**Project Initialization and Planning Phase**

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| Date | 12 JULY 2024 |
| Team ID | SWTID1720438678 |
| Project Title | Early prediction of chronic kidney disease. |
| Maximum Marks | 3 Marks |

**Project Proposal**

Early detection of Chronic Kidney Disease (CKD) is crucial due to its silent progression and severe consequences. This project aims to develop a machine learning model using patient data to predict CKD risk. By identifying high-risk individuals, we can implement early interventions and improve patient outcomes. Model accuracy, interpretability, and clinical integration are essential for successful implementation. This research has the potential to significantly impact CKD management and reduce disease burden.

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| **Project Overview** | |
| Objective | Develop models that can identify individuals at high risk of developing chronic diseases before they experience any symptoms. |
| Scope | This project aims to build a machine learning model that predicts the risk of chronic disease development. The model will focus on a specific disease (or related group) and use various data points to make predictions. The project scope excludes diagnosis, treatment implementation, and EHR integration, but may include an optional deployment tool for healthcare settings, adhering to data privacy regulations. |
| **Problem Statement** | |
| Description | |  | | --- | | The project will focus on building a model to assess an individual's risk of developing a specific chronic disease (or a set of related diseases). The model will use various data points to make predictions. | |
| Impact | |  | | --- | | Early prediction of chronic diseases can significantly improve patient outcomes by enabling early intervention and preventative measures. This can lead to better quality of life, reduced healthcare costs, and a potentially lighter burden on healthcare systems. | |
| **Proposed Solution** | |
| Approach | |  | | --- | | A machine learning model will be developed and trained on a dataset of relevant patient information. The project will likely involve data pre-processing, feature engineering, model selection, training, and evaluation | |
| Key Features | |  | | --- | | The key feature of this solution is the ability to predict chronic disease risk early, allowing for preventative action. The model may also be interpretable, providing insights into the factors that influence its predictions. | |

**Resource Requirements**

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| **Resource Type** | **Description** | **Specification/Allocation** |
| **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., scikit-learn, pandas, numpy |
| Development Environment | IDE, version control | e.g., Jupyter Notebook, Git |
| **Data** | | |
| Data | Source, size, format | e.g., Kaggle dataset |