

DAY 02 **

CONTROL FLOW AND LOOPS Conditional Statements

IF STATEMENT

```
age=18
if age>=18:
    print("You are eligible to vote")
```

You are eligible to vote

if-else Statements

```
num=int(input("Enter a number: "))
if num%2==0:
    print("The number is even")
else:
    print("The number is odd")
```

Enter a number: 5
The number is odd

IF-ELIF-ELSE STATEMENT

```
Marks=int(input('Enter your marks:'))
if Marks>=90:
    print('Grade:A')
elif Marks>=75:
    print('Grade B:')
elif Marks>=50:
    print('Grade C:')
else:
    print('Grade F:')
```

Enter your marks:55
Grade C:

****Loops for 'LOOPS**

```
for i in range(5):  
    print("Iteration:",i)
```

```
Iteration: 0  
Iteration: 1  
Iteration: 2  
Iteration: 3  
Iteration: 4
```

```
for i in range(5,10):  
    print("Iteration:",i)
```

```
Iteration: 5  
Iteration: 6  
Iteration: 7  
Iteration: 8  
Iteration: 9
```

```
for i in range (5,50,10):  
    print("Iteration:",i)
```

```
Iteration: 5  
Iteration: 15  
Iteration: 25  
Iteration: 35  
Iteration: 45
```

WHILE LOOP

```
count=0  
while count<5:  
    print("Count:",count)  
    count+=1
```

```
Count: 0  
Count: 1  
Count: 2  
Count: 3  
Count: 4
```

CONTROL FLOW TOOLS

```
# break  
for i in range(10):  
    if i==5:
```

```
        break
    print(i)

0
1
2
3
4

# continue
for i in range(10):
    if i==5:
        continue
    print(i)

0
1
2
3
4
6
7
8
9

# pass
for i in range(10):
    if i==5:
        pass
    print(i)

0
1
2
3
4
5
6
7
8
9
```

HANDS ON PRACTICE

```
# odd or even
X=int(input("ENTER A NUMBER:"))
if X%2==0:
```

```

    print("EVEN NUMBER")
else:
    print("Odd NUMBER")

ENTER A NUMBER:55
Odd NUMBER

# SUM OF NUMBERS IN A GIVEN RANGE
start=int(input("Enter the start of the range:"))
end=int(input("Enter the end of the range:"))
sum=0
for i in range(start,end+1):
    sum+=i
print("The sum of numbers from",start,"to",end,"is",sum)

Enter the start of the range:5
Enter the end of the range:10
The sum of numbers from 5 to 10 is 45

# Factorial
num=int(input("Enter a number:"))
factorial=1
for i in range (1,num+1):
    factorial*=i
print("The factorial is:",factorial)

Enter a number:5
The factorial is: 120

# FIBONACCI SEQUENCE
n=int(input("Enter the number of terms:"))
a,b=0,1
for _ in range(n):
    print(a,end=" ")
    a,b=b,a+b

Enter the number of terms:5
0 1 1 2 3

```

SIMPLE CALCULATOR USING IF-ELSE

```

num1=float(input("Enter the first number:"))
num2=float(input("Enter the second number:"))
operation=input("Enter the operation(+,-,*,/,//,%,**):")
if operation=='+':
    print("Result:",num1 + num2)
elif operation=='-':
    print("Result:",num1 - num2)
elif operation=='*':

```

```

    print("Result:", num1 * num2)
elif operation=='/':
    print("Result:", num1 / num2)
elif operation=='//':
    print("Result:", num1 // num2)
elif operation=='%':
    print("Result:", num1 % num2)
elif operation=='**':
    print("Result:", num1 ** num2)
else:
    print("Invalid operation")

```

```

Enter the first number:5
Enter the second number:6
Enter the operation(+,-,*,/,//,%,**):%
Result: 5.0

```

CHECK LEAP YEAR

```

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:2024
2024 is a leap year

```

FIND THE LARGEST OF THREE NUMBERS

```

num1=float(input("Enter the first number:"))
num2=float(input("Enter the second number:"))
num3=float(input("Enter the third number:"))
if num1>=num2 and num1>num3:
    print("The largest number is:",num1)
elif num2>=num1 and num2>=num3:
    print("The largest number is:",num2)
else:
    print("The largest number is:",num3)

```

```

Enter the first number:69
Enter the second number:69
Enter the third number:69
The largest number is: 69.0

```

CHECK POSITIVE NEGATIVE OR ZERO

```

a=int(input('Enter a Number:'))
if a>0:
    print('The number is positive')
elif a<0:
    print('The number is negative')
else:
    print('The number is zero')

```

```
Enter a Number:-5
The number is negative

# SUM OF ALL EVEN NUMBERS
start=int(input("Enter the start of the range:"))
end=int(input("Enter the end of the range:"))
sum_even=0
for i in range(start,end+1):
    if i%2==0:
        sum_even+=i
print("The sum of even numbers from",start,"to",end,"is",sum_even)

Enter the start of the range:5
Enter the end of the range:10
The sum of even numbers from 5 to 10 is 24
```

SIMPLE PYTHON QUESTIONS BASED ON CONTROL FLOW AND LOOP

1. Write a program that checks if a character is a vowel or a consonant

```
letter=input("Enter a letter:")
if letter in 'aeiou':
    print(letter, "is a vowel")
else:
    print(letter, "is a consonant")
```

```
Enter a letter:b
b is a consonant
```

2. Write a program to determine if a given number is divisible by 5 and 3.

```
num = int(input("Enter a number: "))
if num % 5 == 0 and num % 3 == 0:
    print(num, "is divisible by both 5 and 3")
else:
    print(num, "is not divisible by both 5 and 3")
```

```
Enter a number: 11
11 is not divisible by both 5 and 3
```

3. Write a program to print numbers from 1 to 10.

```
for i in range(1, 11):
    print(i)
```

```
1
2
3
4
5
6
7
8
9
10
```

4. Write a program to print the multiplication table of 5

```
number=5
for i in range(1, 11):
    product = number * i
    print(f"{number} x {i} = {product}")
```

```
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
```

5. Write a program to calculate the sum of the first 10 natural numbers

```
total_sum = 0
for i in range(1, 11):
    total_sum += i
print("The sum of the first 10 natural numbers is:", total_sum)
```

```
The sum of the first 10 natural numbers is: 55
```

6. Write a program to print all even numbers between 1 and 20

```
for i in range(1, 21):
    if i % 2 == 0:
        print(i)
```

```
2
4
6
```

```
8
10
12
14
16
18
20
```

7. Write a program to print all odd numbers between 1 and 20

```
for i in range(1,21,2):
    print(i)

1
3
5
7
9
11
13
15
17
19
```

8. Write a program that stops printing numbers from 1 to 10 when it encounters the number 5

```
for i in range(1, 11):
    print(i)
    if i == 5:
        break

1
2
3
4
5
```

9. Write a program that skips printing the number 4 in a loop that goes from 1 to 5.

```
for i in range(1, 6):
    if i == 4:
        continue
    print(i)

1
2
3
5
```


10. Write a program to iterate through a list of fruits and print each fruit's name.

```
fruits = ["apple", "banana", "cherry", "date", "elderberry"]
for fruit in fruits:
    print(fruit)

apple
banana
cherry
date
elderberry
```

11. Write a program to calculate the sum of numbers until the user enters 0

```
total_sum = 0
while True:
    number = int(input("Enter a number (enter 0 to stop): "))
    if number == 0:
        break
    total_sum += number

print("The sum of the numbers is:", total_sum)

Enter a number (enter 0 to stop): 55
Enter a number (enter 0 to stop): 66
Enter a number (enter 0 to stop): 1
Enter a number (enter 0 to stop): 2
Enter a number (enter 0 to stop): 0
The sum of the numbers is: 124
```

12. Write a program to reverse a given number using a while loop

```
number = int(input("Enter a number: "))
reversed_number = 0
while number > 0:
    remainder = number % 10
    reversed_number = (reversed_number * 10) + remainder
    number //= 10
print("Reversed Number:", reversed_number)

Enter a number: 65
Reversed Number: 56
```

13. Write a program to keep asking for a number until the user enters a negative number

```
while True:
    number = int(input("Enter a number: "))
    if number < 0:
        break
```

```
    print("You entered:", number)
print("You entered a negative number. Exiting.")
```

```
Enter a number: 55
You entered: 55
Enter a number: -9
You entered a negative number. Exiting.
```

14. Write a program to count down from 10 to 1.

```
for i in range(10, 0, -1):
    print(i)
```

```
10
9
8
7
6
5
4
3
2
1
```

15. Write a program to print a 3x3 matrix of * symbols

```
for i in range(3):
    for j in range(3):
        print("*", end=" ")
    print()
```

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