# Project Initialization and Planning Phase

| Date | 15 March 2024 |
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| Team ID | SWTID1720043892 |
| Project Title | WCE Curated Colon Disease Classification using Deep Learning |
| Maximum Marks | 3 Marks |

**Project Proposal (Proposed Solution) template**

This transformative project promises to revolutionize the healthcare landscape, improving patient outcomes, reducing diagnostic errors, and enhancing the overall quality of care. By leveraging the power of deep learning, the WCE Curated Colon Disease Classification project aims to deliver better operations, reduced risks, and happier stakeholders

| Project Overview | |
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| Objective | Develop a deep learning model for curated colon disease classification from medical imaging data to aid in early detection, treatment planning, and improving patient outcomes. |
| Scope | The project will focus on developing a deep learning model that can accurately classify various colon diseases from colonoscopy images and patient records. The model will be implemented in three scenarios: medical diagnostics, healthcare providers, and medical research. |
| **Problem Statement** | |
| Description | The current process of colon disease diagnosis is time-consuming, prone to errors, and often leads to delayed treatment and poor patient outcomes. There is a need for an accurate and efficient way to classify colon diseases from medical imaging data. |
| Impact | Solving this problem will lead to improved patient outcomes, enhanced diagnostic accuracy, streamlined treatment decisions, and better patient management. It will also facilitate medical research, support clinical trials, and enable personalized treatment approaches. |
| **Proposed Solution** | |
| Approach | The project will employ a deep learning approach, utilizing convolutional neural networks (CNNs) and transfer learning to develop a colon disease classification model. The model will be |

| | trained on a large dataset of colonoscopy images and patient records. |
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| Key Features | • Accurate classification of various colon diseases from medical imaging data<br><br>• Integration with electronic health record systems for automated disease identification<br><br>• Analysis of patterns and trends in colon disease prevalence and progression<br><br>• Support for personalized treatment approaches and clinical trials<br><br>• Improved workflow efficiency and reduced diagnostic errors for healthcare providers<br><br>• Enhanced understanding of disease mechanisms for medical researchers |

## Resource Requirements

| Resource Type | Description | Specification/Allocation |
|---|---|---|
| **Hardware** | | |
| Computing Resources | CPU/GPU specifications, number of cores | 2 x NVIDIA V100 GPUs |
| 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 |
| Development Environment | IDE, version control | Jupyter Notebook, Git |
| **Data** | | |
| Data | Source, size, format | Kaggle dataset,10,000,images |