## ASSIGNMENT :4 (6.08.2025)

### 1. Read and print elements of an array

Source Code:

```
#include <stdio.h>
void main() {
    int n, i;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Array elements are:\n");
    for (i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
}
```

Sample Output:

```
Enter number of elements: 5
Enter 5 elements:
10 20 30 40 50
Array elements are:
10 20 30 40 50
```

### 2. Sum of elements of an array

Source Code:

```
#include <stdio.h>
void main() {
    int n, i, sum = 0;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
        sum += arr[i];
    }
    printf("Sum of array elements = %d", sum);
}
```

Sample Output:

```
Enter number of elements: 4
Enter 4 elements:
5 10 15 20
Sum of array elements = 50
```

## 3. Maximum and minimum element in an array

Source Code:

```
#include <stdio.h>
void main() {
    int n, i, max, min;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    max = min = arr[0];
    for (i = 1; i < n; i++) {
        if (arr[i] > max) max = arr[i];
        if (arr[i] < min) min = arr[i];
    }
    printf("Maximum = %d\nMinimum = %d", max, min);
}
```

Sample Output:

```
Enter number of elements: 5
Enter 5 elements:
2 8 5 1 9
Maximum = 9
Minimum = 1
```

## 4. Reverse an array

Source Code:

```
#include <stdio.h>
void main() {
    int n, i;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Reversed array:\n");
    for (i = n - 1; i >= 0; i--) {
        printf("%d ", arr[i]);
```

```
    }
}
```

Sample Output:

```
Enter number of elements: 4
Enter 4 elements:
1 2 3 4
Reversed array:
4 3 2 1
```

## 5. Linear search

Source Code:

```
#include <stdio.h>
void main() {
    int n, i, key, found = 0;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Enter element to search: ");
    scanf("%d", &key);
    for (i = 0; i < n; i++) {
        if (arr[i] == key) {
            printf("Element found at position %d", i + 1);
            found = 1;
            break;
        }
    }
    if (!found) {
        printf("Element not found");
    }
}
```

Sample Output:

```
Enter number of elements: 5
Enter 5 elements:
3 8 5 2 9
Enter element to search: 5
Element found at position 3
```

## 6. Sort array in ascending order

Source Code:

```
#include <stdio.h>
void main() {
    int n, i, j, temp;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    for (i = 0; i < n - 1; i++) {
        for (j = i + 1; j < n; j++) {
            if (arr[i] > arr[j]) {
                temp = arr[i];
                arr[i] = arr[j];
                arr[j] = temp;
            }
        }
    }
    printf("Sorted array:\n");
    for (i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
}
```

Sample Output:

```
Enter number of elements: 5
Enter 5 elements:
4 1 3 9 2
Sorted array:
1 2 3 4 9
```

## 7. Insert element in an array

Source Code:

```
#include <stdio.h>
void main() {
    int n, i, pos, val;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[100];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Enter position to insert (1-%d): ", n + 1);
    scanf("%d", &pos);
    printf("Enter value: ");
    scanf("%d", &val);
```

```
    for (i = n; i >= pos; i--) {
        arr[i] = arr[i - 1];
    }
    arr[pos - 1] = val;
    n++;
    printf("Array after insertion:\n");
    for (i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
}
```

Sample Output:

```
Enter number of elements: 4
Enter 4 elements:
10 20 30 40
Enter position to insert (1-5): 3
Enter value: 99
Array after insertion:
10 20 99 30 40
```

## 8. Delete element from an array

Source Code:

```
#include <stdio.h>
void main() {
    int n, i, pos;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[100];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Enter position to delete (1-%d): ", n);
    scanf("%d", &pos);
    for (i = pos - 1; i < n - 1; i++) {
        arr[i] = arr[i + 1];
    }
    n--;
    printf("Array after deletion:\n");
    for (i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
}
```

Sample Output:

```
Enter number of elements: 5
Enter 5 elements:
```

```
1 2 3 4 5
Enter position to delete (1-5): 2
Array after deletion:
1 3 4 5
```

## 9. Frequency of elements in an array

Source Code:

```
#include <stdio.h>
void main() {
    int n, i, j, count;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n], visited[n];
    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
        visited[i] = 0;
    }
    printf("Element Frequency:\n");
    for (i = 0; i < n; i++) {
        if (visited[i] == 1) continue;
        count = 1;
        for (j = i + 1; j < n; j++) {
            if (arr[i] == arr[j]) {
                visited[j] = 1;
                count++;
            }
        }
        printf("%d occurs %d times\n", arr[i], count);
    }
}
```

Sample Output:

```
Enter number of elements: 6
Enter 6 elements:
2 3 2 5 3 2
Element Frequency:
2 occurs 3 times
3 occurs 2 times
5 occurs 1 times
```

## 10. Merge two arrays

Source Code:

```
#include <stdio.h>
void main() {
    int n1, n2, i;
    printf("Enter size of first array: ");
```

```
    scanf("%d", &n1);
    int arr1[n1];
    printf("Enter %d elements:\n", n1);
    for (i = 0; i < n1; i++) {
        scanf("%d", &arr1[i]);
    }
    printf("Enter size of second array: ");
    scanf("%d", &n2);
    int arr2[n2];
    printf("Enter %d elements:\n", n2);
    for (i = 0; i < n2; i++) {
        scanf("%d", &arr2[i]);
    }
    int merged[n1 + n2];
    for (i = 0; i < n1; i++) merged[i] = arr1[i];
    for (i = 0; i < n2; i++) merged[n1 + i] = arr2[i];
    printf("Merged array:\n");
    for (i = 0; i < n1 + n2; i++) {
        printf("%d ", merged[i]);
    }
}
```

Sample Output:

```
Enter size of first array: 3
Enter 3 elements:
1 2 3
Enter size of second array: 3
Enter 3 elements:
4 5 6
Merged array:
1 2 3 4 5 6
```