**Project Initialization and Planning Phase**

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| Date | 5 July 2024 |
| Team ID | 740050 |
| Project Title | 3D Printer material prediction using machine 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.

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| **Project Overview** | |
| Objective | Develop a machine learning model to predict the optimal material for 3d printing based on specific use case and requirements, enhancing efficiency and product quality. |
| Scope | Build an ML model that suggest the best material for 3d printing considering various factors such as strength, flexibility, temperature, resistance and cost |
| **Problem Statement** | |
| Description | Develop an AI platform to predict the most suitable 3d printing material for different applications. |
| Impact | Enhance the quality and efficiency of 3d printed products by providing precise material recommendations. |
| **Proposed Solution** | |
| Approach | Utilize advanced machine learning algorithms to analyze material properties, past usage data, and desired product characteristics to recommend the best material for 3d printing. |
| Key Features | * Material suitability analysis * Customized recommendations * Real-time prediction |

**Resource Requirements**

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| **Resource Type** | **Description** | **Specification/Allocation** |
| **Hardware** | | |
| Computing Resources | CPU/GPU specifications, number of cores | T4 GPU |
| Memory | RAM specifications | 8 GB |
| Storage | Disk space for data, models, and logs | 1 TB SSD |
| **Software** | | |
| Frameworks | Python frameworks | Flask |
| Libraries | Additional libraries | scikit-learn, pandas, numpy, matplotlib… |
| Development Environment | IDE | Jupyter Notebook |
| **Data** | | |
| Data | Source, size, format | Kaggle Dataset, 4 kB, csv |