For my capstone project, I Have a grand idea and do not know if I can achieve it with the knowledge I have. As **part of assignment 11, I have submitted the following text**

A general idea

The field of dermatology is responsible for diagnosing and treating various skin conditions. Accurate diagnosis is crucial for effective treatment; however, misdiagnosis or delayed diagnosis is customary due to the wide range of skin diseases and overlapping symptoms.

Machine learning algorithms have shown the potential to assist dermatologists in accurate diagnosis, but their current use is limited. Thus, developing robust machine learning models that can accurately identify and classify skin diseases based on visual characteristics, such as colour, texture, and shape, is necessary.

My objective is to create a machine-learning solution capable of handling various skin conditions and providing an opinion distinguishing between similar symptoms of different diseases to a Dermatologist. So they can provide patients with timely and accurate diagnoses

What data will I need to implement this solution?

An extensive set of high-definition images of skin diseases with extensive attributes along with patients' age, patients' work and living conditions, patients' habits, region, travel history, and any other features that can help

how will I source that data?

I am working with doctors and programmes to launch India's first Pay-Per-Use EMR focused on Dermatology (symbaMED.in). It is desgiend by docters for docters. We have access to privet data for the project, which can not be shared

As part of assignment 17, I am submitting the following text

The research question you intend to answer (one sentence, if possible)

- Can a machine learning algorithm or process assist dermatologists in accurately diagnosing and treating skin diseases?

Your expected data source(s) (either a link to existing data or a sentence describing where you will source the data from)

- Due to privacy protection, I had to change the data source and use data from the public domain; once the model and process are complete with a valid result, we will implement it for our commercial project.
- https://www.kaggle.com/competitions/siim-isic-melanoma-classification/data

The techniques you expect to use in your analysis

- Depending on the specific needs and challenges of the data, implement methods such as image resizing, normalization, augmentation, data balancing, denoising, and segmentation.
- Classification analysis (examine logistic regression, KNN, decision trees, SVM and a new model that I may learn)
- Use hyperparameter tuning and further optimize the models with techniques like Grid Search or Randomized Search.

The expected results

- Get quick visualization and picture analyses to help dermatologists conclude a diagnosis.

Why this question is important

- It is crucial to diagnose skin cancer, especially melanoma, early because early detection and treatment increase the chances of successful outcomes, reduce the risk of complications, and prevent the need for more invasive treatments that can have significant side effects and impact the patient's quality of life. Therefore, it is vital to be aware of the signs and symptoms of skin cancer and seek medical attention promptly.