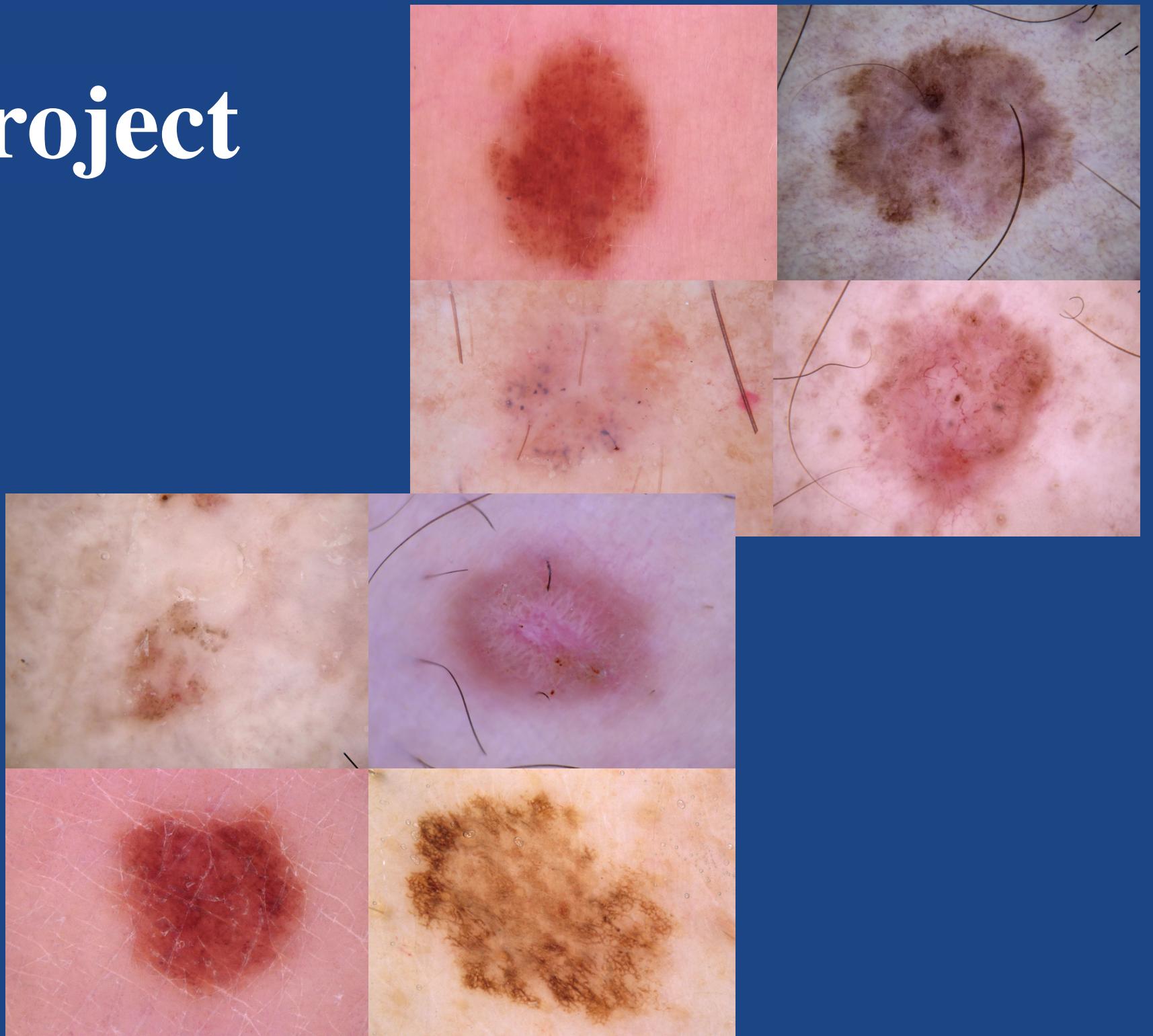


# Skin Cancer MNIST: HAM10000

## Skin Cancer Classification Deep Learning Project

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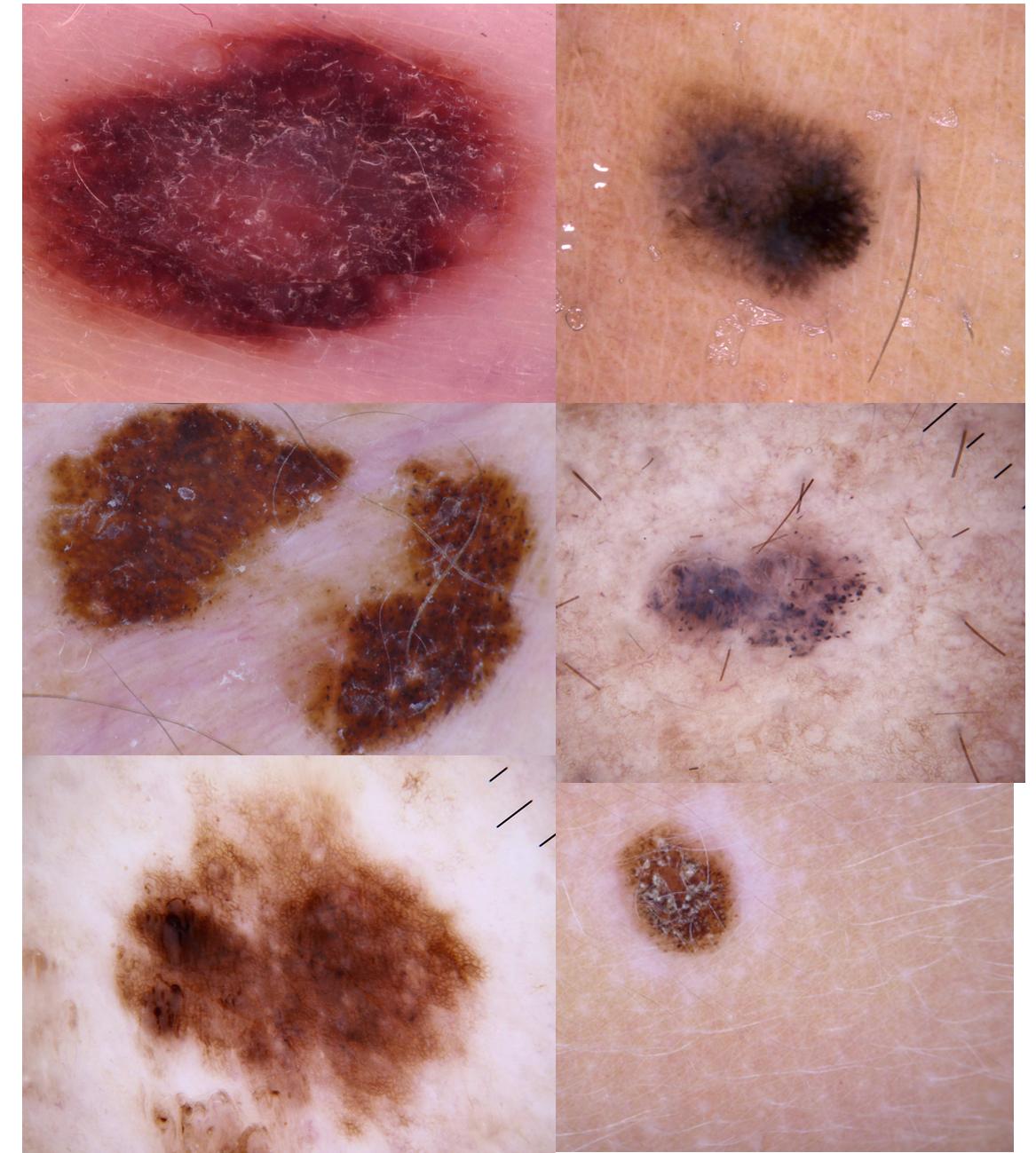


# Project Background

Dermatoscopic images from different populations were acquired and stored by different modalities.

The final dataset consists of 10015 dermatoscopic images which can serve as a training set for academic machine learning purposes.

Cases include a representative collection of all important diagnostic categories: Bowen's disease (**akiec**), basal cell carcinoma (**bcc**), benign keratosis-like lesions (**bkl**), dermatofibroma (**df**), melanoma (**mel**), melanocytic nevi (**nv**) and vascular lesions (**vasc**).



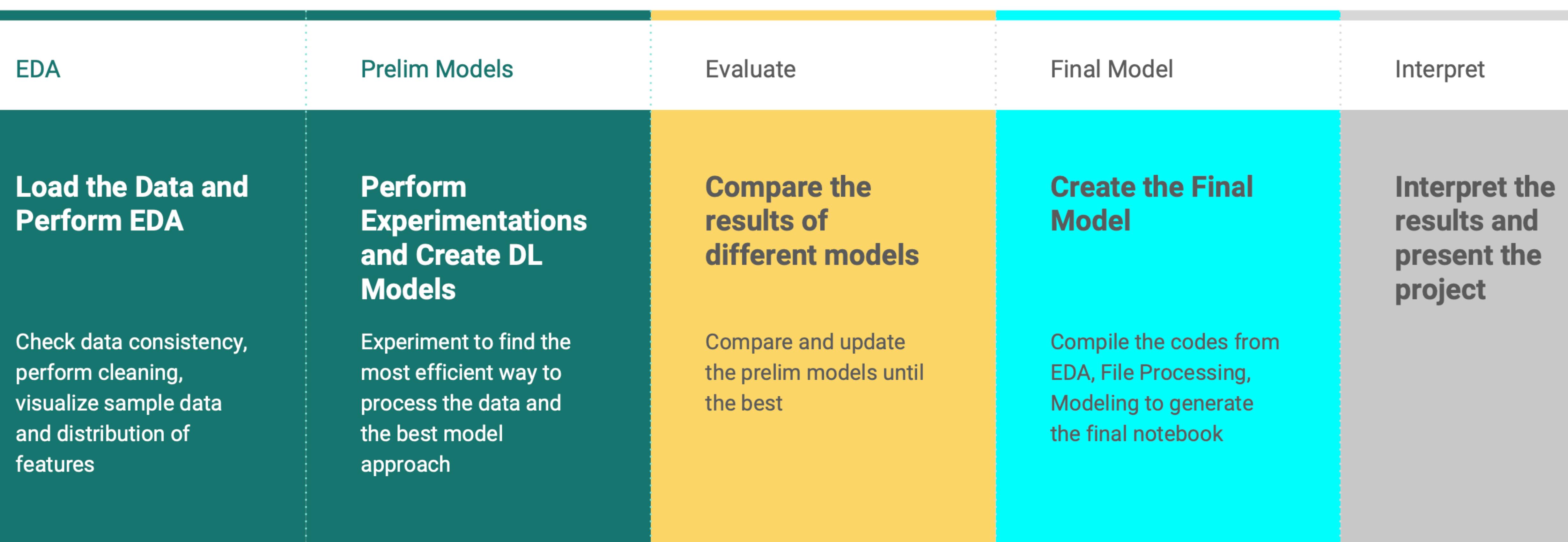
# Project Objectives

Implement Image Classification Model using Deep Learning to identify the different types of skin cancer based on the image.

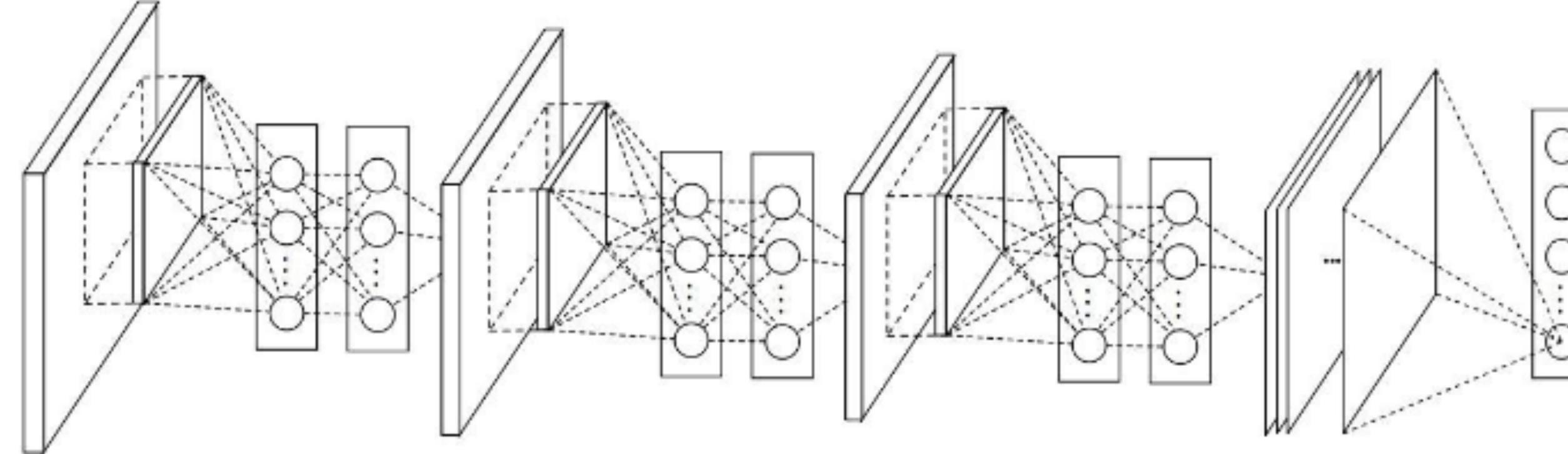
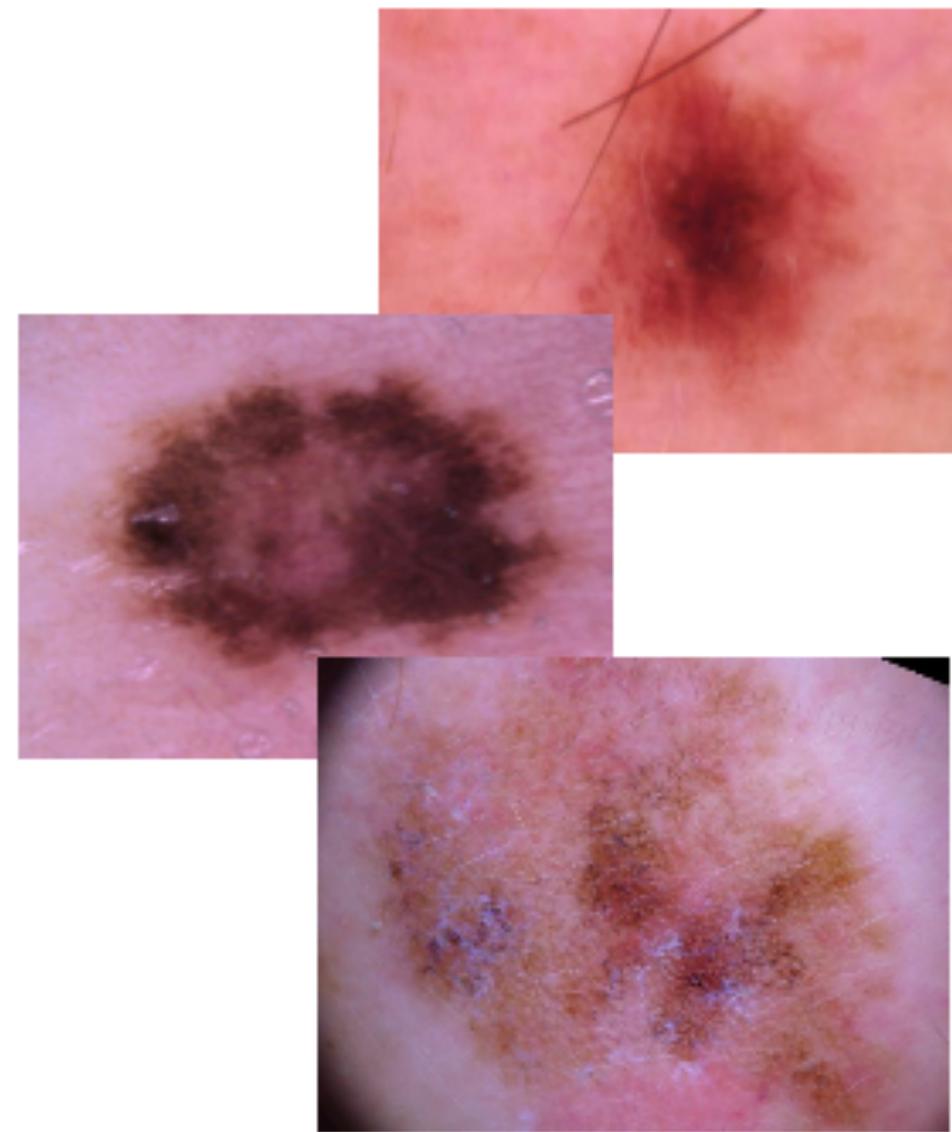
Project will be implemented using Python and Keras-GPU.



# Project Strategy



# Project Approach



Skin Cancer Classes:

- 'nv'
- 'mel'
- 'bkl'
- 'bcc'
- 'akiec'
- 'vasc'
- 'df'

In -> (Conv2D(relu)->MaxPool2D->DropOut)\*2->Flatten->(Dense->DropOut)->Out

# Project Approach (cont.)

- Train/Test Split Ratio is 80/20
- Images were normalized
- Images were resized by 70%
- MaxPool2D and DropOut was used in the CNN to perform regularization and avoid overfitting
- Model was evaluated to have 0.7325 accuracy (there is class imbalance in the dataset with one class close to 67% of the entire data)

# Project Approach (cont.)

- Model can be improved further if given enough time (can experiment with under sampling majority class or oversampling minority class)
- Refer to the Jupyter notebook for the actual code and results