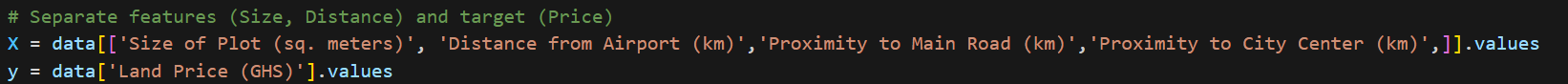
**Assignment 2**

**Total: 10 Marks**

In this assignment, you will use the "stochastic\_gradient.ipynb" notebook in the “Lab Code (Linear Regression)” zip file on canvas (under the week 2 section). For all tasks in this assignment, you are to make modifications to the stochastic\_gradient.ipynb file and submit your version.

**Task 1: Automate Feature Selection**

The following section from the reference code is currently hard-coded to obtain the feature matrix, X and target vector, y.



Your task is to make this process **autonomous** for any dataset and any number of features.

1. **Write a function** that can autonomously:
   * Identify all features (i.e., columns) from the dataset except the target variable (the column with the target values).
   * Separate these features from the target variable.
   * Return both the feature matrix, X, and the target vector, Y.

Z

**Task 2: Model Accuracy Function**

Using the stochastic\_gradient ipynb code, your second task is to write a function that calculates and returns the **accuracy** of the model developed.

**Submission Requirements:**

* Your submission should include a Jupyter Notebook (.ipynb) and a .pdf file with:
  + The function for automating feature selection.
  + The function for calculating the model's accuracy using Stochastic Gradient Descent.
  + Any necessary test file to demonstrate the functionality of your functions.

**Evaluation Criteria:**

* **Task 1: Feature Selection Function** (5 points)
  + Correctly identifies features and target: 3 points
  + Flexibility and Robustness of function: 2 points
* **Task 2: Model Accuracy Function** (5 points)
  + Correct calculation of model accuracy: 3 points
  + Proper integration with Stochastic Gradient Descent: 2 points