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We choose to use The **PAMAP2 Physical Activity Monitoring dataset** as a **classification** problem.

Describe:

This dataset contains data of 24 different physical activities:

1	lying
2	sitting
3	standing
4	walking
5	running
6	cycling
7	Nordic walking
9	watching TV
10	computer work
11	car driving
12	ascending stairs
13	descending stairs
16	vacuum cleaning
17	ironing
18	folding laundry
19	house cleaning
20	playing soccer
24	rope jumping
0	other

These activities were performed by some subjects wearing a heart rate monitor and three inertial measurement units:

- 1 IMU over the wrist on the dominant arm
- 1 IMU on the chest
- 1 IMU on the dominant side's ankle

We can build an application that can be used for activity recognition and intensity estimation while developing and applying algorithms of data processing, segmentation, feature extraction, and classification.

Features:
Each of the data files contains 54 columns per row, the columns contain the following data:

1	timestamp (s)
2	activity ID
3	heart rate (bpm)
4-20	IMU hand
21-37	IMU chest
38-54	IMU ankle

Each column except "activity ID" will be used as a fetcher to predict the subject's activity.

Split train and test:
We have 9 subjects who participated in the data collection:

- 1 female, 8 males
- aged 27.22 ± 3.31 years
- BMI 25.11 ± 2.62 kg

We will split our dataset so that 70% will go to train our model and the rest 30% will test our model.

Dataset:
https://www.kaggle.com/avrahamcalev/time-series-models-pamap2-dataset