

# **Data Science Final Project**

**The first part:** We were needed to improve the last year notebook of the classification.

At this notebook I used the regulars machine learning models:

- 1.KNN
- 2.Random Forest
- 3.Logistic Regression

And also I used Ensemble Learning models:

- 1.XGBOOST
- 2.Soft Voting Classifier
- 3.Hard Voting Classifier

Also I used PCA.

Actually I succeeded to improve the score by 0.5% with the XGBOOST model, instead of 85.4% with the random forest I got 85.9% with xgboost.

**The second part:** Classification of the Fashion Mnist data set.

The data contain 10 clothes and we need to classify the clothes correctly.

Also at this model the XGBOOST outperformed every other model with 90.89%.

At this notebook I used :

- 1.KNN
- 2.Random Forest
- 3.Logistic Regression
- 4.XGBOOST
- 5.Soft Voting Classifier
- 6.Hard Voting Classifier

## 7.PCA

**The third part:** At the third part we got 25,000 pictures of dogs and cats(there were pictures with neither cats or dogs).

We were needed to upload all the images and to classify them.

At this notebook I used :

1.KNN

2.Random Forest

3.Logistic Regression

4.XGBOOST

5.Soft Voting Classifier

6.Hard Voting Classifier

7. Stacking

8.PCA

The best score again was with the XGBOOST with 67.8% but the soft voting classifier was very close with 67.3%.

**The fourth part:** At the fourth and last part we got the **Harnessing Machine Learning for interpersonal physical alignment** data set.

At the begging I uploaded the data and created data frame that combining all of the data sets for every person.

After that I gave every situation number in order to work only with numbers.

After showing the data I started training the data, I got almost at every model perfect Accuracy, but after testing the model the score was sensible.

I got the best score with the soft voting classifier the gave 89%.

At this notebook I used :

1.KNN , 2.Random Forest, 3.Logistic Regression

4.XGBOOST, 5.Soft Voting Classifier, 6.Hard Voting Classifier, 7.PCA, 8.AdaBoost.

