**CYCLE-1**

1. **Write a program to demonstrate basic data type in python.**

**CODE**

a=1

print("the value of",a,"is of the type",type(a))

b="hello"

print("the value of",b,"is of the type",type(b))

c=3.14

print("the value of",c,"is of the type",type(c))

d=2j

print("the value of",d,"is of the type",type(d))

e={"ads","web","python"}

print("the value of",e,"is of the type",type(e))

f=("ads","web","python")

print("the value of",f,"is of the type",type(f))

g=["ads","web","python"]

print("the value of",g,"is of the type",type(g))

h=range(5)

print("the value of",h,"is of the type",type(h))

i=True

print("the value of",i,"is of the type",type(i))

**OUTPUT**

the value of 1 is of the type <class 'int'>

the value of hello is of the type <class 'str'>

the value of 3.14 is of the type <class 'float'>

the value of 2j is of the type <class 'complex'>

the value of {'ads', 'web', 'python'} is of the type <class 'set'>

the value of ('ads', 'web', 'python') is of the type <class 'tuple'>

the value of ['ads', 'web', 'python'] is of the type <class 'list'>

the value of range(0, 5) is of the type <class 'range'>

the value of True is of the type <class 'bool'>

1. **“Hello , World !” program.**

**CODE**

print("Hello, World !")

**OUTPUT**

Hello, World !

1. **Program to print an integer(entered by the user).**

**CODE**

num=int(input("Enter the integer: "))

print("You entered",num)

**OUTPUT**

Enter the integer: 23

You entered 23

1. **Program to add two integers.**

**CODE**

num1 = 1

num2 = 6

sum = num1 + num2

print('The sum of {0} and {1} is {2}'.format(num1, num2, sum))

**OUTPUT**

The sum of 1 and 6 is 7

1. **Program to multiply two floating point numbers.**

**CODE**

n1=float(input("Enter first number: "))

n2=float(input("Enter second number: "))

mul=n1\*n2;

print("the product of given numbers is:",mul)

**OUTPUT**

Enter first number: 1.5

Enter second number: 1.5

the product of given numbers is: 2.25

1. **Program to compute quotient and remainder.**

**CODE**

def find(n, m):

     q = n//m

     print("Quotient: ", q)

        r = n%m

     print("Remainder", r)

find(10, 2)

find(16, 5)

**OUTPUT**

Quotient: 5

Remainder 0

Quotient: 3

Remainder 1

1. **Program to swap two numbers.**

**CODE**

x = 5

y = 10

temp = x

x = y

y = temp

print('The value of x after swapping: {}'.format(x))

print('The value of y after swapping: {}'.format(y))

**OUTPUT**

The value of x after swapping: 10

The value of y after swapping: 5

1. **Program to check whether a number is even or odd.**

**CODE**

n = int(input("Enter a number: "))

if (n % 2) == 0:

    print("{0} is Even".format(n))

else:

   print("{0} is Odd".format(n))

**OUTPUT**

Enter a number: 34

34 is Even

1. **Program to check whether a character is vowel or consonant.**

**CODE**

ch = input("Enter a character: ")

if(ch=='A' or ch=='a' or ch=='E' or ch =='e' or ch=='I'

or ch=='i' or ch=='O' or ch=='o' or ch=='U' or ch=='u'):

    print(ch, "is a Vowel")

else:

    print(ch, "is a Consonant")

**OUTPUT**

Enter a character: q

q is a Consonant

1. **Program to find the largest among three numbers.**

**CODE**

num1 = 10

num2 = 9

num3 = 12

if (num1 >= num2) and (num1 >= num3):

    largest = num1

elif (num2 >= num1) and (num2 >= num3):

   largest = num2

else:

   largest = num3

print("The largest number is", largest)

**OUTPUT**

The largest number is 12.

1. **Program to check leap year.**

**CODE**

year = 2001

if (year % 4) == 0:

  if (year % 100) == 0:

        if (year % 400) == 0:

           print("{0} is a leap year".format(year))

        else:

           print("{0} is not a leap year".format(year))

   else:

        print("{0} is a leap year".format(year))

else:

    print("{0} is not a leap year".format(year))

**OUTPUT**

2001 is not a leap year

1. **Program to check whether a number is positive or negative.**

**CODE**

num = float(input("Enter a number: "))

if num > 0:

    print("Positive number")

elif num == 0:

    print("Zero")

else:

   print("Negative number")

**OUTPUT**

Enter a number: -2

Negative number

1. **Program to calculate the sum of natural numbers.**

**CODE**

num = 5

if num < 0:

    print("Enter a positive number")

else:

   sum = 0

while(num > 0):

        sum += num

        num -= 1

    print("The sum is", sum)

**OUTPUT**

The sum is 15

1. **Program to find the factorial of a number.**

**CODE**

num = 3

factorial = 1

if num < 0:

    print("Sorry, factorial does not exist for negative numbers")

elif num == 0:

    print("The factorial of 0 is 1")

else:

    for i in range(1,num + 1):

        factorial = factorial\*i

    print("The factorial of",num,"is",factorial)

**OUTPUT**

The factorial of 3 is 6

1. **Program to generate multiplication tables.**

**CODE**

num = 2

for i in range(1, 11):

    print(num, 'x', i, '=', num\*i)

**OUTPUT**

2 x 1 = 2

2 x 2 = 4

2 x 3 = 6

2 x 4 = 8

2 x 5 = 10

2 x 6 = 12

2 x 7 = 14

2 x 8 = 16

2 x 9 = 18

2 x 10 = 20

1. **Program to display fibonacci sequence.**

**CODE**

num = int(input("How many terms? "))

n1, n2 = 0, 1

count = 0

if num <= 0:

    print("Please enter a positive integer")

elif num == 1:

    print("Fibonacci sequence upto",num,":")

    print(n1)

else:

    print("Fibonacci sequence:")

    while count < num:

        print(n1)

        nth = n1 + n2

        n1 = n2

        n2 = nth

        count += 1

**OUTPUT**

How many terms? 7

Fibonacci sequence:

0

1

1

2

3

5

8

1. **Program to find the LCM of two numbers.**

**CODE**

def compute\_lcm(x, y):

   if x > y:

        greater = x

    else:

       greater = y

while(True):

       if((greater % x == 0) and (greater % y == 0)):

           lcm = greater

           break

        greater += 1

return lcm

num1 = 25

num2 = 10

print("The L.C.M. is", compute\_lcm(num1, num2))

**OUTPUT**

The L.C.M. is 50

1. **Program to count number of digits in an integer.**

**CODE**

def countDigit(n):

     count = 0

     while n != 0:

         n //= 10

         count += 1

     return count

n = 123

print("Number of digits : % d" % (countDigit(n)))

**OUTPUT**

Number of digits : 3

1. **Program to reverse a number.**

**CODE**

num = int(input("Please Enter any Number: "))

rev = 0

while(num > 0):

     rem = num %10

     rev = (rev \*10) + rem

     num = num //10

print("\n Reverse of entered number is = %d" %rev)

**OUTPUT**

Please Enter any Number: 234

Reverse of entered number is = 432

1. **Program to calculate the power of a number.**

**CODE**

import math

base\_number = float(input("Enter the base number"))

exponent = float(input("Enter the exponent"))

power = math.pow(base\_number,exponent)

print("Power is =",power)

**OUTPUT**

Enter the base number2

Enter the exponent3

Power is = 8.0

1. **Program to check whether a number is palindrome.**

**CODE**

n=int(input("Enter number:"))

temp=n

rev=0

while(n>0):

     dig=n%10

     rev=rev\*10+dig

     n=n//10

if(temp==rev):

     print("The number is a palindrome!")

else:

   print("The number isn't a palindrome!")

**OUTPUT**

Enter number:123

The number isn't a palindrome!