Lab 10: File Processing

- **files**
  - Reading
    - `open(filename,"r")` returns a file for reading
    - `file.readline()` reads a line in the file
  - Writing
    - `open(filename, "w")` returns a file for writing
    - `file.write(aString)` writes the string to the file
    - don't forget `"\n"` to create a new line
  - Don't forget `file.close()` to close the file
- **string**
  - use `.strip()` to remove whitespace
  - use `.split()` to split on whitespace or `.split("c")` to split on character
- **gradeProcessing.py**
  - **gradeDistribution** –
    - open the read file
    - read each line and count A's, B's, C's, D's, and F's
    - close the read file
    - print the grade distribution and grade histogram to the console
  - **classGrades** –
    - open the read and write files
    - read each line and process the line by grabbing the name and calculating the average
    - write the name, average, and letter grade to the write file
    - close the files
- Don't forget to show me!

gradeDistribution Expected Output (Console)

- **grades1.txt**

```
Grade Distribution:
  A: 20.0%
  B: 20.0%
  C: 20.0%
  D: 20.0%
  F: 20.0%

Grade Histogram:
  A: ********************
  B: ********************
  C: ********************
  D: ********************
  F: ********************
```

- **grades2.txt**

```
Grade Distribution:
  A: 27.8%
  B: 33.3%
  C: 22.2%
  D:  5.6%
  F: 11.1%

Grade Histogram:
  A: *************************
  B: ********************************
  C: ***********************
  D: *****
  F: ***********
```

classGrades
Expected Output (File)

- **open as text file**
  - **class1-out.csv**

```
Sally,75.0,C
Jane,86.0,B
Beth,90.0,A
Emma,92.5,A
Liz,68.5,D
```

  - **class2-out.csv**

```
Ron Weasley,70.5,C
Harry Potter,85.4,B
Hermione Granger,95.5,A
Luna Lovegood,94.1,A
Ginevra Weasley,95.1,A
Lavender Brown,68.5,D
Neville Longbottom,72.8,C
Dean Thomas,91.6,A
Padma Patil,76.5,C
Pavarti Patil,75.4,C
Oliver Wood,85.1,B
Cho Chang,88.9,B
Angela Johnson,69.1,D
Draco Malfoy,83.9,B
```

- **open as Excel file**
  - **class1-out.csv**

Sally	75	C
Jane	86	B
Beth	90	A
Emma	92.5	A
Liz	68.5	D

  - **class2-out.csv**

Ron Weasley	70.5	C
Harry Potter	85.4	B
Hermione Granger	95.5	A
Luna Lovegood	94.1	A
Ginevra Weasley	95.1	A
Lavender Brown	68.5	D
Neville Longbottom	72.8	C
Dean Thomas	91.6	A
Padma Patil	76.5	C
Pavarti Patil	75.4	C
Oliver Wood	85.1	B
Cho Chang	88.9	B
Angela Johnson	69.1	D
Draco Malfoy	83.9	B