**Skin Cancer Classification on HAM-10000**

**Architecture used:** I used MobileNet mainly because of its speed over ResNet50. When I started doing this , a problem that I encountered was the really bad performance that a model such as [Resnet50](https://arxiv.org/abs/1512.03385) would have in terms of training speed .

**Why MobileNet?**

This gets hard to compute when the image has more than one colour channel (RGB has 3 channels). This is where depthwise separable convolution comes into play. This is what makes MobileNet special and makes it a lot faster than some other networks. Depthwise convolution splits the process of convolution into two steps.

It passes a filter to each of the individual layers in the image giving the filter a depth of 1. If there are three layers, red, green, and blue, it would pass a different filter through each of the layers. After this, it combines the layers applying a 1x1 convolution to all the layers through a process called Pointwise Convolution. The total number of computations in depthwise separable convolution is 8–9 times lower than standard convolutions.

Model Creation and Evaluation:

Models were created based on two architectures

1. **Mobilenet**
2. **ResNet50**

As discussed above due to high speed convergence of Mobilenet, Resnet was discarded in implementation.

**Model accuracy was found around 82%.**

**Class Melonoma was detected with least accuracy among all classes due to unbalanced data even after data augmentation has been taken care in the code.**

Results and jupyter notebook with code and comments is attached.