**1. a) Write a python code to generate Personalized Greeting**

# Function to generate a personalized greeting

def generate\_greeting(name):

greeting = f"Hello, {name}! Hope you're having a wonderful day!"

return greeting

# Example usage

name = input("Enter your name: ")

personalized\_greeting = generate\_greeting(name)

print(personalized\_greeting)

Output:

Enter your name: Arun

Hello, Arun! Hope you're having a wonderful day!

**1.b) Write a python program to calculate areas of any geometric figures like circle, rectangle and triangle**

import math

# Function to calculate the area of a circle

def area\_circle(radius):

return math.pi \* radius \*\* 2

# Function to calculate the area of a rectangle

def area\_rectangle(length, width):

return length \* width

# Function to calculate the area of a triangle

def area\_triangle(base, height):

return 0.5 \* base \* height

def main():

while True:

print("\nArea Calculator Menu:")

print("1. Circle")

print("2. Rectangle")

print("3. Triangle")

print("4. Exit")

choice = input("Enter your choice (1-4): ")

if choice == '1':

radius = float(input("Enter the radius of the circle: "))

print(f"The area of the circle is: {area\_circle(radius):.2f}")

elif choice == '2':

length = float(input("Enter the length of the rectangle: "))

width = float(input("Enter the width of the rectangle: "))

print(f"The area of the rectangle is: {area\_rectangle(length, width):.2f}")

elif choice == '3':

base = float(input("Enter the base of the triangle: "))

height = float(input("Enter the height of the triangle: "))

print(f"The area of the triangle is: {area\_triangle(base, height):.2f}")

elif choice == '4':

print("Exiting Area Calculator.")

break

else:

print("Invalid choice. Please try again.")

if \_\_name\_\_ == "\_\_main\_\_":

main()

Area Calculator Menu:

1. Circle

2. Rectangle

3. Triangle

4. Exit

Enter your choice (1-4):

**1. c) Develop any converter such as Rupees to dollar,temperature convertor, inch to feet etc.**

def rupees\_to\_dollars(rupees, exchange\_rate):

return rupees / exchange\_rate

def dollars\_to\_rupees(dollars, exchange\_rate):

return dollars \* exchange\_rate

def celsius\_to\_fahrenheit(celsius):

return (celsius \* 9/5) + 32

def fahrenheit\_to\_celsius(fahrenheit):

return (fahrenheit - 32) \* 5/9

def inches\_to\_feet(inches):

return inches / 12

def feet\_to\_inches(feet):

return feet \* 12

def main():

while True:

print("\nConverter Menu:")

print("1. Rupees to Dollars")

print("2. Dollars to Rupees")

print("3. Celsius to Fahrenheit")

print("4. Fahrenheit to Celsius")

print("5. Inches to Feet")

print("6. Feet to Inches")

print("7. Exit")

choice = input("Enter your choice (1-7): ")

if choice == '1':

rupees = float(input("Enter amount in Rupees: "))

exchange\_rate = float(input("Enter current exchange rate (1 Dollar to Rupees): "))

print(f"Amount in Dollars: {rupees\_to\_dollars(rupees, exchange\_rate):.2f}")

elif choice == '2':

dollars = float(input("Enter amount in Dollars: "))

exchange\_rate = float(input("Enter current exchange rate (1 Dollar to Rupees): "))

print(f"Amount in Rupees: {dollars\_to\_rupees(dollars, exchange\_rate):.2f}")

elif choice == '3':

celsius = float(input("Enter temperature in Celsius: "))

print(f"Temperature in Fahrenheit: {celsius\_to\_fahrenheit(celsius):.2f}")

elif choice == '4':

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

print(f"Temperature in Celsius: {fahrenheit\_to\_celsius(fahrenheit):.2f}")

elif choice == '5':

inches = float(input("Enter length in Inches: "))

print(f"Length in Feet: {inches\_to\_feet(inches):.2f}")

elif choice == '6':

feet = float(input("Enter length in Feet: "))

print(f"Length in Inches: {feet\_to\_inches(feet):.2f}")

elif choice == '7':

print("Exiting Converter.")

break

else:

print("Invalid choice. Please try again.")

if \_\_name\_\_ == "\_\_main\_\_":

main()

OUTPUT:

Converter Menu:

1. Rupees to Dollars

2. Dollars to Rupees

3. Celsius to Fahrenheit

4. Fahrenheit to Celsius

5. Inches to Feet

6. Feet to Inches

7. Exit

Enter your choice (1-7): 1

Enter amount in Rupees: 1000

Enter current exchange rate (1 Dollar to Rupees): 80

Amount in Dollars: 12.50

**1.D Write a Python program to calculate the gross salary of an employee. The program should prompt the user for the basic salary (BS) and then compute the dearness allowance (DA) as 70% of BS, the travel allowance (TA) as 30% of BS, and the house rent allowance (HRA) as 10% of BS. Finally, it should calculate the gross salary as the sum of BS, DA, TA, and HRA and display the result.**

def calculate\_gross\_salary(basic\_salary):

da = 0.70 \* basic\_salary

ta = 0.30 \* basic\_salary

hra = 0.10 \* basic\_salary

gross\_salary = basic\_salary + da + ta + hra

return da, ta, hra, gross\_salary

def main():

basic\_salary = float(input("Enter the basic salary (BS): "))

da, ta, hra, gross\_salary = calculate\_gross\_salary(basic\_salary)

print(f"Dearness Allowance (DA): {da:.2f}")

print(f"Travel Allowance (TA): {ta:.2f}")

print(f"House Rent Allowance (HRA): {hra:.2f}")

print(f"Gross Salary: {gross\_salary:.2f}")

if \_\_name\_\_ == "\_\_main\_\_":

main()

Output:

Enter the basic salary (BS): 2000

Dearness Allowance (DA): 1400.00

Travel Allowance (TA): 600.00

House Rent Allowance (HRA): 200.00

Gross Salary: 4200.00

1.E Write a Python program to calculate the simple interest based on user input. The program should prompt the user to enter the principal amount, the rate of interest, and the time period in years. It should then compute the simple interest using the formula Simple Interest=(Principal×Rate×Time) /100 and display the result.

"""# Function to calculate simple interest

def calculate\_simple\_interest(principal, rate, time):

simple\_interest = (principal \* rate \* time) / 100

return simple\_interest

def main():

principal = float(input("Enter the principal amount: "))

rate = float(input("Enter the rate of interest (in %): "))

time = float(input("Enter the time period (in years): "))

simple\_interest = calculate\_simple\_interest(principal, rate, time)

print(f"Simple Interest: {simple\_interest:.2f}")

if \_\_name\_\_ == "\_\_main\_\_":

main()

"""

# Prompt the user for input

principal = float(input("Enter the principal amount: "))

rate = float(input("Enter the rate of interest (in %): "))

time = float(input("Enter the time period (in years): "))

# Calculate the simple interest

simple\_interest = (principal \* rate \* time) / 100

# Display the result

print(f"Simple Interest: {simple\_interest:.2f}")

Output:

Enter the principal amount: 2000

Enter the rate of interest (in %): 10

Enter the time period (in years): 1

Simple Interest: 200.00

**1.F) Write a Python program to explore basic arithmetic operations. The program should prompt the user to enter two numbers and then perform addition, subtraction, multiplication, division, and modulus operations on those numbers. The results of each operation should be displayed to the user.**

#Prompt the user to enter two numbers

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

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

# Perform arithmetic operations

addition = num1 + num2

subtraction = num1 - num2

multiplication = num1 \* num2

division = num1 / num2 if num2 != 0 else 'undefined (division by zero)'

modulus = num1 % num2 if num2 != 0 else 'undefined (division by zero)'

# Display the results

print(f"Addition: {num1} + {num2} = {addition}")

print(f"Subtraction: {num1} - {num2} = {subtraction}")

print(f"Multiplication: {num1} \* {num2} = {multiplication}")

print(f"Division: {num1} / {num2} = {division}")

print(f"Modulus: {num1} % {num2} = {modulus}")

print(f"Floor Division: {num1} //{num2} = {FD}")

Output:

Enter the first number: 11

Enter the second number: 3

Addition: 11.0 + 3.0 = 14.0

Subtraction: 11.0 - 3.0 = 8.0

Multiplication: 11.0 \* 3.0 = 33.0

Division: 11.0 / 3.0 = 3.6666666666666665

Modulus: 11.0 % 3.0 = 2.0

Floor Division: 11.0 //3.0 = 3.0