** DETECTION OF COVID-19 USING **

**DEEP LEARNING**

**Batch-4**

**PROBLEM STATEMENT**

The COVID-19 pandemic has resulted in a dramatic loss of human life worldwide, posing an unprecedented public health challenge. If not detected in time, it can affect the entire lung in a matter of days, resulting in death. Thus, rapid diagnosis is the first and most important step in controlling the COVID-19 latest variants. Despite the fact that PCR is the standard method for diagnosing COVID-19, the long turnaround time for PCR results resulted in disease progression and worsening in certain variants. One of the most important tools for monitoring suspects is radiological testing, which includes CT and X-ray scans. We will use Convolution Neural Networks to identify COVID-19 in the early stages of the disease using the most recent and efficient deep learning algorithm in the field of extracting X-ray and CT scan image features extracting X-ray and CT scan image features.

**DOMAIN**

Deep learning is a type of machine learning and artificial intelligence (AI) that imitates the way humans gain certain types of knowledge. Deep learning is an important element of data science, which includes statistics and predictive modelling. It is extremely beneficial to our project as project is tasked with collecting, analyzing and interpreting large amounts of data; As COVID is widely spread, there would be lot of data that needs to be collected, analysed and interpreted. Deep learning makes this process faster and easier. The model we are going to use is Convolution Neural Networks (CNN). Within Deep Learning, a Convolutional Neural Network or CNN is a type of artificial neural network, which is widely used for image/object recognition and classification. Deep Learning thus recognizes objects in an image by using a CNN. As our project involves extracting features from X-ray and CT scan to identify COVID-19 in the early stages of the disease, CNN makes it a lot easier.

**SCOPE**

A comparative analysis can be done to test the scope of the proposed CNN model by performance comparisons with some of the prominent machine learning models such as GBM, SVC, LR, and KNN. An independent validation dataset should be considered to give an unbiased estimate of the skill of the final tuned model. With the ever-increasing number of cases, bulk testing of cases swiftly may be required. In this work, we need to experiment with CNN model in an attempt to classify the Covid-19 affected patients using their chest X-ray scans.

**JUSTIFICATION OF TITLE**

Detection means the action or process of identifying the presence of something concealed. Our goal is to identify the presence of COVID features from the collected test data. This can be achieved using Deep Learning models. Thus, the title, “Detection of COVID-19 using Deep Learning”, justifies the project.