Programming 1

Assignment 2

Due Date: Sep-21 23:59:59. **Late submission will directly be marked as 0**.

Submission: Please submit one .java file for each task (4 .java files in total). Do not zip your files but submit one single file each time (Omnivox accepts multi-submission).

Full Score: 100

Requirement:

1. Make sure you write documentation for each task, (don't forget the @author).
2. **Keep your code clean** (indent, right spacing, appropriate identifier, camel case). Each part that is not clean will get -1 paneity.
3. Add appropriate comments if it is necessary.
4. Make sure you understand your own code and can explain it in front of another person. Student may be randomly selected to ask to explain her/his code. **Failing to explain your own code will be heavily panelized**.

Task 1:

Create a project **WebAddressExtractor** to ask the user to input an address of a webpage, for example: www.google.ca, (**the user may input uppercase letters**) the address should contain two dots. Use substring to separate the address into three parts, the header: www, the company: google, and the extension: ca, and use printf() to print it (**the results should be all in lower case**), **no hard-coded space before the ":" is allowed**.

```
run:
Please input a web address: WWW.GOOGLE.COM
Address   : www.google.com
Heading   : www
Company   : google
Extension : com
BUILD SUCCESSFUL (total time: 10 seconds)
```

Task 2:

Create a project **BirthYearCalculator** to ask the user to input a birth year (as a string), and then calculate the century and the decade based on it. This time, you are not allowed to use // and % operators. Instead, **you can only use String operations to extract the first two digits (for century) and the third digit (for decade)**.

Hint: Integer.parseInt("3") will return 3 as an int. Once you extract the century in String, Use this to convert it to int add 1 to get the century)

Use printf() to print it, **no hard-coded space before the ":" is allowed**.

```
run:
Please input a birth year: 1986
Birth Year: 1986
Century   : 20
Decade    : 80
BUILD SUCCESSFUL (total time: 2 seconds)
```

Task 3

Create a project **SimpleStatisticCalculator** to ask the user to input 5 numbers for one time, and calculate the mean, the minimum value, the max value, and the standard deviation of them. All numbers are displayed with two decimal digits.

Use printf() to print it, **no hard-coded space before the ":" is allowed**.

$$\mathrm{SD} = \sqrt{\frac{\sum |x - \bar{x}|^2}{n}}$$

```
run:
Please input 5 numbers separated by space: 5 7 8 9 4
Numbers              : 5.00, 7.00, 8.00, 9.00, 4.00
Mean                 : 6.60
Minimum              : 4.00
Maximum              : 9.00
Standard Deviation   : 1.85
BUILD SUCCESSFUL (total time: 3 seconds)
```

Task 4

Create a project **ParkingPriceCalculator** to ask the user to input the number of minutes a car has parked. Assume the price for each hour is $2, less than one hour will be considered as one hour. For example: 2.1 hours will be considered as 3 hours. Calculate how much a person needs to pay.

Use printf() to print it, **no hard-coded space before the ":" is allowed**.

```
run:
Please input the number of minutes your car has parked: 121
Parking time (minutes)   : 121
Parking time (hour)      : 3
Price                    : 6.00
BUILD SUCCESSFUL (total time: 1 second)
```