**Model Development Phase Template**

|  |  |
| --- | --- |
| Date | 9 JULY 2024 |
| Team ID | INDIVIDUAL |
| Project Title | CareerCraft: ATS-Optimized Resume Analyzer using Gemini Model |
| Maximum Marks | 4 Marks |

**Initial Model Training Code, Model Validation and Evaluation Report**

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

**Initial Model Training Code:**

The initial model training for CareerCraft involved using the Gemini Pro pre-trained model to analyze resumes and job descriptions. The training process included:

* **Data Preprocessing:**
  + **Resume Data:** Extraction and standardization of resume content, handling missing information, and converting data into a format compatible with the Gemini model.
  + **Job Description Data:** Parsing job descriptions to identify key skills and requirements, normalizing text for better keyword matching.
* **Model Interfacing:**
  + Implemented a function to interface with the Gemini Pro model, allowing for efficient input processing and response generation.
  + Developed a custom prompt for the Gemini model to align the output with the objectives of resume optimization, skill enhancement, and career progression guidance.
* **Training and Fine-Tuning:**
  + Although the Gemini Pro is a pre-trained model, adjustments were made to the prompt design and API parameters to improve the relevance and accuracy of the responses for specific job roles.

**Model Validation and Evaluation Report:**

The validation and evaluation phase focused on assessing the effectiveness of the Gemini model in providing actionable insights for resume optimization. Key metrics and results include:

* **Resume and Job Description Match Analysis:**
  + **Accuracy:** The model demonstrated high accuracy in matching resume content with job description keywords, leading to more precise recommendations.
  + **Confusion Matrix:** Evaluated the instances where the model incorrectly identified or missed relevant keywords, allowing for adjustments in the prompt structure.
* **Skill Enhancement Suggestions:**
  + **Relevance:** The skill enhancement suggestions were validated by comparing them against industry standards and expert feedback, showing a strong correlation with actual job requirements.
  + **F1 Score:** The model achieved a high F1 Score in correctly identifying skill gaps and providing targeted recommendations.
* **Career Progression Guidance:**
  + **User Feedback:** Preliminary user testing indicated that the career progression advice was practical and aligned with users' career goals, with a positive reception for personalized recommendations.
* **Overall Evaluation:**
  + **Performance:** The model's performance in delivering tailored resume optimization, skill enhancement, and career progression insights was evaluated as highly effective, meeting the project's objectives.