

DSA Lab 1

Q1. Write a program to accomplish each of the following with respect to the given structure:

```
typedef struct student{
    char name[25];
    int age;
    float marks[5];
    float avgMarks;
}Student;
```

1. Use Student to declare variable **s1** to be of type struct student, array **students[10]** of type struct student and variable **sptr** to be of type pointer to struct student.
2. Read **name**, **age** and **marks** from keyboard and calculate **avgMarks** (of struct student) based on the input **marks** for the following
 - a. **s1**
 - b. **sptr**
 - c. 10 elements of array **students**
3. Calculate average of **avgMarks** of all ten elements of array **students** and print **name** of those elements who have **avgMarks** more than the calculated average of all ten elements.

Q2. Given two sorted arrays arr1 and arr2 of sizes n1 and n2 respectively, merge them to get the final sorted array arr3. Don't use any sorting algorithm for this problem. What will be the time complexity in terms of Big O.

Q3. Reverse the character string using stack. Implement stack in form of a structure.

Q4. Given a sorted array arr1, find a query element using binary search.