



Microsoft: DAT210x Programming with Python for Data Science

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## **Assignment 3**

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## Lab Assignment 3

MIT's Karl Ulrich donated a dataset titled Servo Data Set to the UCI Machine Learning Repository in the 1980's. The dataset has been described as "an interesting collection of data that covers an extremely non-linear phenomenon - predicting the rise time of a servomechanism in terms of two (continuous) gain settings and two (discrete) choices of mechanical linkages."

As noted on the dataset website above, the column names are defined in order as:

```
['motor', 'screw', 'pgain', 'vgain', 'class']
```

Your mission, should you choose to accept, is to figure out a few stats about this dataset, which has been conveniently copied to your Module2/Datasets/**servo.data**. You can get started by opening up the assignment starter code, saved to Module2/**assignment3.py**.

Note: Before submitting, double check your work. Peek at the first few entries of your dataset, by opening up servo.data with a text editor. After that, use the appropriate command to look at the first few entries of your dataframe; do they match? If it's not a precise match, there might be a few useful parameters in the read\_csv() api documentation that will fix your issue!

| <ul><li>3. Exploring Data</li></ul>  | Lab Questions 3 points possible (graded) Please enter a numeric value (e.g. 0, 1, 10.5, etc) which correctly answers the question(s) below: |
|--------------------------------------|---|
| • 4. Transforming Data               |   |
| • 5. Data Modeling                   | How many samples in this dataset have a <b>vgain</b> feature value equal to 5?  |
| ▶ 6. Data Modeling II                |   |
| <ul><li>7. Evaluating Data</li></ul> | How many samples in this dataset contain the value <b>E</b> for both motor and screw features?  |
| ▶ Course Wrap-up                     |   |
|                                      | What is the <b>mean vgain</b> value of those samples that have a <b>pgain</b> feature value equal to 4?                                     |
|                                      |   |
|                                      |   |
|                                      | Submit You have used 0 of 2 attempts  |

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