EX:1.1 Odd number or even number check

Program:

n=int(input("enter a number: "))

if n%2==0:

print("even number",n)

else:

print("odd number",n)

Output:

enter a number: 2

even number 2

EX:1.2 Factorial number

Program:

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

f=1

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

f=f\*i

print("Factorial number is: ",f)

Output:

Enter a number: 3

Factorial number is: 1

EX:1.3 Swap Two Variable

Program:

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

b=int(input("Enter a second number: "))

print("Before swapped a=",a,"b=",b)

a,b=b,a

print("After swapped a=",a,"b=",b)

output:

Enter a first number: 1

Enter a second number: 2

Before swapped a= 1 b= 2

After swapped a= 2 b= 1

EX:2.1 Arithmetic Operation using Function

Program:

def add(a,b):

c=a+b

print("Result is: ",c)

def sub(a,b):

c=a-b

print("Result is: ",c)

def mul(a,b):

c=a\*b

print("Result is: ",c)

def div(a,b):

c=a/b

print("Result is: ",c)

n=int(input("1.addition /n 2.subtraction /n 3.multiplication /n 4.division /n Select the option:"))

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

b=int(input("Enter a second number: "))

if n==1:

add(a,b)

elif n==2:

sub(a,b)

elif n==3:

mul(a,b)

elif n==4:

div(a,b)

Output:

1.addition

2.subtraction

3.multiplication

4.division

Select the option:1

Enter a first number: 12

Enter a second number: 12

Result is: 24

EX:2.2 Login System Using Function

Program:  
def login(username,password):

return username=="admin" and password=="1234"

def salary\_detail(basic):

b=int(input("Enter a bonus persentage: "))

bo=b/100

bonus=bo\*basic

net\_salary=basic+bonus

return bonus,net\_salary

user=input("Enter a username: ")

pwd=input("Enter a password: ")

if login(user,pwd):

basic=float(input("Enter a basic salary: "))

bonus,net=salary\_detail(basic)

print("Bonus: ",bonus)

print("Net salary: ",net)

else:

print("login failed")

output:

Enter a username: admin

Enter a password: 1234

Enter a basic salary: 20000

Enter a bonus persentage: 10

Bonus: 2000.0

Net salary: 22000.0

EX:3.1 Modules

Program:

(mod1.py)

def total(s1,s2,s3):

tot=s1+s2+s3

return tot

def avg(tot):

avger=tot/3

return avger

def grade(avg):

if avg>=90:

grade='A+'

elif avg>=40:

grade='P'

else:

grade='F'

return grade

def display(tot,avg,grad):

print("Student Total mark is:",tot)

print("Student Avger mark is:",avg)

print("Student Grade is:",grad)

(std.py)

import mod1 as st

s1=int(input("Enter a subject 1 mark:"))

s2=int(input("Enter a subject 2 mark:"))

s3=int(input("Enter a subject 3 mark:"))

tot=st.total(s1,s2,s3)

avger=st.avg(tot)

gra=st.grade(avger)

st.display(tot,avger,gra)

output:

Enter a subject 1 mark:90

Enter a subject 2 mark:90

Enter a subject 3 mark:90

Student Total mark is: 270

Student Avger mark is: 90.0

Student Grade is: A+

EX:4.1 package

Program:

(Attendance.py)

at=[]

def mark\_attendance(name):

std={

"Name":name

}

at.append(std)

print("Present student name:",name)

def view():

return at

\_\_init\_\_.py

from .attendance import mark\_attendance,view

att.py:

import pack1 as pk

while True:

cho=int(input("1.Take attendance \n2.view status \n3.exit \nEnter a choice:"))

if cho==1:

name=input("Enter a attend student name:")

pk.mark\_attendance(name)

elif cho==2:

print("-------------Summary---------------")

v=pk.view()

t=0

for i in v:

print(f"Present student name:{i['Name']}")

t=t+1

print("Total student present:",t)

elif cho==3:

print("THANK YOU")

break

else:

print("Invalid option")

OUTPUT:  
1.Take attendance

2.view status

3.exit

Enter a choice:1

Enter a attend student name:leo

Present student name: leo

1.Take attendance

2.view status

3.exit

Enter a choice:2

-------------Summary---------------

Present student name:leo

Total student present: 1

1.Take attendance

2.view status

3.exit

Enter a choice:3

THANK YOU

EX:5.1 List

Program:

student=[]

n=int(input("Enter a number of students:"))

for i in range(n):

std=input(f"Enter a student name {i+1}:")

student.append(std)

print("Student details List:",student)

up=input("Enter a updated student name:")

student.append(up)

print("Updated student list is:",student)

remove=int(input("Enter a pop student list index:"))

re=student.pop(remove)

print("Final student List:",student)

Output:

Enter a number of students:1

Enter a student name 1:leo

Student details List: ['leo']

Enter a updated student name:joel

Updated student list is: ['leo', 'joel']

Enter a pop student list index:0

Final student List: ['joel']

EX:5.2 Tuple

Program:

tup=()

for i in range(2):

name=input("Enter a std name:")

roll\_no=int(input("Enter a std roll no:"))

mark=int(input("Enter a std mark:"))

std=(name,roll\_no,mark)

tup=tup+(std,)

for j in tup:

if j[2]>80:

print(f"Name:{j[0]},Roll no:{j[1]},mark:{j[2]}")

OUTPUT:

Enter a std name:leo

Enter a std roll no:101

Enter a std mark:90

Enter a std name:joel

Enter a std roll no:102

Enter a std mark:89

Name:leo,Roll no:101,mark:90

Name:joel,Roll no:102,mark:89

EX:6.1 Currency convert using Dictionaries

Program:

dic={'USD':82.2,'EUR':89.5,'JPY':0.56}

cu=input("Enter a currency like(USD,EUR,JPY):").upper()

amount=int(input("Enter a amount:"))

if cu in dic:

tot=amount\*dic[cu]

print(f"convert amount in {cu} into IND:",tot)

else:

print("Not available currency")

OUTPUT:

Enter a currency like(USD,EUR,JPY):usd

Enter a amount:101

convert amount in USD into IND: 8302.2

EX:6.2 Quiz Game

Program:

c=0

dic={'what is your name':'leo','In python who developed':'vimal'}

for i,j in dic.items():

print(i)

user\_an=input("Enter a answer:")

if user\_an==j:

c=c+1

print(c)

OUTPUT:

what is your name

Enter a answer:leo

In python who developed

Enter a answer:vimal

2

EX:7 String

Program:

text = input("Enter a string: ")

uppercase\_text = text.upper()

print("\n1. Uppercase:", uppercase\_text)

reversed\_text = text[::-1]

print("2. Reversed string:", reversed\_text)

vowels = "aeiouAEIOU"

vowel\_count = sum(1 for char in text if char in vowels)

print("3. Number of vowels:", vowel\_count)

Output:

Enter a string: Hello World

1. Uppercase: HELLO WORLD

2. Reversed string: dlroW olleH

3. Number of vowels: 3

EX:8.1 Files

Program:

file\_name = "sample.txt"

data = input("Enter some text to write into the file: ")

with open(file\_name, "w") as file:

file.write(data)

print("\nData has been written to", file\_name)

with open(file\_name, "r") as file:

content = file.read()

print("\nData read from the file:")

print(content)

Output:

Enter some text to write into the file: Python file handling is easy!

Data has been written to sample.txt

Data read from the file:

Python file handling is easy!

EX:9.1 Numpy

Program:

import numpy as np

arr = np.array([10, 20, 30, 40, 50])

print("Original Array:")

print(arr)

print("\n1. Add 5 to each element:", arr + 5)

print("2. Multiply each element by 2:", arr \* 2)

print("3. Square of each element:", arr \*\* 2)

print("\n4. Sum of elements:", np.sum(arr))

print("5. Mean of elements:", np.mean(arr))

print("6. Maximum element:", np.max(arr))

print("7. Minimum element:", np.min(arr))

print("\n8. Reverse the array:", arr[::-1])

print("9. Sorted array:", np.sort(arr))

print("10. Reshaped to (5,1):\n", arr.reshape(5, 1))

Output:

Original Array:

[10 20 30 40 50]

1. Add 5 to each element: [15 25 35 45 55]

2. Multiply each element by 2: [20 40 60 80 100]

3. Square of each element: [100 400 900 1600 2500]

4. Sum of elements: 150

5. Mean of elements: 30.0

6. Maximum element: 50

7. Minimum element: 10

8. Reverse the array: [50 40 30 20 10]

9. Sorted array: [10 20 30 40 50]

10. Reshaped to (5,1):

[[10]

[20]

[30]

[40]

[50]]

EX:10.1 Pandas in Series

Program:

import pandas as pd

s = pd.Series([10, 20, 30, 40, 50])

print("Original Series:")

print(s)

print("\n1. Sum:", s.sum())

print("2. Mean:", s.mean())

print("3. Maximum:", s.max())

Output:

Original Series:

0 10

1 20

2 30

3 40

4 50

dtype: int64

1. Sum: 150

2. Mean: 30.0

3. Maximum: 50

EX:11.1 Pandas in Data Frame

Program:

import pandas as pd

data = {

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

'Age': [25, 30, 22, 28],

'Department': ['IT', 'HR', 'Finance', 'Marketing'],

'Salary': [50000, 55000, 48000, 60000]

}

df = pd.DataFrame(data)

print("---- Original DataFrame ----")

print(df)

df['Bonus'] = df['Salary'] \* 0.10

high\_salary = df[df['Salary'] > 50000]

sorted\_df = df.sort\_values(by='Age')

avg\_salary = df['Salary'].mean()

print("\n---- DataFrame with Bonus ----")

print(df)

print("\n---- Employees with Salary > 50000 ----")

print(high\_salary)

print("\n---- Sorted by Age ----")

print(sorted\_df)

print(f"\nAverage Salary of Employees: ₹{avg\_salary:.2f}")

Output:

---- Original DataFrame ----

Name Age Department Salary

0 Alice 25 IT 50000

1 Bob 30 HR 55000

2 Charlie 22 Finance 48000

3 David 28 Marketing 60000

---- DataFrame with Bonus ----

Name Age Department Salary Bonus

0 Alice 25 IT 50000 5000.0

1 Bob 30 HR 55000 5500.0

2 Charlie 22 Finance 48000 4800.0

3 David 28 Marketing 60000 6000.0

---- Employees with Salary > 50000 ----

Name Age Department Salary Bonus

1 Bob 30 HR 55000 5500.0

3 David 28 Marketing 60000 6000.0

---- Sorted by Age ----

Name Age Department Salary Bonus

2 Charlie 22 Finance 48000 4800.0

0 Alice 25 IT 50000 5000.0

3 David 28 Marketing 60000 6000.0

1 Bob 30 HR 55000 5500.0

Average Salary of Employees: ₹53250.00

EX:11.2 Reading DataFrame from a CSV File

Program:

import pandas as pd

df = pd.read\_csv("employee.csv")

print("---- Data Read from CSV File ----")

print(df)

df['Tax'] = df['Salary'] \* 0.05

young\_emp = df[df['Age'] < 28]

selected = df[['Name', 'Department', 'Tax']]

sorted\_salary = df.sort\_values(by='Salary', ascending=False)

df.to\_csv("updated\_employee.csv", index=False)

print("\n---- DataFrame with Tax Column ----")

print(df)

print("\n---- Employees Younger than 28 ----")

print(young\_emp)

print("\n---- Name, Department & Tax ----")

print(selected)

print("\n---- Sorted by Salary (High to Low) ----")

print(sorted\_salary)

Output:

---- Data Read from CSV File ----

Name Age Department Salary

0 Alice 25 IT 50000

1 Bob 30 HR 55000

2 Charlie 22 Finance 48000

3 David 28 Marketing 60000

---- DataFrame with Tax Column ----

Name Age Department Salary Tax

0 Alice 25 IT 50000 2500.0

1 Bob 30 HR 55000 2750.0

2 Charlie 22 Finance 48000 2400.0

3 David 28 Marketing 60000 3000.0

---- Employees Younger than 28 ----

Name Age Department Salary Tax

0 Alice 25 IT 50000 2500.0

2 Charlie 22 Finance 48000 2400.0

---- Name, Department & Tax ----

Name Department Tax

0 Alice IT 2500.0

1 Bob HR 2750.0

2 Charlie Finance 2400.0

3 David Marketing 3000.0

---- Sorted by Salary (High to Low) ----

Name Age Department Salary Tax

3 David 28 Marketing 60000 3000.0

1 Bob 30 HR 55000 2750.0

0 Alice 25 IT 50000 2500.0

2 Charlie 22 Finance 48000 2400.0

EX:12 Matplotlib

Program:

import matplotlib.pyplot as plt

subjects = ['Python', 'Java', 'C++', 'HTML']

marks = [85, 90, 70, 80]

plt.figure(figsize=(6, 4))

plt.plot(subjects, marks, marker='o', color='b')

plt.title("Line Chart - Marks in Subjects")

plt.xlabel("Subjects")

plt.ylabel("Marks")

plt.show()

Output:

