1. Write a program in C to store elements in an array and print them.

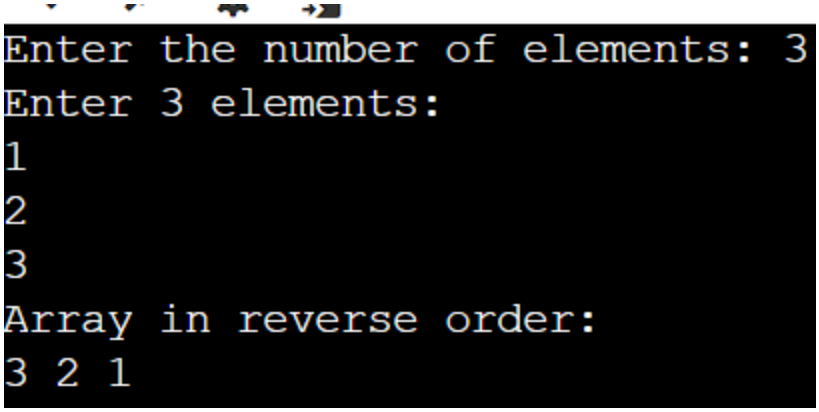
```c
#include <stdio.h>

int main() {
    int arr[100];
    int n, i;

    printf("Enter the number of elements (maximum 100): ");
    scanf("%d", &n);

    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

    printf("Elements in the array: \n");
    for (i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }

    printf("\n");
    return 0;
}
```

Output

```
/tmp/gj6vwvSiQO.o
Enter the number of elements (maximum 100): 4
Enter 4 elements:
1
2
3
4
Elements in the array:
1 2 3 4
```

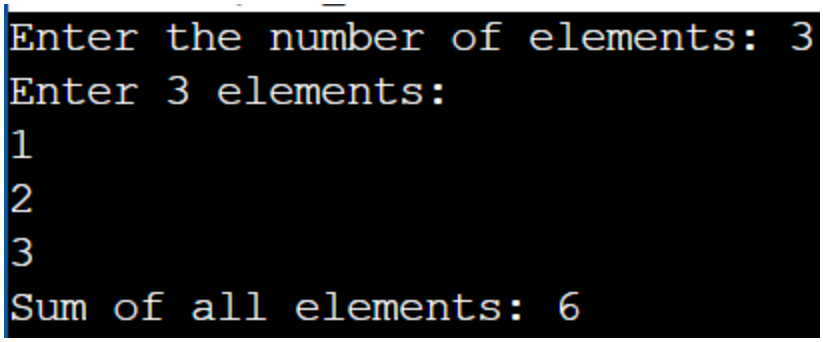
2. Write a program in C to read n number of values in an array and display them in reverse order.

```
#include <stdio.h>

int main() {
    int n, i;

    printf("Enter the number of elements: ");
    scanf("%d", &n);


    if (n <= 0) {
        printf("Invalid array size. Please enter a positive number.\n");
        return 1;
    }

    int arr[n];

    printf("Enter %d elements:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

    printf("Array in reverse order: \n");
    for (i = n - 1; i >= 0; i--) {
        printf("%d ", arr[i]);
    }

    printf("\n");
    return 0;
}
```



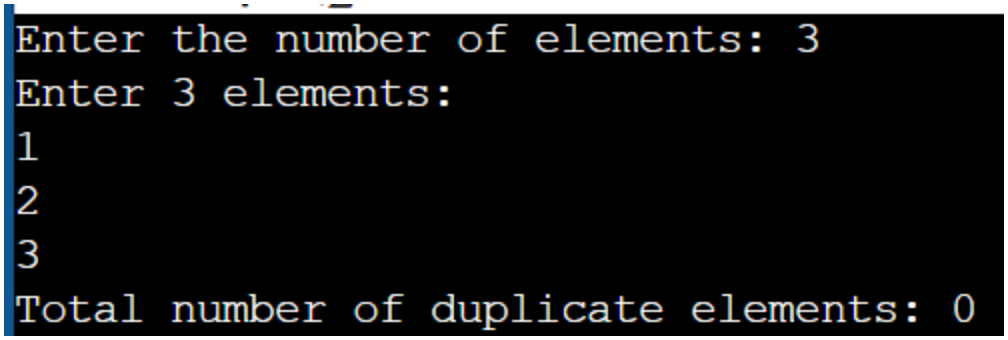
3. Write a program in C to find the sum of all elements of the array

```
#include <stdio.h>

int main() {
   int n, i, sum = 0;

   printf("Enter the 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; i++) {
      sum += arr[i];
   }

   printf("Sum of all elements: %d\n", sum);
   return 0;
}
```



4. Write a program in C to count the total number of duplicate elements in an array.

```
#include <stdio.h>

int main() {
    int n, i, j, count = 0;

    printf("Enter the 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; i++) {
        for (j = i + 1; j < n; j++) {
            if (arr[i] == arr[j]) {
                count++;
            }
        }
    }

    printf("Total number of duplicate elements: %d\n", count);
    return 0;
}
```



5. Write a program in C to print all unique elements in an array.

```
#include <stdio.h>

int main() {
    int n, i, j, is_unique;

    printf("Enter the 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("Unique elements in the array: \n");


    for (i = 0; i < n; i++) {
        is_unique = 1;
        for (j = 0; j < n; j++) {
            if (i != j && arr[i] == arr[j]) {
                is_unique = 0;
                break;
            }
        }
        if (is_unique) {
            printf("%d ", arr[i]);
        }
    }
```

```
    printf("\n");
    return 0;
}
```

```
Enter 3 elements:
1
2
3
Unique elements in the array:
1 2 3
```

6. Write a program in C to insert an element into an array at a specified position.

```
#include <stdio.h>

int main() {
    int n, i, pos, num;

    printf("Enter the 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 the position where to insert (1 to %d): ", n);
    scanf("%d", &pos);


    if (pos < 1 || pos > n) {
        printf("Invalid position. Please enter a position between 1 and %d.\n", n);
        return 1;
    }

    printf("Enter the element to insert: ");
    scanf("%d", &num);
```

```
    for (i = n - 1; i >= pos - 1; i--) {
        arr[i + 1] = arr[i];
    }


    arr[pos - 1] = num;

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

    printf("\n");
    return 0;
}
```

```
Enter the number of elements: 3
Enter 3 elements:
1
2
3
Enter the position where to insert (1 to 3): 2
Enter the element to insert: 1
Array after insertion:
1 1 2 3
```

7. Write a program in C to delete the element at the given index.

```
#include <stdio.h>

int main() {
    int n, i, pos;

    printf("Enter the 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 the index of the element to delete (0 to %d): ", n - 1);
    scanf("%d", &pos);


    if (pos < 0 || pos >= n) {
        printf("Invalid index. Please enter a value between 0 and %d.\n", n - 1);
        return 1;
    }


    for (i = pos; 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]);
    }

    printf("\n");
    return 0;
}
```

```
Enter the number of elements: 3
Enter 3 elements:
1
2
3
Enter the index of the element to delete (0 to 2): 1
Array after deletion:
1 3
```