

Exercise classifier final project

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We took on the difficult task of building an exercise classifier that could identify various exercises using data gathered from our smartphones for our final project. The goal was to create a machine learning algorithm that could differentiate between various exercises using particular patterns in the data that was being recorded.

To enable more thorough testing and training, we initially looked at the idea of combining our own data with internet datasets. But after doing more investigation, we came to the conclusion that it would be best to use exclusively our own data for the project. This choice was chosen to guarantee the data's accuracy and applicability to our particular objective.

Pushups, situps, and pullups were the first three major activities we chose for classification. These exercises were chosen because they have recognizable movement patterns that made them simple to recognize and categorize. We intend to investigate more exercises that can be classified using techniques comparable to those we employ to categorize these movements as we continue our work.

What we have learned in class and through past assignments has had a big impact on how we are approaching the project. Since we are not starting from zero, we can comprehend what is happening and save time by drawing on our prior experience and expertise. At this time, our attention is on feature extraction and identifying the features that will be most helpful in reaching our objective.

We intend to gather information from every group member in order to improve the amount of data that is available for testing and classification. As a result, we will have access to a wider variety of data to work with, which could enhance the precision of our classifier. In addition, we hope to use the data and findings to produce some visualizations that will allow us to assess how accurately our classifier identified each exercise.

- Things we can add:
 - Paragraph explaining why we believe accelerometer and gyroscope will be the most useful sensors to separate exercises
 - Paragraph explaining what exercises we believe will be easily separable and which may not be feasible, and why