Project Overview

In this capstone project, you'll create a full-stack web application called "GiftLink". The GiftLink application connects users who wish to give away household items they no longer need with users who enjoy recycling and prefer to find free household items to match their tastes rather than purchasing new ones.

From the user interface perspective, the application you develop will contain a home page, a listings page, a navigation bar, a search function, an item details page, a registration page, a login page, and an editable profile page. You can see this interface in the *Project Walkthrough* video.

Review the big picture tasks you will do to complete this project:

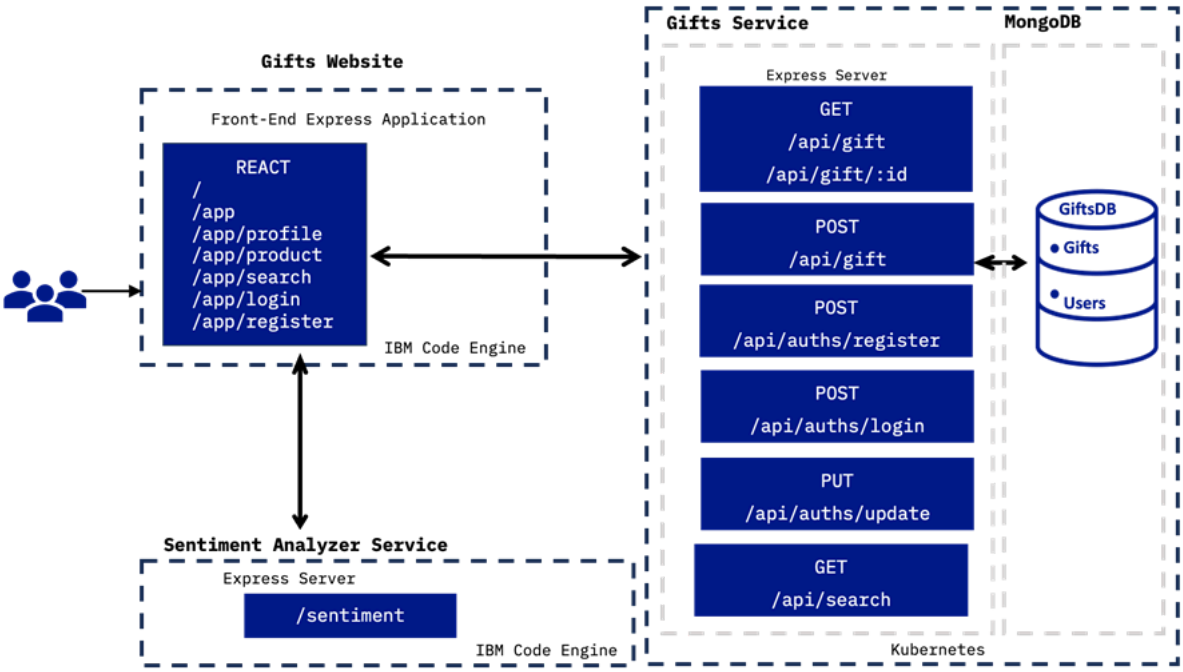
- You will clone a GitHub directory containing the project's directory structure and skeleton code in respective files.
- You will develop front-end React components.
- You will write APIs and endpoints in the back end and integrate those APIs into respective components on the front end. You will use MongoDB, a NoSQL database for data storage.
- You will also ensure a secure authentication and login process.
- At the end of the course, you will containerize and deploy the application.

Additionally, throughout the course, you will implement some common Agile and DevOps practices as part of the full-stack developer experience.

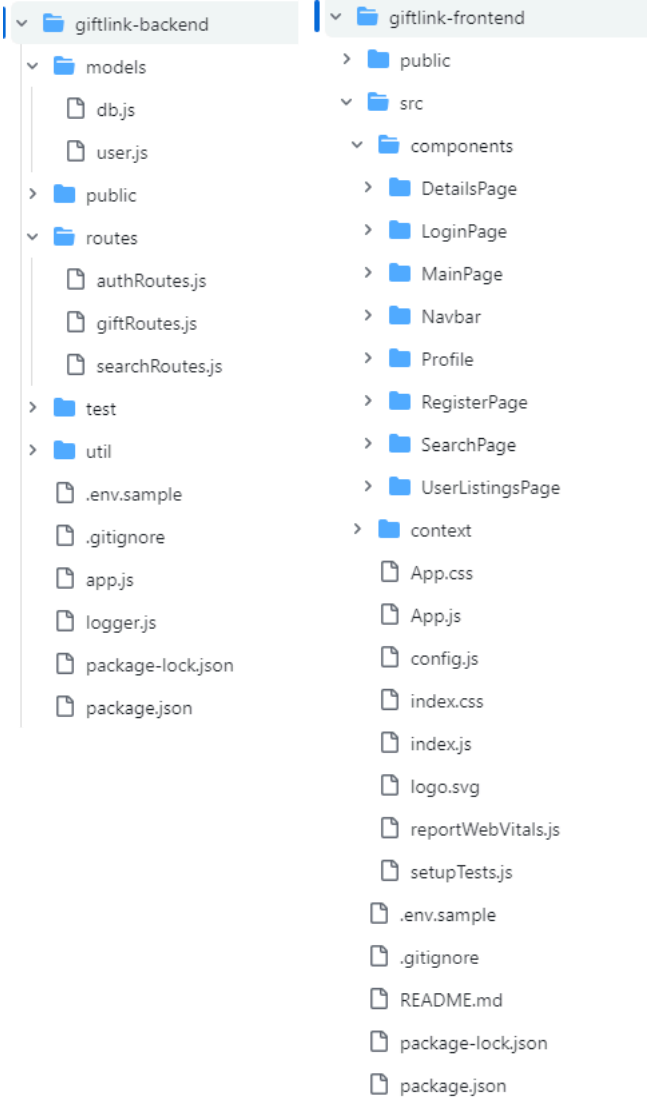
To assist you with the development this, we provide you with skeleton code, for both the front and back end. the course contains multiple labs in each module. One of the labs will provide instructions to clone this code from a public GitHub account. The directory structure is also set in the repository so be sure not to alter the locations of any files or directories.

Architecture and directory structure

The graphic below shows the architecture of the application:



Familiarize yourself with the image below which displays the directory structure for the project:



Modules

Let's look at the modules and descriptions of the code you will develop for the GiftLink application.

Module 1

In the first module, you will use your GitHub account to clone the skeleton code, which will get you started with various functions and supply you with some of the code for the backend services. You will write a series of user stories to create a Kanban board to track your progress throughout the project. You will also set up a Mongo database that your application will utilize for data storage.

Module 2

In the second module, you will define API endpoints for listing resources and implement two backend services: one that allows searches with multiple parameters and another for sentiment analysis to analyze user comments.

Module 3

In module three, you develop the front-end components using HTML, CSS, and the React web framework. These components include the details page, the home page and navigation, the login and registration pages, the landing page, and the search page. In most cases, you will be given some skeleton code to work with and directed to complete different tasks to make the functions provide the desired behavior.

Module 4

In the fourth module, you will write APIs and implement them into the backend services related to authentication: registration, login, and the user profile functionality described earlier. You will use JSON Web Tokens as a secure means to represent the user's credentials and data.

Module 5

Module five is the last development module. You will containerize the application for deployment. You will use the Docker platform and apply DevOps practices, such as GitHub actions and CI/CD, to deploy your app to multiple cloud platforms, including a Kubernetes cluster and IBM code engine.

Module 6

In this last module for the course, you will submit your project for peer review. Your peers will evaluate your project based on the criteria in a rubric and assign points accordingly. The module also contains several readings for wrapping up the course.