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**CS 115 Fall 2019 Final Project Design**

Due: **Sunday, November 10th, midnight**

Points: **20**

Design Requirements (20 points)

Create the following for the classes in above requirements (no code necessary):

**Deliverables:-**

* Classname:
  + DataFrame.java
    - String [][] Data will contain the attributes with the maximum number of columns to be 10 and rows to be 25000 from the csv files.
* What are attributes necessary, their data types and valid ranges?

Attributes:

|  |  |  |
| --- | --- | --- |
| **Name** | **Data Type** | **Return Type** |
| FileReader | String | String |
| FileSplit | String | String |
| Maximum | Double | Double |
| Minimum | Double | Double |
| Average | Double | Double |
| Interval | Double | Double |
| Frequency | Integer [ Frequency>0] | Integer |

* What are the methods necessary, their argument data types and their return value data type?
  + To have a scanner array which can store the file data.
  + To have a method that can split the data into separate datatypes.
  + To calculate the average for a list of values.
  + To find the minimum value from the column of the list.
  + To find the maximum value from the column of the list.
  + To create a count for the frequency of the numbers within an interval of 5.
  + To compare values within columns to the user input value and the operator which will be used for comparison.
* Test cases for each class:

|  |  |  |  |
| --- | --- | --- | --- |
| **Method that are tested** | **Name of Test Case** | **Input data** | **Explanation of the case** |
| Average | Correct Inputs. | Inputs > 0 | Test for correct inputs. |
| Average | Invalid Inputs. | Inputs < 0 | Checking for invalid input. |
| Minimum | Correct Inputs. | Inputs are numbers. | Test for correct inputs. |
| Minimum | Mixed data type. | Inputs mixed of numbers and letters [different data types]. | Check for invalid inputs. |
| Maximum | Correct Inputs. | Inputs are numbers. | Test for correct inputs. |
| Maximum | Mixed data type. | Inputs mixed of numbers and letters  [different data types]. | Check for invalid inputs. |
| Interval Count | Correct Inputs. | Inputs are numbers. | Test for correct inputs. |
| Interval Count | Mixed data type. | Inputs mixed of numbers and letters  [different data types]. | Check for invalid inputs. |
| FileReader | Scanner. | The csv file contains the group of data that need to be split. | Scanning the csv file to the Data array. |