Project Initialization and Planning Phase

Date	6th July 2024
Team ID	SWTID1720195938
Project Title	**CovidVision: Advanced COVID-19 Detection from Lung X-Rays with Deep Learning**
Maximum Marks	3 Marks

Project Proposal (Proposed Solution):

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	Covid-19 Detection from Lung X-rays employs deep learning to analyze X-ray images for Covid-19 signs. Utilizing extensive datasets and image recognition, it aims for swift, accurate diagnosis, enhancing early detection and virus containment efforts, ultimately supporting healthcare systems in managing the pandemic more effectively.
Scope	The scope includes developing deep learning algorithms for accurate Covid-19 detection from lung X-rays, requiring vast datasets, high model performance, and addressing the medical need for rapid, reliable diagnosis.
Problem Statement	
Description	Current methods are time-consuming and may lack precision. By leveraging deep learning algorithms and extensive datasets, this project aims to enhance diagnostic speed and accuracy, aiding early detection and virus containment efforts.
Impact	Solving this problem will enable faster, more accurate Covid-19 diagnosis, improving patient outcomes, reducing healthcare strain, and aiding in effective virus containment and management.
Proposed Solution	

Approach	The methodology involves collecting and preprocessing extensive lung X-ray datasets, training deep learning models for image recognition, and validating the model's accuracy. Techniques include data augmentation, transfer learning, and hyperparameter tuning to optimize performance for rapid and precise Covid-19 detection.
Key Features	Implementation of deep learning models from Lung X-ray Tells the patient if they have COVID-19 or not

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	TensorFlow, Keras, scikit-learn, NumPy, Pandas, matplotlib, Seaborn
Development Environment	IDE, version control	Jupyter Notebook, Git, Spyder, Anaconda
Data		
Data	Source, size, format	Kaggle dataset, 20k+ images, COVID 3616csv, Lung Opacity 6012csv, Normal 10192csv, Viral Pneumonia 1345csv