Requirements Documentation

Design, Build, and Enrich Machine Learning Model for Natural Language Processing

Sponsored by DXC Technology
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ABSTRACT

This purpose of this document is to state clearly the functional and nonfunctional requirements for the project To Design Build and Enrich Knowledgebase Based on Machine Learning with DXC Technology. In order to achieve this purpose both functional and nonfunctional requirements are discussed at length. Several use cases are included as well to clarify how the product is going to be used once it is completed, and our rationale for our use case model is included in the document as well. Finally graphics and diagrams are included to further clarify the requirements of the project.

LIST OF FIGURES

LIST OF TABLES

- N/A

INTRODUCTION

The goal of the DXC Technology project is to help the client in the development of an enriched knowledge base search tool that produces accurate and refined search results in a database. This requirements document for the DXC Technology project defines the necessary functional requirements, non functional requirements, and use cases of the system and includes an overview of each including models and textual descriptions.

FUNCTIONAL REQUIREMENTS

- **F-0:** The system shall return a Knowledgebase article results should be relevant to the keywords used
- **F-1:** Knowledgebase articles should be found based off of client's ticket
- **F-2:** Model should be able to process natural language
- **F-3:** Model should use machine learning to become more accurate over time

USE CASE MODEL FOR FUNCTIONAL REQUIREMENTS

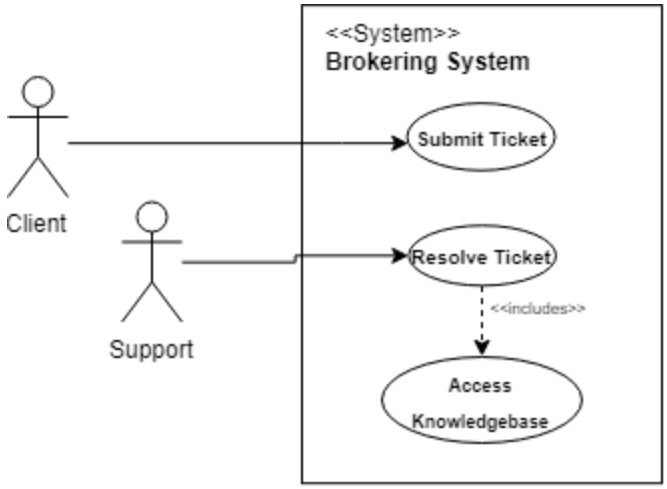

Figure 1: Brokering System Use Case Diagram

TEXTUAL DESCRIPTION FOR EACH USE CASE:

UC-0: Access Knowledgebase
Participating Actors: Client, Support
Entry Condition(s): Support employee receives technical issues service ticket from Client
Normal Flow of Events:

1. Support Employee will search for a knowledgebase article based off of Client's ticket
2. Relevant knowledge base articles will appear as results

Exit Condition(s): Support employee will choose article that is used for solving Client's request
Special Requirements: Help Desk Employee has written relevant knowledgebase article

UC-1: Resolve Ticket
Participating Actors: Client, Support
Entry Condition(s): Support employee successfully retrieves relevant knowledgebase article to resolve a ticket for Client's technical issue.
Normal Flow of Events:

1. Support employee sends knowledgebase article to Client
2. Client confirms that knowledgebase article satisfies their request

Exit Condition(s) - Support employee marks ticket as resolved
Special Requirements - Help Desk employee has written relevant knowledgebase article

UC-2: Submit Ticket
Participating Actors: Client, Support Employee
Entry Condition(s): Client submits a ticket detailing their technical issue
Normal Flow of Events:

1. The client submits a ticket to DXC Technology.
2. The support employee receives the ticket.

Exit Conditions(s): The support employee beings the process of resolving the ticket.
Special Requirements: The client must have a reason to submit a ticket.

NON-FUNCTIONAL REQUIREMENTS

- **NF-0:** The system must be secure
- **NF-1:** Search response time needs to be under 2 seconds
- **NF-2:** System should have a certain uptime
- **NF-3:** The system must be scalable
- **NF-4:** The system should return accurate results

RATIONALE FOR YOUR USE CASE MODEL

The system interacts with two actors: the Client, and the Support employee. There are two main functions the NLP machine learning system. Firstly, the system will handle the submission of technology-related tickets from the client and assign them to support employees. This function is defined as *Submit Ticket*. Using the aid of the model, our knowledgebase queried for related articles. These articles are returned to the assigned support employee and used to resolve the technical issue indicated by the client. This function is defined as *Resolve Ticket*.

EVIDENCE THE REQUIREMENTS HAVE BEEN PLACED UNDER CONFIGURATION MANAGEMENT

We are using Github for requirements configuration management.
The link to our Github is: https://github.com/orgs/Senior-Design-F19/teams/dev.

REFERENCES

1. S. W. Ambler, “UML Use-Case Diagrams,” *The Elements of UML™ 2.0 Style*, pp. 33–46.