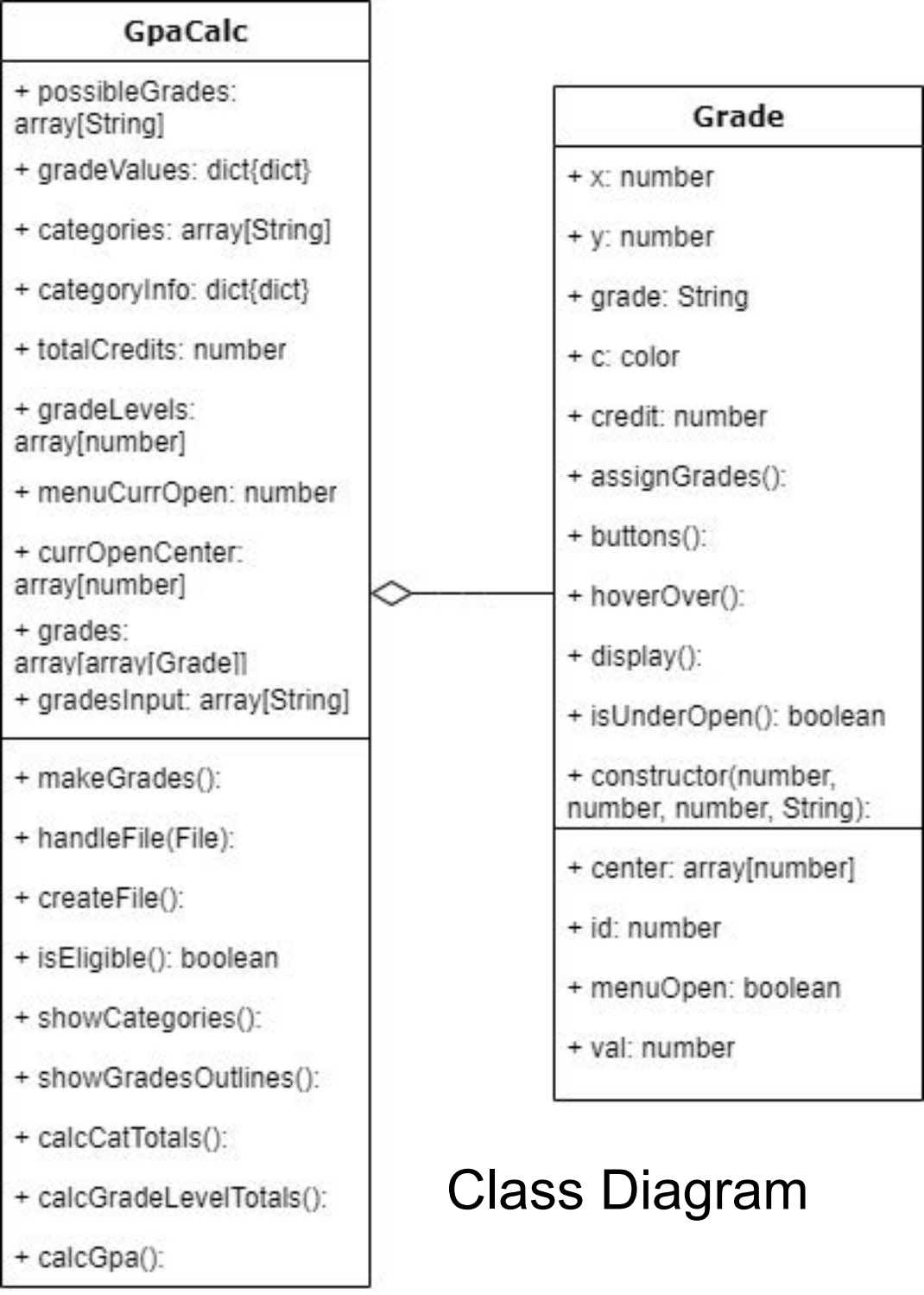
Year Two Concepts used:

- GUI controls:
    - There are GUI controls in the form of selection “wheels” that pop up for changing the contents of a grade. Since there isn’t anything similar and completely customizable that already existed, I had to create this GUI element. Also, there are buttons that help facilitate file input and output.
- Enhanced For Loop:
    - I am using enhanced for loops in lines 133 to 139 to easily iterate through the two-dimensional array used to store the contents of the table of grades. This is one of the only places I use the enhanced for loop because it doesn’t require that I perform any calculations on the incrementing variable in a normal for loop.
- Multidimensional Arrays:
    - Two-dimensional arrays are instrumental in making this program function; it is how the grades themselves are stored. I use these to easily make calculations of totals across rows and columns.
- File I/O:
    - I have implemented a way to download the current state of the table. I did have one problem where I originally wanted to use .csv, but JavaScript only allows those to be read as actual data objects, which I was not using. Using .txt instead fixed that issue. There is also a way to upload a previously saved file.
- Filtering:
    - There is a sort of filtering happening when I display or output the grades stored in the two-dimensional array. This is because I store places where there are not supposed to be grade entries (like in the Gov, HE, CT, and FL columns) as null. When I display the grades, I need to skip the ones that are just null. Also, when I convert the grades to a .txt file, I simply skip over the null values.
- Collections:
    - One of the important collections I use that I haven’t already mentioned (two-dimensional arrays) is the map. I have two maps, gradeValues and categoryInfo. gradeValues is used to decrease the number of parameters the Grade class’s constructor requires by getting most attributes by looking up the grade in the gradeValues map. categoryInfo is useful for the calcCatTotals() and isEligibleTotals functions.



Class Diagram

Logic Diagram