COS 731
Assignment 1

Requirements Specification

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Functional Requirements

The functional requirement specification takes the following format:

- **An overview of the intent or vision of the application**
- **A breakdown of user stories that cater for the functional aspects of the application together**
- **UML designs for each story listed**

Intent/Vision

An informative web application to provide details on the service offering of the SquekyClean company. Additionally, it is envisioned that the application may be utilized as a communication tool between users and company employees.

User Stories

Story 1: Home Page

As a visitor to the site
I need to view a homepage that provides me with basic information of the Squeky Clean company
So that I am informed of the intent of the business

Story 2: Contact Details

As a visitor to the site
I need to view the contact details of the company
So that I am able to get in contact with the relevant people

Story 3: Service Pricing

As a visitor to the site
I need to view the pricing of the services offered
So that I am able to decide on a specific type of service to consume

Story 4: User authentication

As a visitor to the site
I need to be able to identify (authenticate) myself

So that I can accomplish user specific tasks

Story 5: Query Posting

As an authenticated visitor to the site
I need to be able to post a query on the site which needs to be durably persisted
So that I am able to communicate with other users of the site

Story 6 : Notifications

As a registered user on the site
I need to receive a notification via email
So that I know when a response has been given to a query that I have made

Story 7 : Notification opt-out - responses

As an authenticated visitor to the site
I need to be able to opt-out of receiving email notifications for a specific query
So that I am not irritated by emails that I don't want

Story 8: Notifications subscription - new

As an authenticated visitor to the site
I need to be able to opt-in and out of receiving emails for any new queries or responses on the site
So that I am able to respond with a lower delay in communication to new queries or responses

Story 9 : Implement user registration

As an an unauthenticated user
I want to register my details with the system
So that I can view user specific information

Story 10 : Add car registration number to user data

As an authenticated user
I want to register a car on the system
So that I can record transactions against it

Story 11 : Implement transactions endpoint

As an authenticated user
I want to record transactions on a specific car
So that I can view it historically

Story 12 : Implement mock transactions

As a tester
I want to record mock transactions
In order to generate test data

Story 13: View transaction logs

As an authenticated user
I want to view historical transaction logs
In order to conduct audit

Story 14 : View post logs

As an authenticated user
I want to view historical post logs
In order to conduct audit

Architectural Design Choices

Architectural Style: Single Process (Monolithic) Architecture

A monolithic architecture for this project was chosen for the following reasons, in comparison to a MicroServices architectural style:

- **Simplicity of development - less integration is needed.**
- **There are not independent development teams working on the project - something that makes sense for micro services.**
- **The non-functional requirements allow for vertical scalability.**
- **Modularity and pluggability is still attainable with a monolithic architecture, especially given the very simplistic functional requirements.**

Technology Stack:

Maven

Maven will act as the build system for the back-end java application

Spring Boot

Spring boot will act as the reference framework for the RESTful API written in Java.

HTML 5 + Angular 2

Angular 2, TypeScript and HTML 5 in conjunction form the SPA front-end application that is hosted via the MVC embedded Tomcat application server that runs within the java jar.

Postgresql 9.5

Postgresql is a very popular open source database technology which will be utilized primarily for relational data in need of persistence.

AWS Simple Notification Service

AWS SNS is a highly-available, scalable and cost effective notification service that is used to manage alerts for new messages on specific threads.

AWS Cognito

AWS Cognito is an identity broker and identity provider in order to allow users to register and identify themselves.

Docker

Docker is a popular virtualization and containerization technology that is used in order to package the application as a whole.