# Project Initialization and Planning Phase

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| Date | 6 June 2024 |
| Team ID | SWTID1720112707 |
| Project Title | Anemia Sense: Leveraging Machine Learning For Precise Anemia Recognitions |
| 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** | |
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| Objective | The objective of this project is to develop an accessible and accurate tool that enables individuals to quickly self-assess their anemia status, reducing the need for frequent doctor visits and encouraging proactive health management. |
| Scope | The scope of this project includes developing a machine learning-based application that can analyze user data to accurately identify anemia, integrating user-friendly interfaces for self-assessment, and ensuring the tool's accessibility and reliability for widespread use. |
| **Problem Statement** | |
| Description | The project aims to address the challenge of accurately detecting and classifying anemia using machine learning algorithms. Specifically, it seeks to develop a system that can analyze relevant data, such as blood parameters or clinical indicators, to provide precise and reliable diagnoses of anemia in individuals. |
| Impact | Solving the problem of precise anemia recognition through machine learning could significantly improve healthcare outcomes by enabling earlier intervention and tailored treatment plans. It could also enhance screening processes, potentially reducing healthcare costs and improving overall patient well-being by addressing anemia-related health risks promptly. |

| Proposed Solution | |
|---|---|
| Approach | For this project, various machine learning models will be created and tested and among those models, the model which gives the best output will be saved for actual prediction. |
| Key Features | The unique aspect of the proposed solution lies in its iterative model development and selection process based on performance metrics. By testing various machine learning models, the project aims to identify the most effective one for predicting anemia accurately. This approach ensures that the final model chosen is robust and optimally suited for real-world applications in healthcare. |

**Resource Requirements**

| Resource Type | Description | Specification/Allocation |
|---|---|---|
| **Hardware** | | |
| Computing Resources | CPU/GPU specifications, number of cores | NVIDIA V100 GPUs |
| Memory | RAM specifications | 8 GB |
| Storage | Disk space for data, models, and logs | 256 GB SSD |
| **Software** | | |
| Frameworks | Python frameworks | Flask |
| Libraries | Additional libraries | Pandas, numpy, matplotlib, scikit-learn, seaborn, joblib |
| Development Environment | IDE, version control | Jupyter Notebook, Visual Studio Code |
| **Data** | | |
| Data | Source, size, format | Kaggle dataset, 1421 records, CSV file |