CAM2003C-DataStructuresandAlgorithmswith C and C++

Lab-1:Introduction to DataStructures,Algorithm Analysiss Arrays

1. **Write algorithms(pseudo-code) for the following problems:**
   a) Find the maximum and minimum element in a list of n integers.
   b) Count the number of odd and even numbers in anarray of size n.
   c) Reverse a give n array of integers of size n.

2. **Given the following code snippet,determine its time complexity.**

a)

```
for(inti=0;i<n;i++){
 for(intj=0;j<n;j++){
   printf("*");
 }
}
```

b)

```
voidfunc(intn){
 if (n == 1)
   return;
 func(n/2);
 func(n/2);
}
```

c)

```
inti=1;
while(i<n){
 printf("%d",i); i
 = i * 2;
}
```

d)

```
for(inti=0;i<n;i++){
   for(intj=0;j<n;j++){
      for(intk=0;k<n;k++){ printf("*");
      }
   }

}
```

e)

```
intfib(intn){
   if(n <=1)
      returnn;
   returnfib(n-1)+fib(n-2);
}
```

f)

```
printf("HelloWorld");
```

g)

```
for(inti=0;i<n;i++){
   printf("*");
}
for(intj=0;j<n;j++){
   for(intk=0;k<n;k++){
      printf("#");
   }
}
```

3. **Write a C/C++program to perform the following operations on arrays:**

    a) Traverse an array.
    b) Find the number of element(Length)of a n array
    c) Search an element from the array.
    d) Find the largest element from the array.

e) Find the smallest element from the array
f) Insert an element at a given position in the array.
g) Delete an element from a given position in the array.
h) Search for an element using linearsearch.

4. **Solve the following problems at Neet code platform.(Create your profile on https://leetcode.com/)**

a) Two Sum-Leet Code
https://leetcode.com/problems/two-sum/description/

b) Best Time to Buy and Sell Stock–Leet Code
https://leetcode.com/problems/best-time-to-buy-and-sell-stock/description/