**Project Initialization and Planning Phase**

|  |  |
| --- | --- |
| Date | 15 March 2024 |
| Team ID | SWTID1720110358 |
| Project Title | Rice type classification using CNN |
| Maximum Marks | 3 Marks |

**Project Proposal (Proposed Solution):**

We have come up with a solution to this problem. We have trained an AI model which can be used by farmers to check the type of rice. The users need to upload image of a rice grain and click on the submit button. Our model will give its prediction for probable rice type based on the image. Our model can predict up to 5 different types of rice.

|  |  |
| --- | --- |
| **Project Overview** | |
| Objective | To detect the types of rice given by the user |
| Scope | This model is useful for farmers, agriculture scientists, home farmers, gardeners, etc. This AI model is made using Convolutional Neural networks and under CNN we will be using transfer learning. |
| **Problem Statement** | |
| Description | This AI model is made using Convolutional Neural networks and under CNN we will be using transfer learning. Transfer learning has become one of the most common techniques that has achieved better performance in many areas, especially in image analysis and classification. |
| Impact | it is essential to identify the type of rice as each produce needs different amounts of water, manure, etc.  It is not possible for the farmers to pay the agriculture experts hefty fees every time they have a new produce. |
| **Proposed Solution** | |
| Approach | Transfer learning has become one of the most common techniques that has achieved better performance in many areas, especially in image analysis and classification. We used Transfer Learning technique MobileNetv4 that is more widely used as a transfer learning method in image analysis, and it is highly effective. |
| Key Features | * The MobileNet Model analyzes the image, then the prediction is showcased on the Flask UI. |

**Resource Requirements**

|  |  |  |
| --- | --- | --- |
| **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., tensorflow |
| Development Environment | IDE, version control | e.g., Jupyter Notebook, Git |
| **Data** | | |
| Data | Source, size, format | e.g., Kaggle dataset, 10,000 images |