PRIYANSHI

E – 26

2016927

WEEK - 5

Q1.

```cpp
#include <iostream>

using namespace std;


void countSort(char[], int);


int main()
{
    int T;
    cin >> T;
    while (T--)
    {
        int n;
        cin >> n;
        char arr[1000];
        for (int i = 0; i < n; i++)
            cin >> arr[i];
        countSort(arr, n);
    }
}


void countSort(char arr[], int n)
{
    int count[26] = {0};
    for (int i = 0; i < n; i++)
        count[arr[i] - 97]++;
```

```
int max = 0;

char res = '$';

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

```cpp
        {
            if (count[i] > max)
            {
                max = count[i];
                res = i + 97;
            }
        }


        if (max == 1)
            cout << "No duplicate found" << endl;
        else
            cout << res << " - " << max << endl;
    }
```

OUTPUT:

```
3
10
a e d w a d q a f p
a - 3
15
r k p g v y u m q a d j c z e
No duplicate found
20
g t l l t c w a w g l c w d s a a v c l
l - 4


...Program finished with exit code 0
Press ENTER to exit console.
```

Q2.

```cpp
#include <iostream>using

namespace std;

void Quick_Sort(int[], int, int);int main() {

    int T;

    cin >> T;

    for (int i = 0; i < T; i++) {int n;

        cin >> n;

        int A[1000];

        for (int j = 0; j < n; j++)cin >> A[j];

        Quick_Sort(A, 0, n - 1);int x = 0, y =

        n - 1, sum;cin >> sum;

        for (int j = 0; j < n; j++) {

            if (A[x] + A[y] == sum) {

                cout << A[x] << " " << A[y] << endl;break;

            }

            else if (A[x] + A[y] > sum)y--;

            else if (A[x] + A[y] < sum)x++;

            if (x > y)

            {

                cout << "No such Element Exist";break;

            }
```

```c
        }
    }
}


void Quick_Sort(int a[], int lb, int ub)
{
    int i = lb, j = ub, key = a[lb];


    if (i > j)
        return;


    while (i < j)
    {
        while (key >= a[i] && i < j)
            i++;
        while (key < a[j])
            j--;
        if (i < j)
        {
            int t = a[i];
            a[i]  =  a[j];
            a[j] = t;
        }
    }
    a[lb] = a[j];
    a[j] = key;


    Quick_Sort(a, lb, j - 1);
    Quick_Sort(a, j + 1, ub);
}
```

OUTPUT:

```
2
10
64 28 97 40 12 72 84 24 38 10
50
10 40
15
56 10 72 91 29 3 41 45 61 20 11 39 9 12 94
302
No such Element Exist

...Program finished with exit code 0
Press ENTER to exit console.
```

Q3.

```cpp
#include <iostream>
using namespace
std;int main() {
    int m;
    cin >> m;
    int A[100];
    for (int i = 0; i < m; i++)
        cin >> A[i];
    int n;
    cin >> n;
    int B[100];
    for (int i = 0; i < n; i++)
        cin >> B[i];
    int p = 0, q = 0;
    while (p < m && q < n)
    {
        if (A[p] == B[q])
        {
            cout << A[p] << " ";
            p++;
            q++;
        }
        else if (A[p] < B[q])
            p++;
        else
            q++;
    }
}
```

OUTPUT:

```
7
10 10 34 39 55 76 85
12
10 10 11 30 30 34 34 51 55 69 72 89
10 10 34 55

...Program finished with exit code 0
Press ENTER to exit console.
```