# Human Activity Recogonition Using Smartphones - KNeighbors Classifier

In this project you will design a robust activity recogonition system based on the smartphones.

As you know mobile devices have accelerometer as the sensor which collects the activities.

These activities can be classified using K-nearest neighbour.

### REQUIREMENT

1. Pandas

2. Numpy

3. Matplotlib

4. Scikit Learn

## Machine Learning Model Used

1. k-nearest neighbors

## Database Information

The data was collected from 30 subjects aged between 19 and 48 years old performing one of 6 standard activities while wearing a waist-mounted smartphone that recorded the movement data. Video was recorded of each subject performing the activities and the movement data was labeled manually from these videos.

### Attribute Information:

For each record in the dataset it is provided:

- Triaxial acceleration from the accelerometer (total acceleration) and the estimated body acceleration.

- Triaxial Angular velocity from the gyroscope.

- A 561-feature vector with time and frequency domain variables.

- Its activity label.

- An identifier of the subject who carried out the experiment.

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### STEPS :

1. Importing Libraries

2. Exploring the Dataset

3. Exploratory Data Analysis

4. Data Preprocessing

5. Model Building

>\* *KNeighborsClassifier*

6. Evaluation

7. Conclusion

### Citation Request:

- Davide Anguita, Alessandro Ghio, Luca Oneto, Xavier Parra and Jorge L. Reyes-Ortiz. A Public Domain Dataset for Human Activity Recognition Using Smartphones. 21th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, ESANN 2013. Bruges, Belgium 24-26 April 2013.