



### Part 3. [20pts] Doing Mathematical Operations

In this part, you need to calculate the average, mode, and median of the numbers. If the array is updated in Part 2, you need to consider updated version of it and recall that the numbers must be in determined interval by the user.

**3.1. Calculation of Average:** Create a function to calculate the mean of the numbers within the interval.

**3.2. Calculation of Mode:** Create a function to calculate the mode, which is the number that appears most frequently within the interval. If there are multiple modes, display all of them.

**3.3. Calculation of Median:** Create a function to calculate the median of the numbers within the interval. Make sure to handle cases where the number of elements in the array is even for calculating the median.

#### OUTPUT FORMAT:

- **Array:**

```
int number_array[] = {3, 8, 9, 9, 5, 2, 4, 7, 4, 8, 9, 10, 2, 4, 5, -1};
```

- **Example 1:**

```
Enter A and B values: 2 9
*      *
* **   **
**** ***
Would you like to add new numbers? (Press 1 for yes, Press 0 for no): 0
Average: 5.64
Median: 5.00
Mode: 9 4
```

- **Example 2:**

```
Enter A and B values: 2 9
*      *
* **   **
**** ***
Would you like to add new numbers? (Press 1 for yes, Press 0 for no): 1
Enter the numbers:
5
6
-1
**      *
* **   **
*****
Average: 5.62
Median: 5.00
Mode: 9 5 4
```

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**IMPORTANT NOTES:**

- Submit your homework as a zip file named as your student id (StudentID.zip) and this file should include:
  - YourStudentID.c file
  - A pdf file named "YourStudentID.pdf" including a screenshots of your program outputs.
- Do not use any library other than stdio.h.
- The output format must be as given, do not change it.
- Compile your work with given command "gcc --ansi your\_program.c -o your\_program".
- Your work will be evaluated using gcc version 11.4.0.
- For any questions and problems, you can always contact me **via email** ([incikaramahmutoglu@gtu.edu.tr](mailto:incikaramahmutoglu@gtu.edu.tr)), or you can find me in Human Computer Interaction Lab. during scheduled office hours on April 2, 2024, between 13:30 and 14:30.