CENG 112 – DATA STRUCTURES
Homework 1

March 4, 2016

Due Date: 16 March 2016

Programming Assignment 1.1   Averaging Exam Grades

Write a program that reads three numbers per line from the standard input and up to a maximum of 1000 lines. For each line, it should take the weighted average of these numbers with weights 0.2, 0.4, and 0.4. It should print out the averaged value on a seperate line on the standard output. For example, for the input below

```
45.00 67.00 98.00
89.00 23.00 89.00
```

it should produce

```
75.00
62.60
```

Programming Assignment 1.2   Auto Capitalization

Write a program that reads standard input and capitalizes the first word and each word that follows a period, a question mark or an exclamation point. For example, for the input below

```
it is an old maxim of mine that when you have excluded the
impossible, whatever remains, however improbable, must be the
truth. now, I knew that it was not you who had brought it down,
so there only remained your niece and the maids. but if it were
the maids, why should your son allow himself to be accused in
their place? there could be no possible reason.
```

it should produce

It is an old maxim of mine that when you have excluded the
impossible, whatever remains, however improbable, must be the
truth. Now, I knew that it was not you who had brought it down,
so there only remained your niece and the maids. But if it were
the maids, why should your son allow himself to be accused in
their place? There could be no possible reason.

Hint: You can use the **Character.toUpperCase()** function to convert a
character to uppercase.

Programming Assignment 1.3   Horizontal Grade Histogram and Histogram Tests

Modify the code in "DrawHistogram.java" to draw the histogram bars horizontally instead of vertically. Write a program that generates 1000 Gaussian distributed real numbers with mean 70.0 and standard deviation 15.0 on standard output. Feed the output of this program to your modified `DrawHistogram` program.