

## **Question 1 -**

Sample output when n = 5

```
* * * * *  
* * * *  
* * *  
* *  
*
```

## **Solution -**

```
#include<stdio.h>  
int main()  
{  
    int n,i,j;  
    scanf("%d",&n);  
  
    for(i=1; i<=n; i+=1)  
    {  
        for(j=i; j<=n; j+=1)  
        {  
            printf("* ");  
        }  
        printf("\n");  
    }  
  
    return 0;  
}
```

## **Question 2 -**

>> Find the k-th largest element or k-th smallest element

## **Solution -**

/\*

Steps -

- 1) Input niyachi n (array er size)
- 2) n size er array ta input niyachi
- 3) Oi array theke largest element ta find korte hbe er pore
- 4) arr[largestElement+1] size er akta array declare korechi
- 5) arr[largestElement+1] size er array er prottek ta index ee 0 assign kore dita hbe.
- 6) 0 theke n times akta loop chalaite hbe and every index eer jonno ai operation ta -> arr[input[i]]+=1; perform korsi
- 7) depends on problem statement

\*/

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int n,i;
```

```
    scanf("%d",&n);
```

```
    int input[n];
```

```
    for(i=0; i<n; i+=1)
```

```
    {
```

```
        scanf("%d",&input[i]);
```

```
    }
```

```
    int largestElement=input[0];
```

```

for(i=1; i<n; i+=1)
{
    if(input[i]>largestElement)
    {
        largestElement=input[i];
    }
}

int arr[largestElement+1];

for(i=0; i<=largestElement; i+=1)
{
    arr[i]=0;
}

for(i=0; i<n; i+=1)
{
    arr[input[i]]+=1;
}

int cnt=0;
for(i=largestElement; i>=1; i-=1)
{
    if(arr[i]==1)
    {
        cnt++;
    }
    if(cnt==3)
    {
        printf("3rd largest element is %d\n",i);
        break;
    }
}
return 0;
}

```

### **Question 3 -**

>> Find the duplicate or unique element from an array

### **Solution -**

/\*

Steps -

- 1) Input niyachi n (array er size)
- 2) n size er array ta input niyachi
- 3) Oi array theke largest element ta find korte hbe er pore
- 4) arr[largestElement+1] size er akta array declare korechi
- 5) arr[largestElement+1] size er array er prottek ta index ee 0 assign kore dita hbe.
- 6) 0 theke n times akta loop chalaite hbe and every index eer jonno ai operation ta -> arr[input[i]]+=1; perform korsi
- 7) depends on problem statement

\*/

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int n,i;
```

```
    scanf("%d",&n);
```

```
    int input[n];
```

```
    for(i=0; i<n; i+=1)
```

```
    {
```

```
        scanf("%d",&input[i]);
```

```
    }
```

```
    int largestElement=input[0];
```

```

for(i=1; i<n; i+=1)
{
    if(input[i]>largestElement)
    {
        largestElement=input[i];
    }
}

int arr[largestElement+1];

for(i=0; i<=largestElement; i+=1)
{
    arr[i]=0;
}

for(i=0; i<n; i+=1)
{
    arr[input[i]]+=1;
}

int duplicate=0,unique=0;
for(i=1; i<=largestElement; i+=1)
{
    if(arr[i]==1)
        unique+=1;
    else if(arr[i]>1)
        duplicate+=1;
}
printf("Total duplicate element found  %d\n",duplicate);
printf("Total unique element found  %d\n",unique);
return 0;
}

```

## **Question 4 -**

Link - <https://codeforces.com/contest/1512/problem/A>

## **Solution -**

```
#include<stdio.h>
int main()
{
    int t,ii;
    scanf("%d",&t);
    for(ii=1; ii<=t; ii+=1)
    {
        int n,i,maxN=101;
        scanf("%d",&n);

        int input[n+1];
        for(i=1; i<=n; i+=1)
        {
            scanf("%d",&input[i]);
        }

        int arr[maxN];
        for(i=0; i<maxN; i+=1)
        {
            arr[i]=0;
        }

        for(i=1; i<=n; i+=1)
        {
            arr[input[i]]+=1;
        }

        int index;
```

```
for(i=1; i<=n; i+=1)
{
    if(arr[input[i]]==1)
    {
        index=i;
        break;
    }
}

printf("%d\n",index);
}
return 0;
}
```