Project Initialization and Planning Phase

Date	4 July 2024
Team ID	SWTID1720097611
Project Title	CovidVision: Advanced COVID-19 Detection from Lung X-rays with Deep Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

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	Develop an advanced deep learning model using transfer learning to accurately detect COVID-19, Lung Opacity, and Viral Pneumonia from lung X-rays.to get the results in less time.
Scope	This project aims to enhance diagnostic efficiency by utilizing lung X-ray images to train a deep learning model capable of distinguishing between COVID-19, Lung Opacity, and Viral Pneumonia, along with normal cases.
Problem Statement	
Description	Leveraging transfer learning techniques, the project aims to create a robust model trained on lung scans of patients with COVID-19, Lung Opacity, Viral Pneumonia, and healthy individuals, addressing the need for rapid and accurate diagnosis of these conditions.
Impact	Effective detection of these lung conditions via X-rays can significantly reduce diagnosis time, alleviate the burden on healthcare systems, and ensure timely treatment for patients even in the remote places like villages, ultimately saving lives and improving patient outcomes.
Proposed Solution	
Approach	Implement transfer learning using pre-trained convolutional neural networks (CNNs), fine-tuning them with a curated dataset of lung X-

	ray images from cases of COVID-19, Lung Opacity, Viral Pneumonia, and healthy lungs.
Key Features	1. **High Accuracy**: Uses advanced deep learning methods to ensure accurate detection. 2. **Rapid Diagnosis**: Enables quick analysis of X-ray images, facilitating faster medical decision-making. 3. **Scalability**: Can be deployed in various healthcare settings to assist in screening efforts globally.

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, Pandas, Numpy
Development Environment	IDE, version control	Jupyter Notebook, Google Colabs, Spyder.
Data		
Data	Source, size, format	Kaggle dataset, Total – 10,000 images