

Project Title / Name (can change):

QAD Assistant

Mentor company: QAD

Team name, members names/emails:

Team TRANSform

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What the project is about:

We are trying to create a virtual assistant on top of their existing ERP application similar to Siri and Alexa to help customers with questions and actions. Customers should be able to easily view data and edit orders by interacting with the assistant and it should be able to answer basic questions regarding the platform.

What problem the project is solving (what is innovation, the science, and new core technical advance)?

The problem is that customers might need to contact the support team regarding technical issues or if they don't know how to view different statistics such as financials or analytics. The assistant uses NLP to allow the customer to speak a query and tries to comprehend the intent and make an appropriate action. We are modifying a general NLP model to fit our use case of enterprise management.

Why the problem is important:

As technology advances, more people want to make management of their businesses more efficient and intuitive. With QAD's Adaptive ERP application, businesses are able to manage supply chains, keep track of their financials, and provide reliable customer management. However with its multiple functionalities, the application can feel overwhelming at times. By implementing a text-to-speech assistant, we hope to improve the user experience and streamline navigation within the application.

How the problem is solved today (if it is):

Siri/Alexa are the biggest examples of virtual assistants that are used by consumers. These assistants have a broad range of understanding ranging from music selection to home temperature adjustments. Instead of breadth, we want to target specific actions in the QAD platform and make sure the assistant can perform those tasks properly. The

general approach to NLP is three steps: speech recognition, natural language understanding, and natural language generation. The models trained to achieve these tasks are most often neural networks, and we could possibly select one of these pre-trained models as a starting point.

Identify the outcome of the project:

The project should create text-to-speech capability in the QAD application and an assistant that increases the efficiency of the platform. It also allows hands-off communication between the customer and the app. The final assistant should be integrated into the app as a button or window that users can easily access.

Define initial project milestones: specification, design, prototyping:

One of the first steps is choosing the initial NLP library. We can use existing NLP services like AWS or Google but at the expense of customer data. The QAD mentors would prefer we use a stand alone library, so we need to research the advantages/disadvantages of various libraries.

Before designing the application, we should come up with a list of basic requirements and actions for the assistant. That way we can have tests ready for when we begin to build and train the model. We can measure the accuracy of the model based on these tests.

An initial prototype can be achieved by using a pre-trained model and assessing its performance with basic actions we can make on the platform.

How do you plan to articulate and design a solution:

We first need to meet and have an in-depth understanding of the project requirements with our mentor. From there we can begin designing a model and how the UX will be inside the application. The final step is integrating this model on top of the languages that the existing application uses. The majority of the process will likely be training and testing the model, and making sure it meets the minimum requirements. We need to determine the training data we will use, the type of model, and how we will get this training data.

List the implementation platform and technologies you plan to use to develop the solution:

The NLP library we want to use is still to be determined but it will most likely be a Python library such as NLTK. The existing QAD platform is built on Python and Java, so we will need to figure out how to build the UX in these languages. For version control we will be using GitHub.