EXERCISE-7

7.Write a c programm to implemention a array operation such as insert,delect and display.

AIM: To write a C program to perform basic array operations such as insertion, deletion, and display.

Algorithm:

1. Start the program.
2. Input the size of the array and its elements.
3. Display a menu to choose an operation:
   a. Insert an element
   b. Delete an element
   c. Display the array
   d. Exit
4. For Insert:
   - Input the element and position.
   - Shift elements from the end to the right.
   - Insert the element at the given position.
5. For Delete:
   - Input the position.
   - Shift elements left to overwrite the deleted element.
6. For Display:
   - Traverse and print all elements.
7. Repeat until Exit is chosen.
8. End the program.

Program Code:

```
#include <stdio.h>
int main() {
    int arr[100], n, choice, pos, val;
    printf("Enter the number of elements: ");
    scanf("%d", &n);
    printf("Enter the elements:\n");
    for (int i = 0; i < n; i++)
        scanf("%d", &arr[i]);
    do {
        printf("\n1. Insert\n2. Delete\n3. Display\n4. Exit\n");
        printf("Enter your choice: ");
        scanf("%d", &choice);
        switch(choice) {
            case 1:
                if (n >= 100) {
                    printf("Array is full!\n");
                    break;
                }
                printf("Enter position to insert (0 to %d): ", n);
                scanf("%d", &pos);
                if (pos < 0 || pos > n) {
                    printf("Invalid position!\n");
```

```
            break;
        }
        printf("Enter value to insert: ");
        scanf("%d", &val);
        for (int i = n; i > pos; i--)
            arr[i] = arr[i - 1];
        arr[pos] = val;
        n++;
        printf("Inserted successfully.\n");
        break;
    case 2:
        if (n == 0) {
            printf("Array is empty!\n");
            break;
        }
        printf("Enter position to delete (0 to %d): ", n - 1);
        scanf("%d", &pos);
        if (pos < 0 || pos >= n) {
            printf("Invalid position!\n");
            break;
        }
        for (int i = pos; i < n - 1; i++)
            arr[i] = arr[i + 1];
```

```
            n--;
            printf("Deleted successfully.\n");
            break;
        case 3:
            printf("Array elements: ");
            for (int i = 0; i < n; i++)
                printf("%d ", arr[i]);
            printf("\n");
            break;

        case 4: // Exit
            printf("Exiting program.\n");
            break;

        default:
            printf("Invalid choice!\n");
      }
   } while (choice != 4);

   return 0;
}
```

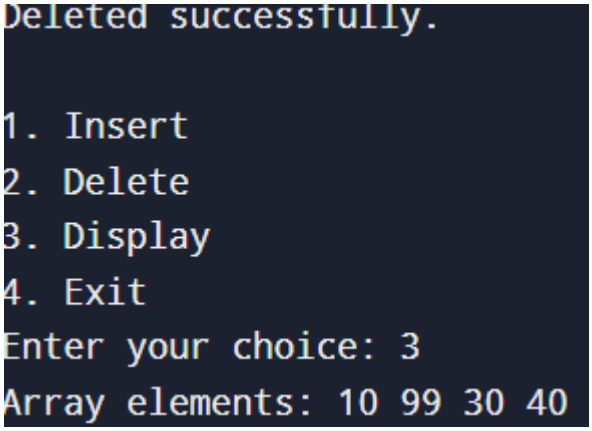
Input and Output:

```
Enter the number of elements: 4
Enter the elements:
10 20 30 40

1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter position to insert (0 to 4): 2
Enter value to insert: 99
Inserted successfully.

1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 3
Array elements: 10 20 99 30 40

1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 2
Enter position to delete (0 to 4): 1
```



Result:

The program allows insertion, deletion, and display of elements in an array successfully using switch-case logic.