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#include <iostream>
using namespace std;

#define MAX_SIZE 100

void inputArray(int arr[], int size) {
    cout << "Enter " << size << " elements:" << endl;
    for (int i = 0; i < size; i++) {
        cin >> arr[i];
    }
}

void displayArray(int arr[], int size) {
    cout << "Array elements: ";
    for (int i = 0; i < size; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
}

void linearSearch(int arr[], int size, int key) {
    int found = 0;
    cout << "Linear Search Results:" << endl;
    for (int i = 0; i < size; i++) {
        if (arr[i] == key) {
            cout << "Element " << key << " found at index " << i << endl;
            found = 1;
        }
    }
    if (!found) {
        cout << "Element " << key << " not found in the array." << endl;
    }
}

void insertElement(int arr[], int &size, int element, int position) {
    if (size >= MAX_SIZE) {
        cout << "Array is full. Cannot insert more elements." << endl;
        return;
    }
    if (position < 0 || position > size) {
        cout << "Invalid position for insertion." << endl;
        return;
    }
    for (int i = size; i > position; i--) {
        arr[i] = arr[i - 1];
    }
    arr[position] = element;
    size++;
    cout << "Element " << element << " inserted at position " << position << "." << endl;
}

void deleteElement(int arr[], int &size, int position) {
    if (position < 0 || position >= size) {
        cout << "Invalid position for deletion." << endl;
        return;
    }
}

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cout << "Element " << arr[position] << " deleted from position " << position << "." << endl;
for (int i = position; i < size - 1; i++) {
    arr[i] = arr[i + 1];
}
size--;
}

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void reverseArray(int arr[], int size) {
    cout << "Array Reversed:" << endl;
    for (int start = 0, end = size - 1; start < end; start++, end--) {
        int temp = arr[start];
        arr[start] = arr[end];
        arr[end] = temp;
    }
}

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void updateArray(int arr[], int size, int choice) {
    if (choice == 1) {
        cout << "Multiplying odd-indexed elements by 2..." << endl;
        for (int i = 1; i < size; i += 2) {
            arr[i] *= 2;
        }
    } else if (choice == 2) {
        cout << "Adding 5 to even-indexed elements..." << endl;
        for (int i = 0; i < size; i += 2) {
            arr[i] += 5;
        }
    } else {
        cout << "Invalid choice for array update." << endl;
    }
}

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int main() {
    int choice, size, element, position, key;
    cout << "Enter size of the array: ";
    cin >> size;
    int arr[MAX_SIZE];

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    inputArray(arr, size);

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    do {
        cout << "\nMenu:\n";
        cout << "1. Display Array\n";
        cout << "2. Linear Search\n";
        cout << "3. Insert Element\n";
        cout << "4. Delete Element\n";
        cout << "5. Reverse Array\n";
        cout << "6. Update Array (Multiply odd-indexed elements by 2)\n";
        cout << "7. Update Array (Add 5 to even-indexed elements)\n";
        cout << "0. Exit\n";
        cout << "Enter your choice: ";
        cin >> choice;

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        switch (choice) {
            case 1:
                displayArray(arr, size);

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        break;
case 2:
    cout << "Enter element to search: ";
    cin >> key;
    linearSearch(arr, size, key);
    break;
case 3:
    cout << "Enter element to insert: ";
    cin >> element;
    cout << "Enter position to insert: ";
    cin >> position;
    insertElement(arr, size, element, position);
    break;
case 4:
    cout << "Enter position to delete: ";
    cin >> position;
    deleteElement(arr, size, position);
    break;
case 5:
    reverseArray(arr, size);
    break;
case 6:
    updateArray(arr, size, 1);
    break;
case 7:
    updateArray(arr, size, 2);
    break;
case 0:
    cout << "Exiting program." << endl;
    break;
default:
    cout << "Invalid choice! Please enter a number between 0 and 7." << endl;
}
} while (choice != 0);

return 0;
}

```