Q1. code -

#include <iostream>

using namespace std;

#define MAX 100

int arr[MAX];

int n = 0; // Current number of elements

void createArray() {

cout << "Enter number of elements: ";

cin >> n;

if (n > MAX) {

cout << "Array size exceeds maximum limit.\n";

n = 0;

return;

}

cout << "Enter " << n << " elements:\n";

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

cin >> arr[i];

}

cout << "Array created successfully.\n";

}

void displayArray() {

if (n == 0) {

cout << "Array is empty.\n";

return;

}

cout << "Array elements: ";

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

cout << arr[i] << " ";

}

cout << "\n";

}

void insertElement() {

if (n == MAX) {

cout << "Array is full. Cannot insert.\n";

return;

}

int pos, val;

cout << "Enter position to insert (1 to " << n + 1 << "): ";

cin >> pos;

if (pos < 1 || pos > n + 1) {

cout << "Invalid position.\n";

return;

}

cout << "Enter value to insert: ";

cin >> val;

for (int i = n; i >= pos; i--) {

arr[i] = arr[i - 1];

}

arr[pos - 1] = val;

n++;

cout << "Element inserted successfully.\n";

}

void deleteElement() {

if (n == 0) {

cout << "Array is empty. Cannot delete.\n";

return;

}

int pos;

cout << "Enter position to delete (1 to " << n << "): ";

cin >> pos;

if (pos < 1 || pos > n) {

cout << "Invalid position.\n";

return;

}

cout << "Deleted element: " << arr[pos - 1] << "\n";

for (int i = pos - 1; i < n - 1; i++) {

arr[i] = arr[i + 1];

}

n--;

cout << "Element deleted successfully.\n";

}

void linearSearch() {

if (n == 0) {

cout << "Array is empty.\n";

return;

}

int val, found = 0;

cout << "Enter value to search: ";

cin >> val;

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

if (arr[i] == val) {

cout << "Element found at position " << i + 1 << ".\n";

found = 1;

break;

}

}

if (!found) {

cout << "Element not found.\n";

}

}

int main() {

int choice;

while (true) {

cout << "\n--- Array Operations Menu ---\n";

cout << "1. Create\n";

cout << "2. Display\n";

cout << "3. Insert\n";

cout << "4. Delete\n";

cout << "5. Linear Search\n";

cout << "6. Exit\n";

cout << "Enter your choice: ";

cin >> choice;

switch (choice) {

case 1: createArray(); break;

case 2: displayArray(); break;

case 3: insertElement(); break;

case 4: deleteElement(); break;

case 5: linearSearch(); break;

case 6: cout << "Exiting program.\n"; return 0;

default: cout << "Invalid choice. Try again.\n";

}

}

}

