**CSA0835-Python Programming**

**DAY-1**

**PROGRAMS AND OUTPUTS**

**1. Convert the decimal to binary number Input: a=12**

**Output: 1100**

**Program:**

decimal = int(input("Enter a decimal number: "))

binary = ""

while decimal > 0:

remainder = decimal % 2

binary = str(remainder) + binary

decimal = decimal // 2

print("Binary representation:", binary)

**2.** **Write a Python program that takes a tuple of numbers as input and a target number. Count the number of occurrences of the target number in the tuple and print the count.**

**Sample Input : 3,6,8,9,8,9,12,35,8**

**Target number : 8**

**Sample Output : 3**

**Program:**

numbers = (3, 6, 8, 9, 8, 9, 12, 35, 8)

target = 8

count = 0

for num in numbers:

if num == target:

count += 1

print("The target number", target, "occurs", count, "times.")

**3.** **Write a Python program that defines a function to calculate the factorial of a given number using recursion.**

**Program:**

def factorial(n):

if n == 0 or n == 1:

return 1

else:

return n \* factorial(n-1)

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

print("Factorial of", num, "is:", factorial(num))

**4.** **Write a Python program to perform multiplication of two matrices. The matrices should be taken as input A=[[2,1],[3,4]]**

**B=[[3,1],[1,2]]**

**Output**

**C= [[7,4],[13,11]]**

**Program:**

A = [[2, 1], [3, 4]]

B = [[31, 1], [1, 2]]

if len(A[0]) != len(B):

print("Matrices cannot be multiplied")

else:

C = [[0, 0], [0, 0]]

for i in range(len(A)):

for j in range(len(B[0])):

for k in range(len(B)):

C[i][j] += A[i][k] \* B[k][j]

print("Matrix A:")

for row in A:

print(row)

print("Matrix B:")

for row in B:

print(row)

print("Matrix C (A \* B):")

for row in C:

print(row)

**5.** **Write a Python program to create a basic calculator that can perform addition, subtraction, multiplication, and division**

def calculator():

print("Basic Calculator")

print("1. Addition")

print("2. Subtraction")

print("3. Multiplication")

print("4. Division")

choice = input("Enter your choice (1/2/3/4): ")

num1 = float(input("Enter first number: "))

num2 = float(input("Enter second number: "))

if choice == '1':

print(num1, "+", num2, "=", num1 + num2)

elif choice == '2':

print(num1, "-", num2, "=", num1 - num2)

elif choice == '3':

print(num1, "\*", num2, "=", num1 \* num2)

elif choice == '4':

if num2 != 0:

print(num1, "/", num2, "=", num1 / num2)

else:

print("Error! Division by zero is not allowed.")

else:

print("Invalid choice.")

calculator()

**6.** **Write python program for sum of Square of first N natural numbers.Given a positive integer N. The task is to find 12 + 22+ 32 + ….. + N2.**

def sum\_of\_squares(n):

sum=0

for i in range(1,n+1):

sum+=i\*\*2

return sum

n=5

print("sum of squares of first n numbers : :",sum\_of\_squares(n))

**7.** **Write a Python program to display the current date and time.**

***Sample Output :***

**Current date and time : 2014-07-05 14:34:14**

from datetime import datetime

now = datetime.now()

current\_date\_time = now.strftime("%Y-%m-%d %H:%M:%S")

print("Current date and time:", current\_date\_time)

**8.** **Write a Python program to compute the future value of a specified principal amount, rate of interest, and number of years.**

***Test Data* : amt = 10000, int = 3.5, years = 7**

**Output: 12722.79**

p=1000

t=7

r=3.5

interest=(p\*t\*r)/100

print("simple interest : ",interest)

**9.** **Program to find whether the given number is Harshad number or not**

**Sample Input: Enter number: 21**

**Sample Output: Given number is Harshad number**

n=21

k=n

sum=0

while(n!=0):

sum+=n%10

n//=10

if(k%sum==0):

print(k,"is a harshad number")

else:

print(k,"is not a harshad number")

**10.** **Write a Python program to count the number of even and odd numbers in a series of numbers *Sample numbers* : numbers = (1, 2, 3, 4, 5, 6, 7, 8,9)**

***Expected Output* :**

Number of even numbers : 5 Number of odd numbers : 4

num=(1,2,3,4,5,6,7,8,9)

ec=0

oc=0

for i in range(len(num)):

if i%2==0:

ec+=1

else:

oc+=1

print("even count",ec)

print("oddd count:",oc)

**11.** **Write a Python program that accepts a string and calculates the number of digits and letters.**

**Sample Data : Python 3.2 Expected Output :**

**Letters 6**

**Digits 2.**

s = input("Enter a string: ")

digits = 0

letters = 0

for c in s:

if c.isdigit():

digits += 1

elif c.isalpha():

letters += 1

print("Letters:", letters)

print("Digits:", digits)

**12.** **Python Program to Find the Nth Largest Number in a List Sample Input:**

**List : {14, 67, 48, 23, 5, 62}**

**N = 4**

**Sample Output:**

**4th Largest number: 23**

def find\_nth\_largest(numbers, n):

numbers = sorted(numbers, reverse=True)

return numbers[n-1]

numbers = [14, 67, 48, 23, 5, 62]

n = 4

result = find\_nth\_largest(numbers, n)

print(f"{n}th Largest number: {result}")

**13.** **Write a Python program to create the multiplication table (from 1 to 10) of a number. *Expected Output:***

**Input a number: 6**

num = int(input("Input a number: "))

print("Multiplication Table of", num)

for i in range(1, 11):

print(num, "x", i, "=", num \* i)

**14.** **Write a Python program to get the week number. Sample Date : 2015, 6, 16**

**Expected Output : 25**

from datetime import datetime

sample\_date = datetime(2015, 6, 16)

week\_number = sample\_date.isocalendar()[1]

print("Week number:", week\_number)

**15.Write a Python program to combine two dictionaries by adding values for common keys.**

**d1 = {'a': 100, 'b': 200, 'c':300}**

**d2 = {'a': 300, 'b': 200, 'd':400}**

**Sample output: Counter({'a': 400, 'b': 400, 'd': 400,**

**'c': 300})**

from collections import Counter

d1 = {'a': 100, 'b': 200, 'c':300}

d2 = {'a': 300, 'b': 200, 'd':400}

result = Counter(d1) + Counter(d2)

print(result)

**16.** **Program to find whether the given number is Armstrong number or not**

**Sample Input: Enter number: 153**

**Sample Output: Given number is Armstrong number**

n=153

k=n;

sum=0

while(n!=0):

d=n%10

sum+=(d\*d\*d)

n//=10

if(k==sum):

print(k," is a armstrong number")

else:

print(k," is not an armstrong number")

**17.** **Program to find whether the given number is Happy number or not**

**Sample Input: Enter number: 19**

**Sample Output: Given number is happy number**

def is\_happy\_number(n):

while n != 1 and n != 4:

n = sum(int(i) \*\* 2 for i in str(n))

return n == 1

num = int(input("Enter number: "))

if is\_happy\_number(num):

print("Given number is a happy number")

else:

print("Given number is not a happy number")

**18.Given a string s containing just the characters '(', ')', '{', '}', '[' and**

**']', determine if the input string is valid using Stack.**

**An input string is valid if:**

1. **Open brackets must be closed by the same type of brackets.**
2. **Open brackets must be closed in the correct order.**
3. **Every close bracket has a corresponding open bracket of the same type.**

**Example 1: Input: s = "()" Output: true**

def isValid(s):

stack = []

pairs = {')': '(', '}': '{', ']': '['}

for char in s:

if char in pairs.values():

stack.append(char)

elif char in pairs:

if not stack or stack.pop() != pairs[char]:

return False

return not stack

s = "()"

print(isValid(s))

**19.** **Write a program to print numbers from P to Q but except the digit R?**

**Sample Input:**

**P = 60**

**Q = 70**

**R = 3**

**Sample Output:**

**Numbers are = 60, 61, 62, 64, 65, 66, 67, 68, 69, 70**

def print\_numbers\_except\_digit(P, Q, R):

for num in range(P, Q+1):

if str(R) not in str(num):

print(num, end=", ")

P = 60

Q = 70

R = 3

print("Numbers are = ", end="")

print\_numbers\_except\_digit(P, Q, R)

**20.** **Write a program to read a character until a \* is encountered. Also count the number of uppercase, lowercase, and numbers entered by the users.**

**Sample Input:**

**Enter \* to exit…**

**Enter any character: W Enter any character: d Enter any character: A Enter any character: G Enter any character: g Enter any character: H Enter any character: \* Sample Output: Total count of lower case:2 Total count of upper case:4 Total count of numbers =0**

def count\_characters():

uppercase = lowercase = numbers = 0

while True:

char = input("Enter any character: ")

if char == '\*':

break

if char.isupper():

uppercase += 1

elif char.islower():

lowercase += 1

elif char.isdigit():

numbers += 1

print(f"Total count of lower case: {lowercase}")

print(f"Total count of upper case: {uppercase}")

print(f"Total count of numbers = {numbers}")

count\_characters()

**outputs:**





