Individual Assignment #1 (7%)

Deadline

Please submit **single zip file** to <u>Assignment 1</u>, on Blackboard by **Midnight Sunday March 20th**. Work by yourself, as this is an individual assignment. Please list your Name, Email & Student ID in your code comments.

In accordance with CIT guidelines, the penalties for late submissions are as follows:
- up to one week late – subtract 10%.
- up to two weeks late – subtract 20%.

<u>Submissions more than two weeks late will not be accepted.</u>
NOTE: ZERO marks will be awarded to submissions that do not compile.

<u>If you have any problems with submission, email your lab group instructor.</u>

Practice Time

This assignment is indicative of what you would receive in a Final Exam, so you should look to be able to complete this, with practice, within 40 minutes under Final Exam Conditions!

Required Files

1- JAVA File [propertyTax.java]

Description of the problem

Write a program (propertyTax.java) to the following specification:

The local property tax is about to be collected by the government. You are to program an alternative way of calculating the property tax.

A user is asked for the following information about their home:

- Number of bedrooms
- Is it urban or rural?
- Is it terraced, semi-detached, or detached?

Use the method specifications overleaf to develop the methods *calculateSize* and *calculatePropertyTax*. Use the methods to calculate the property tax for a user and then display the value to the user.

Method name	calculateSize
Description	This method determines roughly how big the house might be. It uses the following formula: Initial size of the house is set as follows: Terraced: 800 square feet Semi-detached: 900 square feet Detached: 1,000 square feet Each bedroom adds 100 square feet. E.g. Semi-detached house with 3 bedrooms = 900 + (3 x 100) = 1,200
Returns	The estimated square footage
Parameters accepted	1. Number of bedrooms 2. House type (i.e. Is it terraced, semi-detached or detached)

Method name	calculatePropertyTax
Description	This method calculates the property tax as follows: The tax is initially calculated as 15% of the square footage. If the house is urban, the tax is multiplied by 1.25 Example: Estimated square footage of 1,200 square feet. Urban: 1,200 x 15% = 180 Urban, so multiply by 1.25... 180 x 1.25 = 225
Returns	The property tax amount
Parameters accepted	1. Estimated square footage 2. Value indicating if house is urban or rural

The system must accept multiple properties, and give the Highest, Lowest, Average, and Total Property Tax Information. See sample run below.

Sample Run

```
Number of Properties: 2

Property 1: Number of bedrooms?  3
Property 1: Terraced, Semi-detached or Detached (T/S/D)? S
Property 1: Urban or Rural (U/R)? U

Property 1: Property tax is €225.00


Property 2: Number of bedrooms?  3
Property 2: Terraced, Semi-detached or Detached (T/S/D)? S
Property 2: Urban or Rural (U/R)? R

Property 2: Property tax is €180.00



Highest Property Tax: Property 1 @ €225.00
Lowest Property Tax: Property 2 @ €180.00
Average Property Tax: €202.50
Total Property Tax: €405.00
```

Marking Scheme

1- JAVA File		100%
calculateSize Method		25%
Defined	5%	
Correct Parameters	5%	
Correct Return Type	5%	
Correct Functionality	10%	
calculateSize Method		30%
Defined	5%	
Correct Parameters	5%	
Correct Return Type	5%	
Correct Functionality	15%	
Accept Single Property		5%
Accept Multiple Properties		5%
Highest Property Tax		5%
Lowest Property Tax		5%
Average Property Tax		5%
Total Property Tax		5%
Validation & Correct Output Throughout		10%

        Eg no empty inputs, numbers only for Bedrooms, correct House Type options, etc.

Correct Output		5%

        Eg correctly Formatted decimals