greatest")
```

```
Enter a number :  1
Enter a number :  66
Enter a number :  4
66  is greatest
```

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4. Write a program to determine the grade of a student based on marks using if-elif-else.

```
marks = int(input("Enter your marks : "))
if marks > 80:
    print("A grade")
elif marks > 60:
    print("B grade")
else:
    print("Z grade")
```

```
Enter your marks :  90
A grade
```

5. Write a program to check whether a year is a leap year using if-else.

```
year = int(input("Enter a year: "))

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(year, "is a Leap Year")
else:
    print(year, "is not a Leap Year")
```

```
Enter a year:  3629
3629 is not a Leap Year
```

6. Write a program to categorize age groups (child, teenager, adult, senior) using nested if.

```
age = int(input("Enter age : "))
if age > 12 and age <= 19:
    print("Teenager")
elif age > 19 and age < 60:
    print("Adult")
elif age >= 60:
    print("Senior Citizen")
else:
    print("Child")
```

```
Enter age :  77
Senior Citizen
```

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7. Write a program to calculate electricity bill based on units consumed using if-elif-else.

```
units = float(input("Enter the number of units consumed: "))

if units <= 100:
    bill = units * 5
elif units <= 200:
    bill = (100 * 5) + (units - 100) * 7
elif units <= 300:
    bill = (100 * 5) + (100 * 7) + (units - 200) * 10
else:
    bill = (100 * 5) + (100 * 7) + (100 * 10) + (units - 300) * 15

print("Total Electricity Bill: ₹", bill)
```

```
Enter the number of units consumed:  544
Total Electricity Bill: ₹ 5860.0
```

8. Write a program to determine the type of triangle (equilateral, isosceles, scalene) using nested if.

```
a = float(input("Enter side a: "))
b = float(input("Enter side b: "))
c = float(input("Enter side c: "))

if (a + b > c) and (a + c > b) and (b + c > a):
    if a == b and b == c:
        print("The triangle is Equilateral")
    else:
        if a == b or b == c or a == c:
            print("The triangle is Isosceles")
        else:
            print("The triangle is Scalene")
else:
    print("The given sides do not form a valid triangle")
```

```
Enter side a:  3
Enter side b:  2
Enter side c:  3
The triangle is Isosceles
```

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9. Write a program to print the day of the week based on a number input (1–7) using dictionary-based switch-case.

```
day = int(input("Enter a day : "))
days = {1 : "Sunday",2 : "Monday",3 : "Tuesday",4 : "Wednesday",5 : "Thursday",6 : "Friday",7 : "Saturday"}
print(days.get(day,"Invalid input."))
```

```
Enter a day :  4
Wednesday
```

10. Write a program to perform arithmetic operations (+, -, *, /) based on user input using dictionary-based switch-case.

```
a = int(input("Enter a number : "))
b = int(input("Enter a number : "))
operation = input("Enter operation : ")
arith = {
    '+' : a+b,
    '-' : a-b,
    '*' : a*b,
    '/' : a/b
}
print(arith.get(operation,"Invalid"))
```

```
Enter a number :  43
Enter a number :  54
Enter operation :  +
97
```

11. Write a program to check if a character is a vowel or consonant using if-else.

```
letter = input("Enter a letter : ")
l = ['a','e','i','o','u']
if letter.lower() in l:
    print("It is a vowel")
else:
    print("It is a constant.")
```

```
Enter a letter :  l
It is a constant.
```

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12. Write a program to check whether a number is divisible by 2, 3, and 5 using nested if.

```
num = int(input("Enter a number : "))
if num % 2 == 0:
    if num % 3 == 0 and num % 5 == 0:
        print("Divisible by 2,3 and 5.")
    else:
        print("Not divisible.")
else :
    print("Not divisible.")
```

```
Enter a number :  30
Divisible by 2,3 and 5.
```

13. Write a program to map months (1–12) to their names using dictionary-based switch-case.

```
inp = int(input("Enter a month : "))
month = {
    1 : "January",
    2 : "February",
    3 : "March",
    4 : "April",
    5 : "May",
    6 : "June",
    7 : "July",
    8 : "August",
    9 : "September",
    10 : "October",
    11 : "November",
    12 : "December"
}
print(month.get(inp,"Month not found."))
```

```
Enter a month :  44
Month not found.
```

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14. Write a program to implement a simple menu (1. Add, 2. Subtract, 3. Multiply, 4. Divide) using dictionary-based switch-case.

```
a = int(input("Enter a number : "))
b = int(input("Enter a number : "))
ops = int(input("\t\tMenu\n1.Addition\n2.Subtraction\n3.Multiplication\n4.Division\n"))
operation = {
    1 : a + b,
    2 : a - b,
    3 : a * b,
    4 : a / b,
}
print(operation.get(ops,"Not in menu."))
```

```
Enter a number :  3
Enter a number :  1
                Menu
1.Addition
2.Subtraction
3.Multiplication
4.Division
 1
4
```

15. Write a program to determine if a student is eligible for a scholarship based on multiple criteria (marks, attendance) using nested if.

```
marks = float(input("Enter your marks (out of 100): "))
attendance = float(input("Enter your attendance percentage: "))

if marks >= 75:
    if attendance >= 80:
        print("Congratulations! You are eligible for the scholarship.")
    else:
        print("You are not eligible due to low attendance.")
else:
    print("You are not eligible due to low marks.")
```

```
Enter your marks (out of 100):  65
Enter your attendance percentage:  80
You are not eligible due to low marks.
```