ASSINGMENT No. 1

Problem Statement :

1. Write Python program to store marks scored for first test of subject ‘Data Structures and

Algorithms' for N students. Compute

A. The average score of class

B. Highest score and lowest score of class

C. Marks scored by most of the students

D. list of students who were absent for the test

CODE:

def avg(marks, N):

total = 0ghest

count = 0

for i in range(N):

if marks[i] != -1:

total += marks[i]

count += 1

return total / count if count != 0 else 0

def highest\_and\_lowest(marks, N):

highest = float('-inf')

lowest = float('inf')

for i in range(N):

if marks[i] != -1:

if marks[i] > highest:

highest = marks[i]

if marks[i] < lowest:

lowest = marks[i]

return highest, lowest

def most\_common\_score(marks, N):

frequency = {}

for i in range(N):

if marks[i] != -1:

if marks[i] in frequency:

frequency[marks[i]] += 1

else:

frequency[marks[i]] = 1

most\_common = max(frequency, key=frequency.get) if frequency else None

return most\_common

def list\_absent\_students(marks, names, N):

absent\_students = []

for i in range(N):

if marks[i] == -1:

absent\_students.append(names[i])

return absent\_students

def main():

N = int(input("Enter the number of students: "))

names = []

marks = []

for \_ in range(N):

name = input("Enter the student's name: ")

mark = input("Enter the marks scored (or 'A' if absent): ")

if mark == 'A':

marks.append(-1)

else:

marks.append(float(mark))

names.append(name)

average\_score = avg(marks, N)

highest\_score, lowest\_score = highest\_and\_lowest(marks, N)

common\_score = most\_common\_score(marks, N)

absent\_students = list\_absent\_students(marks, names, N)

print(f"\nAverage score of the class: {average\_score}")

print(f"Highest score in the class: {highest\_score}")

print(f"Lowest score in the class: {lowest\_score}")

print(f"Most common score in the class: {common\_score}")

print("List of students who were absent for the test:", absent\_students)

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

main()

OUTPUT :

Enter the number of students: 5s

Enter the student's name: Alice

Enter the marks scored (or 'A' if absent): 85

Enter the student's name: Bob

Enter the marks scored (or 'A' if absent): 90

Enter the student's name: Charlie

Enter the marks scored (or 'A' if absent): A

Enter the student's name: David

Enter the marks scored (or 'A' if absent): 75

Enter the student's name: Eve

Enter the marks scored (or 'A' if absent): 90

Average score of the class: 83.33333333333333

Highest score in the class: 90.0

Lowest score in the class: 75.0

Most common score in the class: 90.0

List of students who were absent for the test: ['Charlie']