Q1

```cpp
#include <iostream>
using namespace std;
const int MAX_SIZE = 100;
int arr[MAX_SIZE];
 int n = 0;
void Createarr() {
    cout << "Enter numbers of element (max " << MAX_SIZE << "): ";
    cin >> n;
    if (n < 0 || n > MAX_SIZE) {
        cout << "Invallid size. Seting size to 0.\n";
        n = 0;
        return;
    }
    cout << "Enter " << n << " element: ";
    for (int i = 0; i < n; i++) {
        cin >> arr[i];
    }
    cout << "Arary create successful.\n";
}
void Displayarr() {

    if (n == 0) {
        cout << "Arary is emty.\n";
        return;
    }
    cout << "Arary element: ";
    for (int i = 0; i < n; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
}
void Insert() {
    if (n >= MAX_SIZE) {
        cout << "Arary is ful. Cant insert.\n";
        return;
    }
    int position, val;
    cout << "Enter positon to insert (0 to " << n << "): ";
    cin >> position;
    cout << "Enter value to insertt: ";
    cin >> val;


    if (position < 0 || position > n) {
        cout << "Invallid positon.\n";
        return;
    }

    for (int i = n; i > position; i--) {
        arr[i] = arr[i - 1];
    }

    arr[position] = val;
```

```cpp
        n++;
        cout << "Element insert successful.\n";
    }
    void deleteEl() {
        if (n == 0) {
            cout << "Arary is emty. Cant delete.\n";
            return;
        }
        int pos;
        cout << "Enter positon to delete (0 to " << (n - 1) << "): ";
        cin >> pos;

        if (pos < 0 || pos >= n) {
            cout << "Invallid positon.\n";
            return;
        }

        int deletedValue = arr[pos];

        for (int i = pos; i < n - 1; i++) {
            arr[i] = arr[i + 1];
        }
        n--;
        cout << "Element " << deletedValue << " delete successful.\n";
    }
    void LinearSearch() {
        if (n == 0) {
            cout << "Arary is emty. Cant search.\n";
            return;
        }
        int val;
        cout << "Enter value to serch: ";
        cin >> val;
        bool found = false;
        for (int i = 0; i < n; i++) {
            if (arr[i] == val) {
                cout << "Element " << val << " found at indx " << i << endl;
                found = true;

                break;
            }
        }

        if (!found) {
            cout << "Element " << val << " not found in arary.\n";
        }
    }
int main() {
    int choice;
    while (true) {

        cout << "\n---MENU---\n";
        cout << "1. CREATE\n";
        cout << "2. DISPLAY\n";
```

```cpp
        cout << "3. INSERT\n";
        cout << "4. DELETE\n";
        cout << "5. LINEAR SEARCH\n";
        cout << "6. EXIT\n";
        cout << "Enter your choice: ";

        cin >> choice;

        if (cin.fail()) {
            cin.clear();

            cin.ignore(10000, '\n');
            cout << "Invallid input. Pls enter number.\n";
            continue;
        }
        switch (choice) {
            case 1:
                Createarr();
                break;
            case 2:
                Displayarr();
                break;
            case 3:
                Insert();
                break;
            case 4:
                deleteEl();
                break;
            case 5:
                LinearSearch();
                break;
            case 6:
                cout << "Exit program. Godbye!\n";
                return 0;
            default:
                cout << "Invallid choice. Pls enter number btween 1 and 6.\n";
        }
    }
}
```

Output

```
---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 1
Enter numbers of element (max 100): 2
Enter 2 element: 3
4
Arary create successful.

---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 2
Arary element: 3 4

---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 3
Enter positon to insert (0 to 2): 1
Enter value to insertt: 8
Element insert successful.
```

```
---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 2
Arary element: 3 8 4

---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 4
Enter positon to delete (0 to 2): 2
Element 4 delete successful.

---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 2
Arary element: 3 8

---MENU---
1. CREATE
2. DISPLAY
```

```
---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 5
Enter value to serch: 8
Element 8 found at indx 1

---MENU---
1. CREATE
2. DISPLAY
3. INSERT
4. DELETE
5. LINEAR SEARCH
6. EXIT
Enter your choice: 6
Exit program. Godbye!


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

Q2

```cpp
#include <iostream>
using namespace std;
int main() {
int n;
    cout << "Enter numbers of element: ";
    cin >> n;
int arr[100];
    cout << "Enter element: ";
    for (int i=0; i < n; i++)
        cin >> arr[i];

for (int i = 0; i < n; i++) {
        for (int j=i+1;j<n;j++) {
 if (arr[i]==arr[j]) {

    for (int k=j; k<n-1;k++)
        arr[k]=arr[k+1];
n--;
    j--;
}
        }
    }
    cout << "New Arary: ";
    for (int i=0; i < n; i++)
        cout << arr[i] << " ";
    return 0;
}
```

```
Enter numbers of element: 4
Enter element: 5
5
5
6
New Arary: 5 6


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

Q3

```c
int main()
{
int i;
int arr[5] = {1};
for (i = 0; i < 5; i++)
printf("%d",arr[i]);
return  0;
}
```

```
10000

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

Q4 A

```cpp
#include <iostream>
using namespace std;
int main() {
    int n;
    cout << "Enter size: ";
    cin >> n;
    int arr[100];
    cout << "Enter element: ";
    for (int i=0; i<n; i++)
        cin >> arr[i];

    cout << "New arary: ";
    for (int i=n-1; i >= 0; i--)
        cout << arr[i] << " ";

    return 0;
}
```

```
Enter size: 5
Enter element: 2
3
4
5

5
New arary: 5 5 4 3 2

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

B #include <iostream>
using namespace std;

int main() {
    int a[10][10], b[10][10], c[10][10];
    int n, m, p, q;

    cout << "Enter rows and cols of first matrix: ";
    cin >> n >> m;

    cout << "Enter rows and cols of second matrix: ";
    cin >> p >> q;

    if (m !=p) {

        cout << "multiplicaton not posible\n";
        return 0;
    }

    cout << "Enter matrix 1:\n";
    for (int i=0; i < n; i++)
        for (int j = 0; j < m; j++)

```cpp
        cin >> a[i][j];

    cout << "Enter matrix 2:\n";
     for (int i=0; i<p;i++)
        for (int j=0; j < q; j++)
     cin >> b[i][j];


    for (int i = 0; i < n; i++) {
        for (int j = 0; j < q; j++) {
            c[i][j] = 0;

            for (int k=0; k < m; k++)
                c[i][j] += a[i][k] * b[k][j];
        }
    }


    cout << "Result matrix:\n";
    for (int i=0; i < n; i++) {
        for (int j = 0; j < q; j++)
            cout << c[i][j] << " ";

        cout << endl;
    }

    return 0;
}
```

```
Enter rows and cols of first matrix: 2
2
Enter rows and cols of second matrix: 2
2
Enter matrix 1:
2
23
3
4
Enter matrix 2:

5
5
5
6
Result matrix:
125 148
35 39
```

C

```cpp
#include <iostream>
using namespace std;
int main() {
    int a[10][10], t[10][10];
    int n, m;
    cout << "Enter rows and cols: ";
    cin >> n >> m;
    cout << "Enter the matrix:\n";
    for (int i=0; i < n; i++)
        for (int j=0; j<m; j++)
            cin >> a[i][j];

    for (int i=0; i < n; i++)
        for (int j=0; j < m; j++)
            t[j][i] = a[i][j];
    cout << "Transpos of matrix :\n";

    for (int i=0; i<m; i++) {
        for (int j = 0; j<n; j++)
            cout << t[i][j] << " ";
```

```cpp
        cout << endl;
    }
    return 0;
}
```

```
Enter rows and cols: 4
3
Enter the matrix:
3
4
4


45
5
6
6


7
7
6
4
5
Transpos of matrix :
3  45 6 6
4  5 7 4
4  6 7 5
```

```cpp
Q 5#include <iostream>
using namespace std;
int main() {
    int a[100][100];
    int n, m;
    cout << "Enter rows and cols: ";
    cin >> n >> m;
    cout << "Enter matrix:\n";
    for (int i=0; i<n; i++)
        for (int j = 0; j < m; j++)
            cin >> a[i][j];

    for (int i=0; i<n;i++) {
        int sum = 0;
        for (int j = 0; j < m; j++)
            sum += a[i][j];

        cout << "Sum of row " << i << " = " << sum << endl;
    }

    for (int j = 0; j < m; j++) {
        int sum = 0;
        for (int i=0; i<n;i++)
            sum += a[i][j];

        cout << "Sum of colum " << j << " = " << sum << endl;
    }
    return 0;
}
```

```
Enter rows and cols: 3
4
Enter matrix:
4
54
5
5
54
4
22
42
2
42
24
24
Sum of row 0 = 68
Sum of row 1 = 122
Sum of row 2 = 92
Sum of colum 0 = 60
Sum of colum 1 = 100
Sum of colum 2 = 51
Sum of colum 3 = 71


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