GROUP - A

Practical No: 01(A-2)

Title: Write a Python program to store marks scored in subject "Fundamental of Data Structure" by N students in the class.

Objectives :

- To learn basic of python
- To accepts marks for N number of students
- To find Average score of student, highest & lowest marks, absent student & highest frequency marks of students.

Problem Statement: - Write a Python program to store marks scored in subject "Fundamental of Data Structure" by N students in the class. Write functions to compute following:

a) The average score of class
b) Highest score and lowest score of class
c) Count of students who were absent for the test
d) Display mark with highest frequency

Outcome :

- Display mark for N number of students
- Calculate and display average score of student, Highest and Lowest marks, Count of absent students and Highest frequency of marks of students

Software Requirements :

Operating System recommended :- 64-bit Open source Linux or its derivative

Programming tools recommended :- Open Source Python, Programming tool like Jupyter Notebook, Pycharm, Spyder, G++/GCC

Hardware Requirements :

i3 or above processor , 2 GB or above RAM, 512 GB or above Hard-disk etc

Theory :

1. Array : (Definition, Concepts(Types), Syntax, Example, Advantages, Disadvantages and Applications)

2. List : (Definition, Concepts(Types), Syntax, Example, Advantages, Disadvantages and Applications)

3. Dictionary : (Definition, Concepts(Types), Syntax, Example, Advantages, Disadvantages and Applications)

Write algorithm/pseudo code for each function.

a) The average score of class

b) Highest score and lowest score of class

c) Count of students who were absent for the test

d) Display mark with highest frequency

Algorithm:

Write Algorithms for program/code which you have implemented.

Flowchart :

Draw flowchart for above algorithm

Conclusion:

Thus, We have successfully computed Average score of students, highest and lowest marks, absent students and highest frequency of marks.

Continuous Assessment of Student:

TS	PR	UC	VA	RN	Total Marks	Faculty Signature
(2)	(2)	(2)	(2)	(2)	(10)	

- **TS – Timely Submitted, PR- Performance, UC- Understanding of Code, VA- Viva Answered, RN- Regularity and Neatness**

Practical No: 02(A-5)

Title: Write a Python program to compute different operations on String.

Objectives :

- To understand the use standard library functions for string operations
- To accepts string/statements from user
- To perform the string operations.

Problem Statement: - Write a Python program to compute following operations on String:

a) To display word with the longest length

b) To determines the frequency of occurrence of particular character in the string

c) To check whether given string is palindrome or not

d) To display index of first appearance of the substring

e) To count the occurrences of each word in a given string.

Outcome :

- Display string/statements
- Find and display longest length of word, palindrome of string, occurrences of character, find 1st index position of substring**.**

Operating System recommended :- 64-bit Open source Linux or its derivative

Programming tools recommended :- Open Source Python, Programming tool like Jupyter Notebook, Pycharm, Spyder, G++/GCC

Hardware Requirements :

i3 or above processor , 2 GB or above RAM, 512 GB or above Hard-disk etc

Reference for theory : https://www.geeksforgeeks.org/python-string/ or https://www.javatpoint.com/python-strings

Theory :

- What is a String in Python?
- Creating a String in Python with example :
- Accessing characters in Python String with example :
- String Slicing operation with example :
- Reversing a Python String with example :
- Formatting of Strings format() with example :
- Split() in python string :
- Find() in python string :

- Index() in python string :
- Advantages of string in python(atleast 4 points):
- Disadvantages of string in python(atleast 4 points) :
- Application of string(atleast 4 points) : https://www.educative.io/answers/basics-of-strings-in-python

NOTE : just write heading and try to explain in details with examples. Some websites are provided as reference(don't write reference). You can use other website also.

Write algorithm/pseudo code for each function :

a) To display word with the longest length

b) To determines the frequency of occurrence of particular character in the string

c) To check whether given string is palindrome or not

d) To display index of first appearance of the substring

e) To count the occurrences of each word in a given string.

Algorithm:

Write Algorithms for program/code which you have implemented.

Flowchart :

Draw flowchart for above algorithm

Conclusion:

Thus, We have successfully computed longest length of word, palindrome of string, occurrences of character, find 1st index position of substring.

Continuous Assessment of Student:

TS	PR	UC	VA	RN	Total Marks	Faculty Signature
(2)	(2)	(2)	(2)	(2)	(10)	

- TS – Timely Submitted, PR- Performance, UC- Understanding of Code, VA- Viva Answered, RN- Regularity and Neatness

Practical No: 03(A-8)

Title: Write program to determine saddle point of matrix.

Objectives :

- To understand the concept of saddle point in matrix
- To implement python program for saddle point

Problem Statement: - Write a Python program that determines the location of a saddle point of matrix if one exists. An m x n matrix is said to have a saddle point if some entry a[i][j] is the smallest value in row i and the largest value in j.

Outcome :

- Display matrix accepted by user
- Display Saddle point from the matrix with their row and col location.

Operating System recommended :- 64-bit Open source Linux or its derivative

Programming tools recommended :- Open Source Python, Programming tool like Jupyter Notebook, Pycharm, Spyder, G++/GCC

Hardware Requirements :

i3 or above processor , 2 GB or above RAM, 512 GB or above Hard-disk etc

Reference for theory : https://www.javatpoint.com/find-saddle-point-of-a-matrix-in-java

Theory :

- What is the saddle point in a matrix?
- Algorithm for saddle point
- How to find Saddle point?
- Examples.

NOTE : just write heading and try to explain in details with examples. Some websites are provided as reference(don't write reference). You can use other website also.

Write algorithm/pseudo code for each function :

a) To accept matrix from user

b) To display matrix

c) To find Saddle point with rows and cols positions.

Algorithm:

Write Algorithms for program/code which you have implemented.

Flowchart :

Draw flowchart for above algorithm

Conclusion:

Thus, We have successfully obtained saddle point of matrix with rows and cols position.

Continuous Assessment of Student:

TS	PR	UC	VA	RN	Total Marks	Faculty Signature
(2)	(2)	(2)	(2)	(2)	(10)	

- TS – Timely Submitted, PR- Performance, UC- Understanding of Code, VA- Viva Answered, RN- Regularity and Neatness

Practical No: 04(A-9)

Title: Perform different operations on Matrix.

Objectives :

- To compute the transpose of matrix
- To perform addition , subtraction and multiplication of two matrices.

Problem Statement: - Write a Python program to compute following computation on matrix:

a) Addition of two matrices

b) Subtraction of two matrices

c) Multiplication of two matrices

d) Transpose of a matrix

Outcome :

- Display matrix accepted by user
- Perform and display Addition, Subtraction, Multiplication and transpose of matrix

Operating System recommended :- 64-bit Open source Linux or its derivative

Programming tools recommended :- Open Source Python, Programming tool like Jupyter Notebook, Pycharm, Spyder, G++/GCC

Hardware Requirements :

i3 or above processor , 2 GB or above RAM, 512 GB or above Hard-disk etc

Reference for theory : https://www.guru99.com/python-matrix.html

Theory :

- **What is Matrix?explain with examples**
- **Write theory of 2-D Array in python with example?**
- **Matrix Operations (explain each operation in detail with example)**
  - **Concept of matrix**
  - **Addition**
  - **Substraction**
  - **Multiplication**
  - **Transpose of matrix**

NOTE : just write heading and try to explain in details with examples. Some websites are provided as reference(don't write reference). You can use other website also.

Write algorithm/pseudo code for each function :

a) To perform addition of two matrix

b) To perform subtraction of two matrix

c) To perform multiplication of two matrix

d) Transpose of a matrix

Algorithm:

Write Algorithms for program/code which you have implemented.

Flowchart :

Draw flowchart for above algorithm

Conclusion:

Thus, We have successfully obtained saddle point of matrix with rows and cols position.

Continuous Assessment of Student:

TS	PR	UC	VA	RN	Total Marks	Faculty Signature
(2)	(2)	(2)	(2)	(2)	(10)	

- TS – Timely Submitted, PR- Performance, UC- Understanding of Code, VA- Viva Answered, RN- Regularity and Neatness