C Program to get and print the array elements

```c
#include <stdio.h>

#define MAX_SIZE 100

int main() {
    int arr[MAX_SIZE];
    int size, i;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

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

    return 0;
}
```

```
/tmp/MbJakYzb4j.o
Enter the number of elements (up to 100): 3
Enter the elements:
Element 1: 2
Element 2: 3
Element 3: 6
Elements in the array are: 2 3 6
```

C Program to find the sum and average of array Elements

main.c Run Output

```c
#include <stdio.h>

#define MAX_SIZE 100

int main() {
    int arr[MAX_SIZE];
    int size, i;
    int sum = 0;
    float average;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
        sum += arr[i]; // Add the current element to the sum
    }

    average = (float)sum / size; // Calculate the average

    printf("\nSum of the elements: %d\n", sum);
    printf("Average of the elements: %.2f\n", average);

    return 0;
}
```

```
/tmp/MbJakYzb4j.o
Enter the number of elements (up to 100): 5
Enter the elements:
Element 1: 8
Element 2: 9
Element 3: 4
Element 4: 3
Element 5: 8
Sum of the elements: 32
Average of the elements: 6.40
```

C Program to find Smallest element in the array

main.c

Run

```c
#include <stdio.h>

#define MAX_SIZE 100

int main() {
    int arr[MAX_SIZE];
    int size, i;
    int smallest;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    smallest = arr[0]; // Assume the first element is the smallest

    for (i = 1; i < size; i++) {
        if (arr[i] < smallest) {
            smallest = arr[i]; // Update the smallest element
        }
    }

    printf("\nThe smallest element is: %d\n", smallest);

    return 0;
}
```

Output

```
/tmp/MbJakYzb4j.o
Enter the number of elements (up to 100): 3
Enter the elements:
Element 1: 5
Element 2: 1
Element 3: 80
The smallest element is: 1
```

C Program to find Second Largest element in the array

main.c

Run

```c
#include <stdio.h>

#define MAX_SIZE 100

void bubbleSort(int arr[], int size) {
    int i, j, temp;

    for (i = 0; i < size - 1; i++) {
        for (j = 0; j < size - i - 1; j++) {
            if (arr[j] < arr[j + 1]) {
                // Swap the elements
                temp = arr[j];
                arr[j] = arr[j + 1];
                arr[j + 1] = temp;
            }
        }
    }
}

int main() {
    int arr[MAX_SIZE];
    int size, i;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    bubbleSort(arr, size);

    printf("\nThe second largest element is: %d\n", arr[1]);

    return 0;
}
```

Output

```
/tmp/KbCbfS7xdY.o
Enter the number of elements (up to 100): 5
Enter the elements:
Element 1: 1
Element 2: 2
Element 3: 3
Element 4: 4
Element 5: 5
The second largest element is: 4
```

C Program to find the sum of array elements

main.c

Run

```c
#include <stdio.h>

#define MAX_SIZE 100

int main() {
    int arr[MAX_SIZE];
    int size, i;
    int sum = 0;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
        sum += arr[i];
    }

    printf("The sum of array elements is: %d\n", sum);

    return 0;
}
```

Output

```
/tmp/KbCbfS7xdY.o
Enter the number of elements (up to 100): 5
Enter the elements:
Element 1: 1
Element 2: 2
Element 3: 3
Element 4: 4
Element 5: 5
The second largest element is: 4
```

C Program to Search an Element in an array

main.c

Run

```c
#include <stdio.h>

#define MAX_SIZE 100

int searchElement(int arr[], int size, int element) {
    int i;
    for (i = 0; i < size; i++) {
        if (arr[i] == element) {
            return i; // Return the index where the element is found
        }
    }

    return -1; // Return -1 if the element is not found
}

int main() {
    int arr[MAX_SIZE];
    int size, i, element;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
    }
    printf("Enter the element to search: ");
    scanf("%d", &element);

    int index = searchElement(arr, size, element);

    if (index != -1) {
        printf("Element %d found at index %d.\n", element, index);
    } else {
        printf("Element %d not found in the array.\n", element);
    }
    return 0;
}
```

Output

```
/tmp/KbCbfS7xdY.o
Enter the number of elements (up to 100): 5
Enter the elements:
Element 1: 12
Element 2: 35
Element 3: 65
Element 4: 15
Element 5: 54
Enter the element to search: 15
Element 15 found at index 3.
```

C Program to find Largest element in the array

main.c

Run

```c
#include <stdio.h>

#define MAX_SIZE 100

int findLargestElement(int arr[], int size) {
    int i;
    int largest = arr[0];

    for (i = 1; i < size; i++) {
        if (arr[i] > largest) {
            largest = arr[i];
        }
    }

    return largest;
}

int main() {
    int arr[MAX_SIZE];
    int size, i;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    int largest = findLargestElement(arr, size);

    printf("The largest element in the array is: %d\n", largest);

    return 0;
}
```

Output

```
/tmp/KbCbfS7xdY.o
Enter the number of elements (up to 100): 5
Enter the elements:
Element 1: 45
Element 2: 85
Element 3: 95
Element 4: 14
Element 5: 40
The largest element in the array is: 95
```

C Program to print all the numbers which are less than given key element from a given array.

main.c

Run

```c
#include <stdio.h>

#define MAX_SIZE 100

void printNumbersLessThanKey(int arr[], int size, int key) {
    int i;

    printf("Numbers less than %d: ", key);
    for (i = 0; i < size; i++) {
        if (arr[i] < key) {
            printf("%d ", arr[i]);
        }
    }
    printf("\n");
}

int main() {
    int arr[MAX_SIZE];
    int size, i, key;

    printf("Enter the number of elements (up to %d): ", MAX_SIZE);
    scanf("%d", &size);

    printf("Enter the elements:\n");
    for (i = 0; i < size; i++) {
        printf("Element %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    printf("Enter the key element: ");
    scanf("%d", &key);

    printNumbersLessThanKey(arr, size, key);

    return 0;
}
```

Output

```
/tmp/KbCbfS7xdY.o
Enter the number of elements (up to 100): 5
Enter the elements:
Element 1: 10
Element 2: 20
Element 3: 30
Element 4: 40
Element 5: 50
Enter the key element: 30
Numbers less than 30: 10 20
```