# PROJECT DOCUMENTATION
## SIGNS OF AGEING

## INTRODUCTION

The project was to develop a model to classify and localize different **signs of ageing such as puffy eyes, wrinkles, dark spots, etc on the face**. This project required knowledge of various domains and the use of image processing techniques to process the images as per requirements. The model was developed using **Machine Learning, Artificial Intelligence** and **Deep Learning** and hence we were able to detect dark spots, puffy eyes and wrinkles on images in order to understand ageing signs.

## MODEL SPECIFICATIONS

The model we developed is a **classification** model as there is only 1 output column which has 3 values (wrinkles, dart spots, puffy eyes).

The various packages used in building this model includes **os, open,cv, numpy, keras, tensorflow** and **matplotlib.**

The different types of files used in this project are **Json, csv** and **hv5.**

A number of algorithms have been used for the development of this model. These various algorithms include **Normalization, Image Augmentation, Image Preprocessing, Convolutional Neural Network** and **Grayscale.**

Many functions have also been used in this project so as to get the desired output. The important of those functions are **Max Pooling, Flatten, Dropout, Sequential, Adam Optimizer, Loss Function: Categorical Cross Entropy.**

This model will work on any platform but we used **Jupyter Notebook** for the development of this model. All the packages used in this model are available in Jupyter Notebook as they are in-built in the program.

## COURSE OF ACTION

The group which developed this project **(Batch 18)** had members from various groups like Machine Learning, Artificial Intelligence, Data Science, Business Analytics, etc. The development of this model required lots of information and knowledge about **image processing** and also about **training and testing of the model**. Hence the knowledge acquired from the Artificial Intelligence course proved to be very useful during the course of this entire project. Machine Learning knowledge also played a great role in the successful running of this model.

First, a **roadmap** of the plan of action was designed. Then **datasets** were found for the experimentation of the model. Several datasets were downloaded from the internet and many other pictures were downloaded manually from the internet, and all the images were combined together to form a huge dataset, with which the model could be trained and tested. Later the **code** was written and corrected of all errors. The model was kept to be **trained**, this long process took several hours, and after **testing** the model, it was finally ready.

## CONCLUSION

This project was successfully completed by the hardwork and cooperation of students from different groups that joined together and put in their efforts.