#Conditional Statements :

1. Check if a number is positive, negative, or zero Task: Write a program to check whether a number is positive, negative, or zero.
   Expected Understanding: Learn to compare values using > , <,== with if,elif,else.
   Ans:

```
n = int(input("enter a number:"))
if n > 0:
    print("Given number is positive")
elif n == 0:
    print("Given number is zero")
else:
    print ("Given number is Negative")
```

   Output: enter a number: -4
   Given number is Negative
   enter a number:6
   Given number is positive
2. Find the largest among three numbers Task: Write a program to find the largest of three given numbers. Expected Understanding: Practice comparing multiple values using and logic and nested or chained conditions.
   Ans:

```
a = int(input("enter a: "))
b = int(input("enter b: "))
c = int(input("enter c: "))
if (a>b and a>c):
    print(" a is largest: ")
elif (b>a and b>c):
    print("b is largest")
else:
    print("c is  largest")
```

   Output:
   enter a: 5
   enter b: 9
   enter c: 2
   b is largest

3. Check if a character is a vowel Task: Check if the entered character is a vowel (Expected Understanding: a, e, i, o, u). Use the in operator and string comparison to test character membership.

   Ans:

```
word = input("Enter a Word: ")
if "a" in word:
   print("word contains vowels")
elif ("e" in word):
   print("word contains vowels")
elif ("i" in word):
   print("word contains vowels")
elif ("o" in word):
   print("word contains vowels")
elif ("u" in word):
   print("word contains vowels")
```

   Output:

```
Enter a Word: air
word contains vowels
```

4. Check whether a number is even and divisible by 5 Task: Write a program to check if a number is both even and divisible by 5. Expected Understanding: Apply modulo operator % and combine multiple conditions with and .

   Ans:

```
num = int(input("enter a number:" ))
if num % 2 == 0 and num % 5 == 0:
   print("given number is even and divisible by 5")
else:
   print("given number is not even and divisible by 5")
```

   Output:

```
enter a number:10
given number is even and divisible by 5
```

6. Student Grade Calculation Task: Input percentage and print: - 90+ → A- 75–89 → B- 50–74 → C- Below 50 → Fail Expected Understanding: Use chained conditions to match ranges with output categories

   Ans:

```
per=int(input("Enter the percentage:"))
```

```
print("The percentage entered:",per)
if(per>=90):
   print(" Grade A")
elif(per>=75):
   print("Grade B")
elif(per>=50):
   print("Grade C")
else:
   print("Fail")
```

output:

```
Enter the percentage:54
The percentage entered: 54
Grade C
Enter the percentage:78
The percentage entered: 78
Grade B
```

7. Check Login Credentials Task: Take a username and password and validate them with predefined values. Expected Understanding: Use logical and and comparison (==) to check if both values match expected input.

Ans:

```
username=input("Enter the username:")
print("Name entered:",username)
password=int(input("Enter the password:"))
print("The password entered:",password)
if(username=="admin" and password==1234):
   print("Login Successful")
else:
   print("Login Failed")
```

```
Enter the username:asmin
Name entered: asmin
Enter the password:1234
The password entered: 1234
Login Failed
```

8.Simple Calculator Task: Take two numbers and an operator (+, -, *, /) and print the result. Expected Understanding: Use conditionals to check the operator and apply the correct arithmetic operation.

Ans:

```
num1=float(input("Enter the value:"))
num2=float(input("Enter the value:"))
operator=input("Enter any operator:(+,-,*,/):")
if(operator == '+'):
   print(num1+num2)
elif(operator == '-'):
   print(num1-num2)
elif(operator == '*'):
   print(num1*num2)
elif(operator == '/'):
   print(num1/num2)
else:
   print("Invalid operator")
```

output:

```
Enter the value:100
Enter the value:50
Enter any operator:(+,-,*,/):+
150.0
```

9. Check if number is in a list Task: Check if a number exists in a predefined list. Expected Understanding: Use the in operator and conditional if to check for membership.

Ans:

```
list = [12, 20, 67, 34, 78]
num = int(input("Enter a number: "))
if num in list:
   print("Number in list")
else:
   print("not in list")
```

output:

```
Enter a number: 20
Number in list
```

10.Check if a string is a palindrome Task: Check if the given string reads the same backward. Expected Understanding: Use string slicing and equality comparison to test palindromes.

Ans:

```
number = int(input("Enter a number: "))
reverse = int(str(number)[::-1])
if number == reverse:
    print("number is a palindrome.")
else:
    print("number is not a palindrome.")
```

Output:

Enter a number: 202
202 is a palindrome.

11. Check if a number is within a range Task: Check if a number lies between 10 and 50 (inclusive). Expected Understanding: Use chained comparison like 10 <= num <= 50 with if

Ans:

```
num=int(input("enter a number:"))
if (10 <= num <= 50):
    print("This number lies between 10 to 50")
else:
    print("This number not in between 10 to 50")
```

output:

enter a number:45
This number lies between 10 to 50

12. Determine age group Task: Categorize age into: -
13–19 → Teen- 20–59 → Adult- 60+ → Senior
Expected Understanding: Use range checks with if-elif-else to classify age into defined groups.

Ans:

```
age=int(input("Enter the age:"))
if(age<=13):
    print("child")
elif(age>=19):
    print("Teen")
elif(age>=59):
    print("adult")
elif(age>=60):
```

```
    print("senior")
```
output:

Enter the age:8
Child
Enter the age:23
Teen

13. Compare two strings ignoring case Task: Check if two strings are equal (case-insensitive). Expected Understanding: Use .lower() or .upper() for normalization and then compare strings.

Ans:

```
string1=input("enter first string:")
string2=input("enter second string:")
if string1.lower() == string2.lower():
    print("Both strings are equal")
else:
    print("both strings are not equal")
```
output:

enter first string:hello
enter second string:HELLO
Both strings are equal

14. Traffic Light Simulator Task: Given a signal color (red , yellow , or green), print appropriate action. 3 Expected Understanding: Use string comparison with if-elif-else to simulate decision-making

Ans:

```
color = input("Enter traffic light color: ").lower()
if color == "red":
    print("Stop")
elif color == "yellow":
    print("Get Ready")
elif color == "green":
    print("Go")
else:
    print("Invalid color")
```

output:

Enter traffic light color: red
Stop

Enter traffic light color: green
Go