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Project Charter

Automating software size estimates with Machine Learning

Background:

We currently spend a large amount of time estimating projects at 2 stages.

A. Before we win the project - Sales cycle
B. After winning the project for detailed estimations

With this project, we want to reduce the amount of time taken by automating the estimation process using LLMs.

A large amount of time goes into digesting requirement documents in variable formats & converting them into high level estimates(sales) & low-level estimates(delivery)

We will use FPA (Function point analysis) & CPA (Configuration point analysis) as the output of this endeavor.

Reasons [for undertaking the project]:

- Reduce time taken by Sales teams to analyze the project cost accurately.
- Reduce the manual labor in going through documents.
- Build IP (intellectual property) of Miratech by creating a unique product we use specifically for our projects
- **Expertise Simplification**: The project simplifies the need for specialized skills by automating FPA and CPA estimation with NLP technology, making estimation accessible to a broader range of team members.
- **Efficiency Boost**: By automating estimation, the project streamlines the process, reducing time-consuming manual efforts and expediting project planning, thus enhancing overall efficiency.
- **Adaptability to Change**: Continuous refinement ensures that estimation methods remain accurate and relevant, adapting to evolving project requirements and minimizing errors or delays.
- **Knowledge Expansion**: The project provides an opportunity for the internal team to learn innovative technologies and incorporate knowledge, fostering professional growth and enhancing the organization's capabilities in emerging fields.

Objectives:

- **Implement NLP Model**: Develop and deploy an NLP model capable of accurately categorizing requirement texts or both FPA and CPA within 8 months.
- **Achieve Accuracy Threshold**: Validate the NLP model's accuracy to achieve a minimum accuracy threshold of 80%.
- **Reduce Estimation Time**: Reduce the average estimation time by 50% compared to manual estimation processes.

Project Scope:

- **Development of NLP Model**: The primary focus of the project is the development and deployment of an NLP model to automate Functional Point Analysis (FPA) and Configuration Point Analysis (CPA) estimation. This includes designing, training, and validating the model to accurately categorize requirement texts.
- **Preprocessing and Formatting Datasets**: Activities related to preparing historical datasets with requirement texts and function point analysis, including data cleaning, normalization, and structuring to facilitate input into the NLP model.
- **Model Training and Validation**: Tasks associated with training the NLP model using prepared datasets, followed by validation processes to ensure accuracy and performance.
- **Continuous Fine-Tuning**: Establishing mechanisms for continuous fine-tuning of the NLP model by periodically feeding it with new datasets, ensuring its accuracy and relevance over time.

Out of Scope: Implementation of additional features beyond FPA and CPA estimation.

Deliverables:

- **NLP Model Implementation**: Successful deployment of the NLP model capable of automating Functional Point Analysis (FPA) and Configuration Point Analysis (CPA) estimation.
- **Preprocessed and Formatted Datasets**: Historical datasets with requirement texts and function point analysis prepared, cleaned, and formatted for input into the NLP model.
- **Trained and Validated NLP Model**: A fully trained and validated NLP model capable of accurately categorizing requirement texts.

Miratech Internal Project. Miratech Internal Use
Date: April 18, 2024; Version: 0.2

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- **Continuous Fine-Tuning Framework**: Establishment of a framework for continuous fine-tuning of the NLP model, ensuring its accuracy and relevance over time through periodic updates with new datasets.

Success Criteria

- **Accuracy Threshold**: Achieve a minimum accuracy threshold of 80% in categorizing requirement texts with the NLP model.
- **Reduction in Estimation Time**: Reduce the average estimation time by 50% compared to manual estimation processes.

Main Stakeholders:
- **Sponsor:** Nikhil Kodilkar
- **Customers:** Pre-Sales & PMO
- **Steering Chairperson:** Nikhil Kodilkar
- **Steering Team:** Nikhil Kodilkar, Shura Maximenko & Alexander Oleshko.
- **Project Manager:** Diego Castanares.

Project Name: Automating software size estimates with Machine Learning

Project Time Frame: April 2024 – December 2024

Project Budget: 10 000 USD

Project Expenses	Price	Total
Total		

Team:
Senior Backend Developer, hourly rate - 50 USD
Junior Frontend Developer, hourly rate - 30 USD
Mid-Level Full Stack Developer, hourly rate - 40 USD
Senior Data Scientist, hourly rate - 60 USD
Junior UI/UX Designer, hourly rate - 35 USD