Capstone Project Proposal

*Rimas Alshehri- project title "*AI-powered virtual assistant*"*

Business Goals

Project Overview and Goal What is the industry problem you are trying to solve? Why use ML/AI in solving this task? Be as specific as you can when describing how ML/AI can provide value. For example, if you're labeling images, how will this help the business?	The goal of developing an AI-powered virtual assistant is to provide a solution to the industry problem of increased productivity and efficiency in daily tasks, especially for busy professionals and executives. The use of ML/AI can provide value by learning from user interactions and preferences, adapting to their needs, and reducing the time and effort required for these tasks. By automating routine tasks, the virtual assistant can assist busy professionals and executives in completing their tasks more efficiently, resulting in increased productivity and satisfaction.
Business Case Why is this an important problem to solve? Make a case for building this product in terms of its impact on recurring revenue, market share, customer happiness and/or other drivers of business success.	By solving the industry problem of increased productivity and efficiency in daily tasks, an AI-powered virtual assistant can positively impact customer satisfaction, productivity, and efficiency. This can differentiate the product from competitors, increase recurring revenue, and potentially expand into new markets. Additionally, customer retention and satisfaction can be improved, leading to increased market share and profitability.
Application of ML/AI What precise task will you use ML/AI to accomplish? What business outcome or objective will you achieve?	The application of ML/AI in developing an AI-powered virtual assistant is to understand user behavior, preferences, and patterns to provide personalized and efficient assistance. The use of NLP and machine learning algorithms can help the virtual assistant understand and interpret user requests and respond with appropriate actions. This, in turn, can improve the accuracy and efficiency of the virtual assistant's performance.

Success Metrics

Success Metrics What business metrics will you apply to determine the success of your product? Good metrics are clearly defined and easily measurable. Specify how you will establish a baseline value to provide a point of comparison.	Success metrics for an AI-powered virtual assistant include the number of users, frequency of use, customer satisfaction, and cost savings. These metrics can be established by comparing the performance of the virtual assistant to manual task completion and measuring the time and effort saved. By tracking these metrics, the success of the virtual assistant can be evaluated, and improvements can be made to meet user needs.

Data

Data Acquisition Where will you source your data from? What is the cost to acquire these data? Are there any personally identifying information (PII) or data sensitivity issues you will need to overcome? Will data become available on an ongoing basis, or will you acquire a large batch of data that will need to be refreshed?	Data for the virtual assistant will be sourced from user interactions with the product, as well as publicly available data sources. While there may be some PII or data sensitivity issues to overcome, data will be acquired on an ongoing basis to improve the performance of the virtual assistant. This data can be used to understand user behavior and preferences and provide personalized assistance.
Data Source Consider the size and source of your data; what biases are built into the data and how might the data be improved?	The size and source of data can introduce biases, but these biases can be mitigated by using diverse data sources and ensuring data quality. It is important to consider data quality and diversity to ensure that the virtual assistant can provide accurate and unbiased assistance.
Choice of Data Labels What labels did you decide to add to your data? And why did you decide on these labels versus any other option?	Data labels for the virtual assistant will be chosen based on the specific tasks that the product is designed to perform. These labels will be refined over time based on user feedback to ensure that the virtual assistant can provide accurate and efficient assistance.

Model

Model Building How will you resource building the model that you need? Will you outsource model training and/or hosting to an external platform, or will you build the model using an in-house team, and why?	The virtual assistant's model will be built using an in-house team with expertise in machine learning and NLP. The team will use iterative development to refine the model and improve performance. By continuously refining the model, the virtual assistant can improve accuracy and efficiency in assisting users.
Evaluating Results Which model performance metrics are appropriate to measure the success of your model? What level of performance is required?	The success of the virtual assistant will be evaluated using model performance metrics such as accuracy, precision, and recall. A high level of performance is required to ensure user satisfaction, adoption, and continued use. By tracking these metrics, the virtual assistant can be improved to meet user needs.

Minimum Viable Product (MVP)

Design What does your minimum viable product look like? Include sketches of your product.	The design of the virtual assistant will include a user-friendly interface that allows users to interact with the product via voice or text. Integrating the virtual assistant with popular communication and calendar apps can automate tasks, improving the user experience.
Use Cases What persona are you designing for? Can you describe the major epic-level use cases your product addresses? How will users access this product?	The virtual assistant is designed for busy professionals and executives who need assistance with scheduling, reminders, and email management. The major epic-level use cases include scheduling meetings, setting reminders, and responding to emails. By focusing on these use cases, the virtual assistant can provide efficient assistance to users.

Roll-out How will this be adopted? What does the go-to-market plan look like?	The virtual assistant will be launched as a standalone product and integrated with popular communication and calendar apps. The go-to-market plan includes targeted marketing to professionals and executives, as well as partnering with businesses to offer the virtual assistant as a productivity tool for employees. This can improve the adoption and success of the virtual assistant.

Post-MVP-Deployment

Designing for Longevity How might you improve your product in the long-term? How might real-world data be different from the training data? How will your product learn from new data? How might you employ A/B testing to improve your product?	The virtual assistant will be designed for longevity by continuously updating and improving the model based on user feedback and new data. A/B testing can be used to improve the virtual assistant's performance and identify areas for improvement. By continuously improving the model, the virtual assistant can meet changing user needs and improve the user experience.
Monitor Bias How do you plan to monitor or mitigate unwanted bias in your model?	Monitoring and mitigating unwanted bias is important to ensure that the virtual assistant provides accurate and unbiased assistance. This can be achieved by using diverse data sources, incorporating fairness metrics into the model evaluation process, and monitoring user feedback to identify any bias issues. By monitoring and mitigating bias, the virtual assistant can provide fair and accurate assistance to all users.