

The purpose of this homework is to gain experience using file handling, arrays, searching and sorting, in particular iterating through them and accessing values in them.

You are given a set of midterm grades for a CS140 course. There are 47 students in this course and their midterm grades are recorded in an external file [cs140_midterm.dat](#)

Requirements

- Use appropriate static methods to separate the functionality of the program.
- Read the file and use an `ArrayList<Integer>` to store the student grades.
- Do the following operations based on the grades. Your program should calculate all of the following programmatically.
 - Find the minimum grade of the course and display the value.
 - Find the maximum grade of the course and display the value.
 - Find the average of the course grades and display the value. Your class average should display for only 2 decimal places.
- Next, sort the `ArrayList` in ascending order by passing the `ArrayList` to `Collections.sort()` method.
 - Find the median of the class grades using the sorted `ArrayList` and display the value. Median is the middle value of the array. If the size `N` of the array is an odd number, then the median is at index $(N-1)/2$. If the size `N` of the array is an even number then, the median is the average of 2 middle numbers. In this problem, your array size is 47 which is an Odd number.
 - Find the mode of the class programmatically using the sorted `ArrayList` and display the result. The mode is the number repeated most often.
- Write a static method to store the results (min, max, average, median, and mode) back to an external file `cs140_midterm_stats.dat`
- Make sure you have your name and Bronco ID in the top comment

```
/* Name: Jane-Joe
 * Bronco ID: 12345678
 * Jon Doe helped me with.....
 */
```
- Your output should look exactly like this. The results are the actual values of the given dataset.

HW5: CS 140 Student Grades

Minimum grade of the class is 64

Maximum grade of the class is 100

The class average is 87.13

The median of the class is 89

The mode of the class is 95

Due: November 29, 2017 by 6.00 PM. submit your `Grades.java` file to Blackboard.

Total Points = 100

- Correctness/Robustness: 60 points
- Code complies to requirements: 20 points
- Good coding style: 20 points