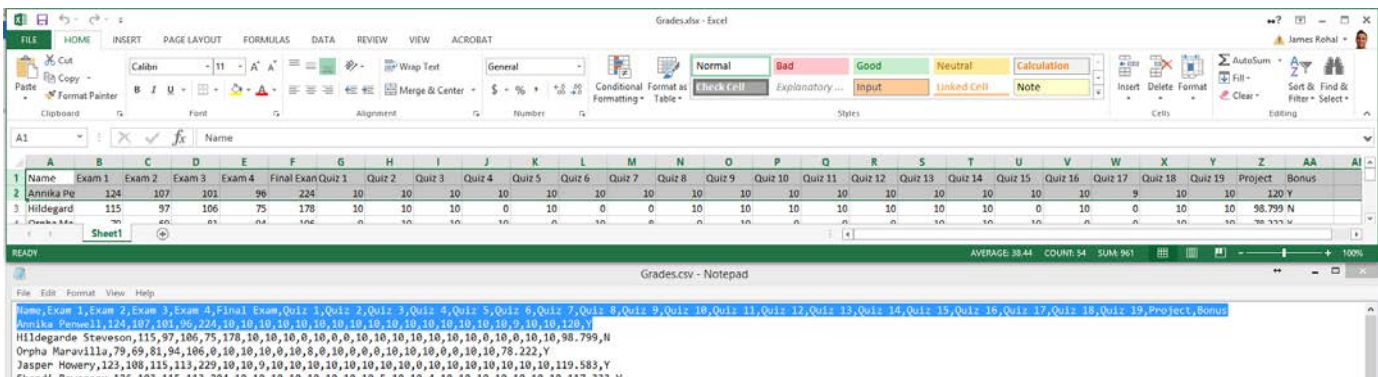


Your goal in this assignment is to read in a file called "grades.csv", do a few computations on the data from this file, then output the results of your computations. When I am grading, I will be looking to make sure you complete the three following tasks:

- (TASK A) Read in the file "grades.csv" to one or multiple arrays.
- (TASK B) Run certain computations using the data in these arrays.
- (TASK C) Properly formatting your results of the computations to console.
- (TASK D) Properly writing your formatted results of the computations to a file.

First, we must understand what the file "grades.csv" contains. A .csv file is called a *comma separated values* file. It is a way to present tabular data, such as the rows and columns in an Excel file, in plain-text form. Open the file "grades.xlsx" using Excel or some spreadsheet program and "grades.csv" using a text editor like Notepad. Notice that each row of the .csv file corresponds to a row in the table in the .xlsx file. Each column entry in the .xlsx file is separated by a comma in the .csv file.



It is a fairly easy task to convert a .xlsx file to a .csv file (and vice versa) in Excel by going to File -> Save As and choosing the appropriate save type.

Now that we understand what a .csv file is, we need to understand the content contained in these files. Both of these files contain the gradebook data for an imaginary class. The first row contains the headings, and each row thereafter is the data for a particular student. The grade is calculated from the following totals:

- Exam 1 - 4: 115 points each
- Final Exam: 230 points
- Quiz 1 - 19: 10 points each
- Project: 120 points
- Bonus: if Y (yes), then add 10 points, else (N for no) add 0 points
- Total:  $4*115 + 230 + 19*10 + 120 = 1000$  points

Now let me explain the tasks in more detail.

### (TASK A)

1) Read in the file: You need to read in the file in to an array or multiple arrays. Material from 4.10 will be useful here. Be careful about what the size of the array is and what data type is stored in this array.

2) Split each row in to multiple pieces (if necessary): Depending on how you completed the step above, you might have read in a `String` of words separated by commas. The best way to split up this string is by using `split` method. For example, we use the `split` method to take `str1` and turn it in to an array called `array1` containing three `Strings` that looks like `{"Name", "Exam 1", "Exam 2"}`:

```
String str1 = "Name,Exam 1,Exam 2";  
String[] array1 = str1.split(",");
```

### (TASK B)

1) Compute the grade for each student: Once the data is read in, you now have access to each student's score. Knowing the point totals, you can calculate their grade based on the following scale (in percent):

98-100+	A+
92-98	A
90-92	A-
88-90	B+
82-88	B
80-82	B-
78-80	C+
72-78	C
70-72	C-
68-70	D+
62-68	D
60-62	D-
<60	F

This can be accomplished with a loop.

2) Compute the distribution of grades: Once you calculate everyone's grade, you should keep track of the number of people that received each grade. This can be accomplished with a loop.

3) Compute the average grade: Once you calculate everyone's grade, calculate the average grade for the entire class as a percentage. This can be accomplished with a loop.

## (TASK C)

Print out your results to console like this:

```
> run GradeBook
Class average: 83.57%

Distribution
A+  4
A   8
A-  6
B+  2
B  11
B-  2
C+  3
C   8
C-  0
D+  1
D   3
D-  0
F   2

Grades
Annika Penwell      A
Hildegard Steveson B-
Orpha Maravilla    D
Jasper Howery      A+
Shandi Bowersox    A
Eladia Buckelew   A-
Shonta Vanwinkle   F
Allene Beauchemin C
Kirsten Omalley    A+
Consuelo Ridge     B
Alix Friddle       A-
Nora Ruoff         A-
Providencia Vercher D+
Margret Mulhern    A
Devorah Zuccaro    C
Charlott Masson    C
Dexter Kurz        A+
Nell Luevano       B
Elfrieda Ehlert    C
Ervin Gaitan       C+
Keva Reser         A
Marchelle Oram     D
Etsuko Boeding     B
Lorita Rakestraw   A-
Margery Gasser     D
Bronwyn Moos       C
Aline Newcomer     A
Loretta Dirksen    B
Helen Deel         C+
Hattie Valadez     B
Shae Garay         B
Claribel Lebouef   F
Bobbie Tischler    A
Grover Sprvill     B+
Katerine Fuhr      B
Janet Ruddock      B
Tristan Chao       C
Ora Morgenstern    A+
Alethia Baisden    A
Kenisha Myrick     C
Nakesha Homes      B
Mable Belizaire    A
Zachery Perl       B
Jerry Poteete      B
Leonardo Curto    C
Catherine Dallman B-
Stephane Mclester  C+
Lyle Kantz         A-
Houston Mccraw     A-
Ilda Mccreight     B+
```

**(TASK D)**

Print the exact output you have from (TASK C) to a file called results.txt. I attached an example to this assignment.

**BONUS:**

- \* Figure out how to make your code adapt to gradebooks with a different numbers of students, a different number of assignments/exams/quizzes/projects, and different point totals.
- \* Output your grades with the last names sorted alphabetically.
- \* Output the class average for each assignment.