EX 1 Basic Programs

* 1. Calculator

def add(a,b):

return a+b

def sub(a,b):

return a-b

def mul(a,b):

return a\*b

def div(a,b):

return a/b

print(add(478,578))

print(sub(57,7))

print(mul(48,578))

print(div(47,7))

Output:

1056

50

27744

6.714285714285714

* 1. Pos/Neg/Zero

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

if n>0:

print("Possitive")

elif n<0:

print("Nebotive")

else:

print("Zero")

Output:

Enter number:-5

Nebotive

* 1. Odd/Even

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

if n%2 == 0:

print("Even")

else:

print("Odd")

Output:

Enter number:67

Odd

Ex 2 Function

2.1 Factorial

def fac(n):

if n ==0 or n == 1:

return 1

else:

return n\*fac(n-1)

fac(5)

Output:

120

2.2 Temperature Convertion Menu

def celtofah(cel):

return (cel\*9.5)+32

def fahtocel(fah):

return (fah-32)\*(5/9)

def celtokel(cel):

return cel+273.15

def fahtokel(fah):

return (fah-32)\*(5/9)+273.15

def keltofah(kel):

return (kel-273.15)\*(5/9)+32

print("\_\_\_\_\_Temprature convertion menu\_\_\_\_")

print("1.Celsius to Fahernheit!")

print("2.Fahernheit to Celsius!")

print("3.Celsius to Kelvin!")

print("4.Fahernheit to Kelvin!")

print("5.Kelvin to Fahernheit!")

try:

choice = input("Enter you choice:")

if choice == '1':

cel = float(input("Enter tempratuer in celcius:"))

res = celtofah(cel)

print(f"{cel}C={res}F")

elif choice == '2':

fah = float(input("Enter tempratuer in fahernheit:"))

res = fahtocel(fah)

print(f"{fah}F={res}C")

elif choice == '3':

cel = float(input("Enter tempratuer in celcius:"))

res = celtokel(cel)

print(f"{cel}C={res}K")

if choice == '4':

fah = float(input("Enter tempratuer in fharenheit:"))

res = fahtokel(cel)

print(f"{fah}F={res}K")

if choice == '5':

fah = float(input("Enter tempratuer in kelvin:"))

res = celtofah(cel)

print(f"{kel}K={res}F")

except:

print("Enter valid input!")

Output:

\_\_\_\_\_Temprature convertion menu\_\_\_\_

1.Celsius to Fahernheit!

2.Fahernheit to Celsius!

3.Celsius to Kelvin!

4.Fahernheit to Kelvin!

5.Kelvin to Fahernheit!

Enter you choice:2

Enter tempratuer in fahernheit:1000

1000.0F=537.7777777777778C

Ex 3 Modules

3.1 Bank Transaction

bankmod.py

def withdraw(balance):

withdrawamount = int(input("Enter the amount for withdraw:"))

balance-=withdrawamount

print("You withdraw amount is:",withdrawamount)

print("Your balance amount is:",balance)

def deposite(balance):

dep = int(input("Enter the amout for deposite:"))

com = dep\*(5/100)

dep-=com

balance+=dep

print("The comission is :",com)

print("The amout you deposited is:",dep)

print("The total balance in you account is:",balance)

bank.py

import bankmod

def banking():

balance = 1000

print("Enter 1 for withdraw, 2 for deposit")

try:

op = int(input("Enter your option: "))

except ValueError:

print("Invalid input. Please enter a number.")

return

if op == 1:

if balance > 1000:

balance = bankmod.withdraw(balance)

else:

print("You don't have the minimum balance, so you can't withdraw an amount!")

balance = 0

print("Your balance is:", balance)

bankmod.deposite(balance)

elif op == 2:

bankmod.deposite(balance)

banking()

Output:

Enter 1 for withdraw, 2 for deposit

Enter your option: 1

You don't have the minimum balance, so you can't withdraw an amount!

Your balance is: 0

Enter the amout for deposite:400

The comission is : 20.0

The amout you deposited is: 380.0

The total balance in you account is: 380.0

Ex 4 Package

4.1 Attendence

attendance.py

student\_attendance = {}

def attendance\_taking(student):

print(f"Attendance for {student}")

hours = []

for hour in range(1,6):

status = int(input(f"Enter the status of hour{hour}:"))

hours.append(status)

student\_attendance[student] = hours

def view\_attendance():

print(student\_attendance)

main.py

from package import attendance

def student\_attendance():

student\_list = ["901","902","903","904","905"]

for student in student\_list:

attendance.attendance\_taking(student)

attendance.view\_attendance()

student\_attendance()

Output:

Attendance for 901

Enter the status of hour1:1

Enter the status of hour2:1

Enter the status of hour3:1

Enter the status of hour4:1

Enter the status of hour5:1

Attendance for 902

Enter the status of hour1:1

Enter the status of hour2:1

Enter the status of hour3:1

Enter the status of hour4:1

Enter the status of hour5:1

Attendance for 903

Enter the status of hour1:1

Enter the status of hour2:1

Enter the status of hour3:1

Enter the status of hour4:1

Enter the status of hour5:1

Attendance for 904

Enter the status of hour1:1

Enter the status of hour2:1

Enter the status of hour3:1

Enter the status of hour4:1

Enter the status of hour5:1

Attendance for 905

Enter the status of hour1:1

Enter the status of hour2:1

Enter the status of hour3:1

Enter the status of hour4:1

Enter the status of hour5:1

{'901': [1, 1, 1, 1, 1], '902': [1, 1, 1, 1, 1], '903': [1, 1, 1, 1, 1], '904': [1, 1, 1, 1, 1], '905': [1, 1, 1, 1, 1]

}

Ex 5 List/Tuples

5.1 List

marks = []

n = int(input("How many student marks do you want to enter? "))

for i in range(n):

mark = int(input(f"Enter mark for student {i+1}: "))

marks.append(mark) # Add mark to the list

Output:

How many student marks do you want to enter? 1

Enter mark for student 1: 50

5.2 Tuple

e = (("Simon",50000,"java Developer"),("Nithish",70000,"Python e = (("Simon",50000,"java Developer"),("Nithish",70000,"Python Developer"),("Raja",90000,"DBA"),("Adi",30000,"Web Developer"),("Joel",70000,"react Developer"))

for name,salary,position in e:

if salary>50000:

print(name,"-",position)

Ex 6 Dictionanries

6.1 Shoping Kart

cart = {}

for i in range (2):

name = input("Enter product name:")

pr = int(input("Enter price :"))

cart[name] = pr

am = sum(cart.values())

gst = am\*0.5

fam = am - gst

print("Tot amount",am)

print("Gst",gst)

print("Final Amount",fam)

Output:

Enter product name:bisct

Enter price :100

Enter product name:laddo

Enter price :1000

Tot amount 1100

Gst 550.0

Final Amount 550.0

6.2 Currency Converter

exchange\_rates = {

"USD": 1.0, # Base currency is USD

"EUR": 0.85,

"GBP": 0.75,

"INR": 74.85,

"AUD": 1.35,

"CAD": 1.25,

"JPY": 110.5

}

# Function to convert currencies

def convert\_currency(amount, from\_currency, to\_currency):

if from\_currency not in exchange\_rates or to\_currency not in exchange\_rates:

print("Invalid currency code")

return None

# Convert amount to USD first, then to target currency

amount\_in\_usd = amount / exchange\_rates[from\_currency]

converted\_amount = amount\_in\_usd \* exchange\_rates[to\_currency]

return converted\_amount

# Input from user

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

from\_currency = input("Enter the currency you want to convert from (USD, EUR, GBP, INR, AUD, CAD, JPY): ").upper()

to\_currency = input("Enter the currency you want to convert to (USD, EUR, GBP, INR, AUD, CAD, JPY): ").upper()

# Convert and print the result

result = convert\_currency(amount, from\_currency, to\_currency)

if result is not None:

print(f"{amount} {from\_currency} is equal to {result:.2f} {to\_currency}")

Output:

Enter amount: 100

Enter the currency you want to convert from (USD, EUR, GBP, INR, AUD, CAD, JPY): Inr

Enter the currency you want to convert to (USD, EUR, GBP, INR, AUD, CAD, JPY): usd

100.0 INR is equal to 1.34 USD

Ex 7 String

str2 = "World"

combined = str1 + " " + str2

print("Concatenated string:", combined)

length = len(combined)

print("Length of combined string:", length)

)

slice\_str = combined[:5]

print("Sliced string (first 5 chars):", slice\_str)

upper\_str = combined.upper()

print("Uppercase string:", upper\_str)

lower\_str = combined.lower()

print("Lowercase string:", lower\_str)

Output:

Concatenated string: Hello World

Length of combined string: 11

Sliced string (first 5 chars): Hello

Uppercase string: HELLO WORLD

Lowercase string: hello world

Ex 8 Files

file = open("example.txt", "w")

file.write("Hello, this is a simple file operation example.\n")

file.write("Writing to a file is easy in Python!")

file.close()

file = open("example.txt", "r")

content = file.read()

print("File content:")

print(content)

file.close()

Output:

File content:

Hello, this is a simple file operation example.

Writing to a file is easy in Python!

Ex 9 Numpy

import numpy as np

# Create two 3x3 matrices

matrix\_a = np.array([[1, 2, 3],

[4, 5, 6],

[7, 8, 9]])

matrix\_b = np.array([[9, 8, 7],

[6, 5, 4],

[3, 2, 1]])

# Add the two matrices

sum\_matrix = matrix\_a + matrix\_b

# Multiply the two matrices

product\_matrix = np.dot(matrix\_a, matrix\_b)

# Calculate the transpose of matrix\_a

transpose\_a = matrix\_a.T

# Print all results

print("Matrix A:\n", matrix\_a)

print("\nMatrix B:\n", matrix\_b)

print("\nSum of A and B:\n", sum\_matrix)

print("\nProduct of A and B:\n", product\_matrix)

print("\nTranspose of Matrix A:\n", transpose\_a)

Output:

Matrix A:

[[1 2 3]

[4 5 6]

[7 8 9]]

Matrix B:

[[9 8 7]

[6 5 4]

[3 2 1]]

Sum of A and B:

[[10 10 10]

[10 10 10]

[10 10 10]]

Product of A and B:

[[ 30 24 18]

[ 84 69 54]

[138 114 90]]

Transpose of Matrix A:

[[1 4 7]

[2 5 8]

[3 6 9]]

Ex 10 Pandas Series

import pandas as pd

# Create a Pandas Series from a list

data = [10, 20, 30, 40, 50]

series = pd.Series(data)

# Print the Series

print("Pandas Series:")

print(series)

# Access and print the first element

print("\nFirst element:", series[0])

# Perform a simple operation - add 5 to each element

new\_series = series + 5

print("\nSeries after adding 5 to each element:")

print(new\_series)

Output:

Pandas Series:

0 10

1 20

2 30

3 40

4 50

dtype: int64

First element: 10

Series after adding 5 to each element:

0 15

1 25

2 35

3 45

4 55

dtype: int64

Ex 11 Pandas DataFrame

import pandas as pd

# Create a DataFrame from a dictionary

data = {

'Name': ['Alice', 'Bob', 'Charlie'],

'Age': [25, 30, 35],

'City': ['New York', 'Los Angeles', 'Chicago']

}

df = pd.DataFrame(data)

# Print the DataFrame

print("DataFrame:")

print(df)

# Access a column

print("\nAges:")

print(df['Age'])

# Add a new column

df['Salary'] = [70000, 80000, 90000]

print("\nDataFrame after adding Salary column:")

print(df)

Output:

DataFrame:

Name Age City

0 Alice 25 New York

1 Bob 30 Los Angeles

2 Charlie 35 Chicago

Ages:

0 25

1 30

2 35

Name: Age, dtype: int64

DataFrame after adding Salary column:

Name Age City Salary

0 Alice 25 New York 70000

1 Bob 30 Los Angeles 80000

2 Charlie 35 Chicago 90000

Ex 12 Matplotlib

import matplotlib.pyplot as plt

# Sample data

x = [1, 2, 3, 4, 5]

y = [2, 4, 6, 8, 10]

# Create a line plot

plt.plot(x, y)

# Add title and labels

plt.title("Simple Line Plot")

plt.xlabel("X-axis")

plt.ylabel("Y-axis")

# Show the plot

plt.show()

