

**Machine Learning project – Phase 1**

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**Problem Definition :**

If not detected early, skin cancer—also referred to as abnormal skin cell growth—can be fatal. Artificial intelligence (AI) algorithms are able to recognize early patterns in vast amounts of data and link disparate pieces of information that are difficult for the human brain to understand. In addition to solving issues with healthcare efficiency and accessibility, the creation of an efficient machine learning model for skin cancer categorization is essential for enhancing patient outcomes, diagnosis, and treatment.

**Dataset:**

The dataset adopted for this project is the ISIC 2024 Challenge dataset available on Kaggle, which aims at classifying skin lesions, including malignant (cancerous) and benign (non-cancerous) cases. This dataset is important as it addresses the issue regarding melanoma diagnosis at early stages by means of providing a complete array of quality dermatoscopic images, which are essential in building the models that are necessary for differentiating between dangerous and not dangerous skin diseases. The annotation of such images is done under the supervision of medical doctors, meaning that the labels are correct and reliable, hence very important in the training of machine learning models that may assist in medical diagnostics in the future.

**Planned Algorithms:**

we decided to use Convolutional Neural Networks (CNN) because it designed for recognize and process images and it will help improve the accuracy and reliability of a melanoma classification model by expanding data, utilizing pre-trained models, improving image quality, adjusting parameters, and providing visual interpretations of the results, increasing reliability in medical diagnosis.