Project 2(B)

DermNet: Building a deep learning model that classifies skin images with samples of 8 common skin pathologies and carcinoma.

What you are given:

The Skin3000 data set containing dermatology images containing disease and normal skin data

What you are required to do:

1. Classify the diseases using best deep learning architecture for classification
2. Use transfer learning on ResNet, GoogleNet to retrain some part of the network
3. Use a generate adversarial network(GAN) such as [1] to generate new images for these diseases

Instructions:

- Major portions of parts 1 to 3 must use deep learning except for small tweaks and trivial techniques
- Each student can pick one and only one of the two projects to work on. Students must inform the choice of their project to TA simply by an email titled Your Roll No: Project 2(A) or Project 2(B) within two days
- All projects are to be submitted electronically to the TA
- Each submission must include a report named P2_YourRollNo.pdf and all code in a file named P2_YourRollNo.zip. Title of the email should be DLF18P2 YourRollNo.
- For Project 2(B), report must include:
    - Details of models used to classify, with plots of top-1 validation accuracy/error. Explanation of which model/technique produces the best accuracy and why
    - Details of how transfer learning was applied, which layers were retrained and how, results of each transfer experiment
    - Evidence of implementation/execution of a GAN, results of synthesized images and description of how close they look to actual data

References:

[1] C. Baur, S. Albarqouni, and N. Navab, “MelanoGANs: High Resolution Skin Lesion Synthesis with GANs,” Apr. 2018.