**Python**

Practical File

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# Start a Python interpreter and use it as a Calculator.

Python 3.12.7 (main, Oct 1 2024, 11:15:50) [GCC 14.2.1 20240910] on linux

Type "help", "copyright", "credits" or "license" for more information.

>>> 1+1

2

>>> 2-1

1

>>> 1\*9

9

>>> 1/9

0.1111111111111111

>>> 1//9

0

>>>

# Write Python programs to demonstrate the following:

# i) input( ) ii) print( ) iii) ‘sep’ attribute iv) ‘end’ attribute

item1 = input()

item2 = input()

sep = input(“Enter seperator”)

end = input(“Enter the end character”)

print(item1, item2, sep = sep, end = end)

# Write a program to calculate compound interest when principal, rate and number of periods are given

p = input()

r = input()

t = input()

a = p \* (1 + r / 100) \*\* t

si = a – p

print(si)

# Write a program to demonstrate the working of following functions in Python. i) id( ) ii) type( )

a = input()

print(id(a))

print(type(a))

# Write a program to enter length and breadth and calculate area of rectangle

l = eval(input())

b = eval(input())

print(“area = ”, l \* b)

# Write a program to enter radius of circle and calculate area of circle

r = eval(input())

print(“area = ”, 3.1416 \* r \*\* 2)

# Write a program to get user input with a message

Name = input()

print(f“Hello, {Name}”)

# Write a program to get integer input in python

num = int(input())

print(“The number is ”, num)

# Write a program to get multiple integer input in python

num1 = int(input())

num2 = int(input())

num3 = int(input())

num4 = int(input())

num5 = int(input())

print(num1, num2, num3, num4, num5)

# Write a program to enter name, marks of 5 subjects and calculate total and percentage of students

sub1 = int(input())

sub2 = int(input())

sub3 = int(input())

sub4 = int(input())

sub5 = int(input())

total = sub1 + sub2 + sub3 + sub4 + sub5

percentage = total / 1.25

print(f“Total is {total} and percentage is {percentage}”)

# Write a program to enter distance in feet and convert it into inches

feet = eval(input())

inches = feet / 12

print(“equiv in inches is :”, inches)

# Write a program to enter value of temperature in Fahrenheit and convert it into Celsius

fahrenheit = float(input("Enter the temperature in Fahrenheit: "))

celsius = (fahrenheit - 32) \* 5/9

print(f"{fahrenheit} degrees Fahrenheit is equal to {celsius:.2f} degrees 1 Celsius.")

# Write a program to enter radius and height of cylinder and calculate the volume

import math

radius = float(input())

height = float(input())

volume = math.pi \* radius\*\*2 \* height

print(f"The volume of the cylinder is: {volume}")

# Write a program to read name, address, email and phone number of a person through keyboard and print the details

name = input("Enter your name: ")

address = input("Enter your address: ")

email = input("Enter your email address: ")

phone\_number = input("Enter your phone number: ")

print("\nYour details are:")

print("Name:", name)

print("Address:", address)

print("Email:", email)

print("Phone Number:", phone\_number)

# Write a program to demonstrate various base conversion functions

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

print("Binary:", bin(num))

print("Octal:", oct(num))

print("Hexadecimal:", hex(num))

print("Decimal from binary:", int(bin(num), 2))

print("Decimal from octal:", int(oct(num), 8))

print("Decimal from hexadecimal:", int(hex(num), 16))

# Write a program to demonstrate various type conversion functions

x=10;y=float(x);print(y)

x=10.5;y=int(x);print(y)

x="10";y=int(x);print(y)

x=10;y=str(x);print(y)

x="10.5";y=float(x);print(y)

x=10.5;y=str(x);print(y)

# Demonstrate the following Conditional statements in Python with suitable examples.

# i) if statement ii) if else statement iii) if – elif – else statement.

x = 10

if x > 5:

print("x is greater than 5")

x = 5

if x > 5:

print("x is greater than 5")

else:

print("x is less than or equal to 5")

x = 5

if x > 5:

print("x is greater than 5")

else:

print("x is less than or equal to 5")

# Write a program to enter 2 numbers and print the largest number

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

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

if num1 > num2:

print(num1, "is larger")

else:

print(num2, "is larger")

# Write a program to enter 3 number and print the largest number

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

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

num3 = int(input("Enter third number: "))

if num1 >= num2 and num1 >= num3:

print(num1, "is the largest number")

elif num2 >= num1 and num2 >= num3:

print(num2, "is the largest number")

else:

print(num3, "is the largest number")

# Input age of a person and print whether the person is eligible for voting or not

age = int(input("Enter your age: "))

if age >= 18:

print("You are eligible to vote.")

else:

print("You are not eligible to vote.")

# Write a program to enter any age and check it is teenage or not

age = int(input("Enter your age: "))

if age >= 13 and age <= 19:

print("You are a teenager.")

else:

print("You are not a teenager.")

# Write a program to enter monthly sale of salesman and give him commission i.e. if the monthly sale is more than 500000 then commission will be 10% of monthly sale otherwise 5%

sale = int(input("Enter monthly sale: "))

if sale > 500000:

commission = sale \* 0.1

else:

commission = sale \* 0.05

print("Commission is:", commission)

# Write a program to input any year and check it is a leap year or not

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")

# Write a program to input any number and print absolute value of that number

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

if num < 0:

num = -num

print("Absolute value:", num)

# Write a program to input any number and check it is positive or negative number

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

if num > 0:

print(num, "is a positive number")

elif num < 0:

print(num, "is a negative number")

else:

print(num, "is 1 zero”)

# Input temperature of water and print its physical state

temp = float(input("Enter the temperature of water in Celsius: "))

if temp < 0:

print("Water is in solid state (ice)")

elif temp == 0:

print("Water is in solid and liquid state (freezing point)")

elif temp > 0 and temp < 100:

print("Water is in liquid state")

elif temp == 100:

print("Water is in liquid and gaseous state (boiling point)")

else:

print("Water is in gaseous state (steam)")

# Input 3 sides of a triangle and print the type of triangle- equilateral, scalene, isosceles

side1 = float(input())

side2 = float(input())

side3 = float(input())

if side1 == side2 == side3:

print("The triangle is equilateral.")

elif side1 == side2 or side2 == side3 or side1 == side3:

print("The triangle is isosceles.")

else:

print("The triangle is scalene.")

# Write a program to calculate and print roots of a quadratic equation ax^2+bx+c=0 (a!=0)

import math

a = float(input("Enter the coefficient a: "))

b = float(input("Enter the coefficient b: "))

c = float(input("Enter the coefficient c: "))

discriminant = b\*\*2 - 4\*a\*c

root1 = (-b + math.sqrt(discriminant)) / (2\*a)

root2 = (-b - math.sqrt(discriminant)) / (2\*a)

print("Root 1 =", root1)

print("Root 2 =", root2)

# Write a program to input day number and print corresponding day name for e.g if input is 1 output should be Sunday and so on

day\_number = int(input())

if day\_number == 1:

print("Sunday")

elif day\_number == 2:

print("Monday")

elif day\_number == 3:

print("Tuesday")

elif day\_number == 4:

print("Wednesday")

elif day\_number == 5:

print("Thursday")

elif day\_number == 6:

print("Friday")

elif day\_number == 7:

print("Saturday")

# Write a program to enter any number and find its factorial

num = int(input())

factorial = 1

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

factorial \*= i

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

# Write a program to print the following Fibonacci series 0,1,1,2,3,5,8....n terms

n = int(input())

fib1, fib2 = 0, 1

print(fib1, fib2, end=" ")

for i in range(2, n):

fib3 = fib1 + fib2

print(fib3, end=" ")

fib1, fib2 = fib2, fib3

# Write a program to enter 10 numbers and find the sum and average

sum = 0

for i in range(10):

num = int(input("Enter number " + str(i+1) + ": "))

sum += num

average = sum / 10

print("Sum of the numbers:", sum)

print("Average of the numbers:", average)

# Write a program to enter lower limit and upper limit and find the sum of all odd and even numbers between the range separately

lower\_limit = int(input("Enter the lower limit: "))

upper\_limit = int(input("Enter the upper limit: "))

even\_sum = 0

odd\_sum = 0

for num in range(lower\_limit, upper\_limit + 1):

if num % 2 == 0:

even\_sum += num

else:

odd\_sum += num

print("Sum of even numbers:", even\_sum)

print("Sum of odd numbers:", odd\_sum)

# Write a program to enter any number and find its reverse

num = int(input())

reverse = 0

while num > 0:

digit = num % 10

reverse = reverse \* 10 + digit

num //= 10

print("Reverse of the number:", reverse)

# Write a program to enter any number and a digit and count how many times digit is in the number

import math

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

if num == 0:

digits = 1

else:

digits = int(math.log10(num)) + 1

print("The number of digits in the number is:", digits)

# Write a program to enter any number and check it is Armstrong or not

num = int(input())

original\_num = num

sum = 0

while num > 0:

digit = num % 10

sum += digit \*\* 3

num //= 10

if original\_num == sum:

print(original\_num, "is an Armstrong number")

else:

print(original\_num, "is not an Armstrong number")

# Write a program to enter any number and check it is palindrome or not

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

original\_num = num

reverse = 0

while num > 0:

digit = num % 10

reverse = reverse \* 10 + digit

num //= 10

if original\_num == reverse:

print(original\_num, "is a palindrome number")

else:

print(original\_num, "is not a palindrome number")

# Write a program to enter numbers as long as user wishes to enter and find the sum highest and lowest number entered by user

numbers = []

while True:

num = int(input("Enter a number (or 0 to stop): "))

if num == 0:

break

numbers.append(num)

if len(numbers) == 0:

print("No numbers entered.")

else:

sum\_of\_numbers = sum(numbers)

highest\_number = max(numbers)

lowest\_number = min(numbers)

print("Sum of the numbers:", sum\_of\_numbers)

print("Highest number:", highest\_number)

print("Lowest number:", lowest\_number)

# Write a program to input any string and count how many vowels are in it

string = input()

vowels = "aeiouAEIOU"

count = 0

for char in string:

if char in vowels:

count += 1

print("Number of vowels:", count)

# Write a program to read string and print in reverse order

string = input("Enter a string: ")

reversed\_string = string[::-1]

print("Reversed string:", reversed\_string)

# Write a program which replaces all vowels in the string with ‘\*’

string = input("Enter a string: ")

vowels = "aeiouAEIOU"

new\_string = ""

for char in string:

if char in vowels:

new\_string += "\*"

else:

new\_string += char

print("New string:", new\_string)

# Write a program to check if a string is a palindrome or not

string = input("Enter a string: ")

reversed\_string = string[::-1]

if string == reversed\_string:

print("The string is a palindrome.")

else:

print("The string is not 1 a palindrome.")

# Write a program to enter string and count how many uppercase, lowercase, digits, words present in it

string = input("Enter a string: ")

uppercase\_count = 0

lowercase\_count = 0

digit\_count = 0

word\_count = 1 # Assuming at least one word

for char in string:

if char.isupper():

uppercase\_count += 1

elif char.islower():

lowercase\_count += 1

elif char.isdigit():

digit\_count += 1

elif char.isspace():

word\_count += 1

print("Number of uppercase letters:", uppercase\_count)

print("Number of lowercase letters:", lowercase\_count)

print("Number of digits:", digit\_count)

print("Number of words:", word\_count)

# Write a program to enter string and find the number of occurrences of any word

string = input("Enter a string: ")

word = input("Enter the word to search: ")

words = string.split()

count = words.count(word)

print("The word", word, "appears", count, "times in the string.")

# Demonstrate the following control transfer statements in python with suitable examples. i)break ii) continue

# i) break

for i in range(1, 11):

if i == 5:

break

print(i)

# ii)

for i in range(1, 11):

if i % 2 != 0:

continue

print(i)