Project Initialization and Planning Phase

Date	11 July 2024
Team ID	SWTID1720011518
Project Title	WCE curated Colon Disease Classification using 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	To assist healthcare professionals in diagnosing colon diseases. Enhance diagnostic accuracy, streamline treatment decisions, and improve patient care by providing timely and accurate disease classification.
Scope	The scope involves collecting and preprocessing high-quality colonoscopy images, developing a robust deep learning model, integrating it into healthcare systems, and ensuring compliance with ethical and regulatory standards.
Problem Statement	
Description	Healthcare professionals struggle with accurately diagnosing colon diseases due to inconsistent imaging data and complex medical records. Developing a deep learning model to analyze these data sources can enhance diagnostic precision, support early detection, and improve treatment planning and patient outcomes.
Impact	The solution will significantly improve diagnostic accuracy, enabling early detection of colon diseases and facilitating timely interventions. It will streamline treatment planning, providing healthcare professionals with reliable data for informed decisions. This will enhance patient outcomes and operational efficiency, reducing the workload on medical staff and improving overall patient care.

Proposed Solution	
Approach	We will utilize a Kaggle dataset and employ transfer learning for this project. By extracting features using various pre-trained models, we will evaluate their performance and select the model that yields the best results. This approach ensures optimal accuracy and efficiency in classifying colon diseases from medical imaging data.
Key Features	The key features of the proposed solution include using a comprehensive Kaggle dataset, employing transfer learning for efficient feature extraction, evaluating multiple pre-trained models for optimal performance, and integrating the best-performing model into healthcare systems. This approach enhances diagnostic accuracy, supports early detection, and streamlines treatment planning for colon diseases.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Any Basic GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	512 GB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Tensorflow, Numpy
Development Environment	IDE, version control	Google Colab, Spyder
Data		
Data	Source, size, format	Kaggle dataset (WCE Curated Colon Disease Dataset Deep Learning), 6,000 images