Data sets for lab 2:

<https://www.kaggle.com/iarunava/cell-images-for-detecting-malaria#C100P61ThinF_IMG_20150918_144348_cell_108.png>

<https://www.kaggle.com/slothkong/10-monkey-species#monkey_labels.txt>

<https://www.kaggle.com/drgfreeman/rockpaperscissors>

Business understanding:

Dataset was token from: <https://www.kaggle.com/drgfreeman/rockpaperscissors>

This dataset contains images of hand gestures from the Rock-Paper-Scissors game collected by Julien de la Bruère-Terreault. The images were captured as part of a project where he developed a Rock-Paper-Scissors game using computer vision and machine learning on the Raspberry Pi.

The dataset contains a total of 2188 images corresponding to the 'Rock' (726 images), 'Paper' (710 images) and 'Scissors' (752 images) hand gestures of the Rock-Paper-Scissors game.

All images are RGB images of 300 pixels wide by 200 pixels high in .png format and all were taken on a green background. The images are separated in three sub-folders named 'rock', 'paper' and 'scissors' according to their respective class.

How many times did you face an argument with a friend or a colleague about random staff that you needed to throw a coin or have something that will be the ‘tie-breaker’, but it was through messaging so you weren’t able to do so?

Many argument or decisions are made by playing the Rock-Paper-Scissors game when the conversation accrues face to face, but when messaging we have no ability to do so. In order to solve this problem, we can build an app which will recognize pictures of the hand playing Rock-Paper-Scissors and decide who is the winner.

The app will use connection through internet and will ask taking a picture of the users’ hands. Once both will capture the picture, the app will send both players the pictures of the hands and will tell who the winner is. The app will have an advantage of just sending a picture or saying what you chose because the user will need to wait until the other will do his/her ‘move’.

Using this data, we can build a model for the game which can be used in the app. Since it is just a game, the accuracy of the results should not be that high, but in order it to be an official app it should have at least 90% accuracy to determine who the winner is. We can also use plots of the PCA and the sigmoid function in order to check if there are areas where the model will have struggles to decide what move have made and declare those area as ‘undecided’. I would say that when the sigmoid is close to 0.5, in the range of about 0.4 to 0.6 it will be undecided. In this case the app will ask player to take another picture.