# Project Initialization and Planning Phase

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| Date | 5 JULY2024 |
| Team ID | SWTID1720110768 |
| Project Title | CovidVision: Advanced COVID-19 Detection from Lung X-rays with Deep Learning |
| Maximum Marks | 3 Marks |

**Project Proposal (Proposed Solution) template**

COVID-19 (coronavirus disease 2019) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is a strain of coronavirus. The disease was officially announced as a pandemic by the World Health Organization(WHO) on 11 March 2020. Given spikes in new COVID-19 cases and the re-opening of daily activities around the world, the demand for curbing the pandemic is to be more emphasized. Medical images and artificial intelligence (AI) have been found useful for rapid assessment to provide treatment of COVID-19 infected patients. The PCR test may take several hours to become available, information revealed from the chest X-ray plays an important role for a rapid clinical assessment. This means if the clinical condition and the chest X-ray are normal, the patient is sent home while awaiting the results of the etiological test. But if the X-ray shows pathological findings, the suspected patient will be admitted to the hospital for close monitoring. Chest X-ray data have been found to be very promising for assessing COVID-19 patients, especially for resolving emergency-department and urgent-care-center overcapacity.

| Project Overview | |
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| Objective | The primary objective of this project is to develop a machine-learning model that accurately detects the covid 19 by just examining the lung X-ray with deep learning. |
| Scope | This project ditect the covid 19 by just examing the lung X-ray. |
| **Problem Statement** | |
| Description | The current challenges in testing and detecting of covid 19 is time taken to get the test results is more.The cost of testing is also high.So to resolve these problems this model helps us to detect covid 19 just by examining the lung X-ray. |
| Impact | By solving this problem,the patients can get better medication at their hand.Most of us can save time without wasting for waiting test result . |

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| | In this way this trained model can help in medical organisations. |
| **Proposed Solution** | |
| Approach | The project will employ machine learning techniques such as regression, decision trees, and ensemble methods to develop a predictive model. Data preprocessing will include feature engineering and normalization to optimize model performance. The model will be validated using metrics like Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE) to ensure accuracy before deployment. |

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| Key Features | The solution will help medical specialists and patients to easily detect covid without taking any test.It minimizes the time and cost involved in actual covid testing. And the accuracy of prediction helps doctors to prescribe the correct medication. |

**Resource Requirements**

| **Resource Type** | **Description** | **Specification/Allocation** |
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| **Hardware** | | |
| Computing Resources | CPU/GPU specifications, number of cores | e.g., 2 x NVIDIA V100 GPUs |
| Memory | RAM specifications | e.g., 8 GB |
| Storage | Disk space for data, models, and logs | e.g., 1 TB SSD |
| **Software** | | |
| Frameworks | Python frameworks | e.g., Flask |
| Libraries | Additional libraries | e.g., pandas, numpy |
| Development Environment | IDE, version control | e.g., Visual Studio Code, Git |
| **Data** | | |

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| Data | Source, size, format | e.g., Kaggle dataset, 1204,images |