Data Structures

Data Structures and Algorithms

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COMPUTER SCIENCE

QUESTION# 01

Design a linear array B [] of size 7 elements. Put the following elements in it.

s, u, g, a, z, e, y

a. Implement the Linear Search Algorithm on it to find g and display the message Element g is found successfully

b. Search for element m and message should be displayed Search is Unsuccessful

IN-PUT:

```
#include<iostream>
using namespace std;
int main()
{
        char B[7] = { s' , 'u' , ' g' , 'a' , 'z' , 'e' , 'y'};
        int check = 0;
        for   (int   i = 'a' ;   i <= 'z' ;   i++)
{
                    if(i=='g')
                            cout<<"Element g is found
successfully:"<<endl;
                  if(i!='m')
                          check = 1;
}
  if (check == 1)
          cout<<"Search is unsuccessfully:"<<endl;
return   0;
}
```

OUT-PUT:

Element g is found successfully:

Search is unsuccessfully:

Process finished with exit code 0

QUESTION # 02:

Suppose there is a list of 6 unsorted elements.

15, 10, 12, 11, 9, 10

Design a Program to create an array A [] and store this list in it, and then apply Insertion Sort Algorithm to Sort the list.

IN-PUT:

```
def insertionSort(arr):
    for i in range(1, len(arr)):
        key = arr[i]
        j = i-1
        while j >= 0 and key < arr[j] :
                arr[j + 1] = arr[j]
                j -= 1
        arr[j + 1] = key

# Driver code to test above
arr = [15, 10, 12, 11, 9, 10]
insertionSort(arr)
for i in range(len(arr)):
    print ("% d" % arr[i])
```

OUT-PUT:

```
"C:\Users\ZAIB COMP\AppData\Local\Programs\Python\Python38\python.exe"
9
10
10
11
12
15
Process finished with exit code 0
```