

“floresJo_test.c”

Step 1 This for my test.c. or the main I use this header and also create my own 1 header.

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include "floresJo_arrayops.h"
4
5 #define SIZED_MAX 20
```

Step 2. I Initialize the size of my code and create also for char this for the loops for the Step 7. I print the Select your numbers to 1 to %d (which is 20) :

```
int main() {
    int size;
    char continue_choice;
    //Loop
    while (1) {

        printf("Select your number to (1 to %d) :", SIZED_MAX);
```

Step 3. This for my input this is for when you press Letters or words on your input.

```
        if (scanf("%d", &size) != 1) {
            printf("Invalid. Please enter a number not a Word or Letter\n");
            clear_buffer(); // If you press word or letter this will be the help
            printf("-----\n");
            continue;
        }
```

That is why I use a Function to make the code accept that my code won't go through when pressing letters or words or something that are not numbers.

```
7 void clear_buffer() {
8     int c;
9     while ((c = getchar()) != '\n' && c != EOF);
10 }
```

Step 4. I also create a If statement for the input if you type Above 20 and below 1.

```
    // Check if the number is greater than the Sized MAX which is 20.
    if (size > SIZED_MAX) {
        printf("Must be %d to below numbers.\n", SIZED_MAX);
        printf("-----");
        printf("\n");
        continue;
    } else if (size <= 0) {
        printf("Must be Positive numbers pls\n");
        printf("-----");
        printf("\n");
        continue;
    }
```

Step 5. I create an initialized array which is an Initialize array which Max sized.

```
// Memory for the array which is the #define SIZED_MAX 20
int array[SIZED_MAX];

// It reads the array in your input
printf("\t*You Select %d numbers*\n", size);
for (int i = 0; i < size; i++) {
    printf("Number.%d : ", i + 1);
    scanf("%d", &array[i]);
}
```

Also print out the title or known as "You Select # numbers . and it will loop until your number you input like for example:

```
        *You Select 6 numbers*
Number.1 : 12
Number.2 : 24
Number.3 : 51
Number.4 : 61
Number.5 : 76
Number.6 : 45
```

Step 6. Creating the function for max,min,average calculation and sorting and the rest are designs

```
printf("-----");
printf("\n");
// Finding the maximum numbers
int max = find_max(array, size);
printf("\tYour maximum number is %d\n", max);
printf("\n");

// Find the minimum numbers
int min = find_min(array, size);
printf("\tYour minimum number is %d\n", min);
printf("\n");

// Calculates the average number
double avg = calculate_average(array, size);
printf("\tThe Average is: %.2f\n", avg);
printf("\n");

// Sort the number to lowest to highest
bubble_sort(array, size);
printf("\tSorted array: ");
for (int i = 0; i < size; i++) {
    printf("%d ", array[i]);
}
printf("\n");
printf("\n");
```

Step 7. For the exit I use the while loop so that the code is no end until you press X or x so the program will be done or Exit saying "Thank you and Good Bye!"

```
printf("Press 'x' if you wanna exit or Any key to continue: ");
scanf(" %c", &continue_choice);
printf("-----");
printf("\n");
// Exit the loop if the user enters 'x'
if (continue_choice == 'x' || continue_choice == 'X') {
    printf("Thank you and Good Bye!");
    break;
}

return 0;
}
```

The while loop in Step 1.

```
//Loop
while (1) {
```

“floresJo_implementaion.c”

Step 1. This my header for the implementation for the test.c

```
#include "floresJo_arrayops.h"
```

Step 2. I created the Maximum function.

```
// Implementation for the Maximum numbers
int find_max(int array[], int size) {
    int max = array[0];
    for(int i = 1; i < size; i++) {
        if(array[i] > max) {
            max = array[i];
        }
    }
    return max;
}
```

Step 3. I created the Minimum function.

```
// Implementation for the minimum numbers
int find_min(int array[], int size) {
    int min = array[0];
    for(int i = 1; i < size; i++) {
        if(array[i] < min) {
            min = array[i];
        }
    }
    return min;
}
```

Step.4 I created the average of the numbers and calculated it.

```
// Calculates the average of the numbers
double calculate_average(int array[], int size) {
    int sum = 0;
    for(int i = 0; i < size; i++) {
        sum += array[i];
    }
    return (double)sum / size;
}
```

Step 5. And lastly created the Sorting bubbles for the lowest to highest numbers.

```
// Sorting the all number to lowest to highest
void bubble_sort(int array[], int size) {
    for(int i = 0; i < size - 1; i++) {
        for(int j = 0; j < size - 1 - i; j++) {
            if(array[j] > array[j + 1]) {
                // Swap arr[j] and arr[j + 1]
                int temp = array[j];
                array[j] = array[j + 1];
                array[j + 1] = temp;
            }
        }
    }
}
```

For example:

```
Sorted array: 2 12 23 45 67 90 100 122 146 156 213 275 444 598 666 1000 1667 1995 2030 2155
```

“floresJo_arrayops.h”

This is for the header and here are the inside functions of the header.

```
#ifndef ARRAY_OPS_H
#define ARRAY_OPS_H

// Header for the max
int find_max(int arr[], int size);

// Header for the min
int find_min(int arr[], int size);

// Header for calculate the average
double calculate_average(int arr[], int size);

// header for sort an array using bubble sort
void bubble_sort(int arr[], int size);

#endif // ARRAY_OPS_H
```