Restaurant Recommendation App

ECS506U Software Engineering Group Project

Problem/Domain Analysis Report

Contents

Introduction

Overall good introduction however main problem is no citations mark 4-4.5

Writing is a bit colloquial in general

People often struggle to decide on the place they wish to eat; unfamiliar location, calorie worries and not knowing whether to try certain cuisine are issues that arise. The problem of indecision is due to the lack of information and poor presentation of the limited information in the restaurant recommendation domain.

Claims in this paragraph requires citations

When it comes to searching for food establishments, there is a lack of good options to choose from; Google Maps, Zomato and Forsquare are amongst the best, but these are inadequate because they are either lacking in information, are not built for this specific purpose, not clear about food available, favour big brands or have restrictions on the restaurants they show. A key problem that we have identified is a lack of calorie information. Not a single app that we have seen shows this information, so this is harmful to people's health as they are ignorant of their intake. We found a survey that states about a third of women (31 percent) consume more than the recommended amount of calories and 21 percent for men. These are only the people who actually know what they are intaking. Lack of information also leads to a lot of food establishments go under the radar simply because of the lack of accurate information about them, so this software will combat that.

Our motivation for solving these issues is that as students ourselves, we have experienced coming to a new area, not knowing our food options. This lead to us either going to places already well known in the area or going to places shown to us by our friends, whose opinions may be biased. Within the first few weeks, we have our regular restaurants and stick with them, no longer exploring so we can find new gems. With this app, no restrictions will be present for the type of food establishments that can be discovered, instead we will provide a platform for all.

The app will be specially designed to be easier for people to use than apps currently in the restaurant recommendation domain. Our aim is to create an app that is enjoyable to use and improve the overall user experience for people trying to decide on restaurants to eat at. It will allow businesses to expand and connect with users due to the transparency of the calorie system, showing they have nothing to hide and allowing customer to truly know what they are putting in their bodies.

The problem is trying to decide where to eat when out alone or with friends, in familiar and unfamiliar locations. Our solution is a software application to aid users in their decision making. Our app will give users the ability to choose a restaurant using the location of the user and filter their search results with a variety of filters; such as cuisine types, cost of food, dietary restrictions (Halal, Vegan, etc) and calorie count of the dishes, a feature that food applications have not previously provided. The app also intends to work with the businesses allowing them to add nutritional information, such as calories of dishes on the menu, so that businesses can offer users the option of looking after their health and making the process of choosing a meal as simple and friendly as possible.

Customers and users

Good users and customers

The software is an application designed to benefit both customers and the food industry by recommending restaurants within a certain radius to the user. The software provides the user with information such as calories and dietary requirements of individual dishes, and restaurants can be filtered to the user's liking by various factors. The system will consist of three users – the administrator, the customer and the business.

Administrator:
The role of the former is to ensure that the operations of the system is running smoothly. This involves ensuring that the software is bug free, thereby running how it should at all times without any glitches. In the case of any issues arising it would be the role of the administrator to resolve such issues accordingly. The role also requires the admin to verify and correct information that has been input into the system; which can then be viewed by customers. The admin relates to the customer as the role also consists of ensuring that the information displayed on the system is up to date; thereby providing customers with the latest information. The admin also relates to the business as it will have almost all the functionality that a business would have within the app and then some.

The administrator would have control of adding or removing a business if they wanted to be taken off the system or if they hadn't provided enough information to be displayed on the system. For example if the restaurant couldn't provide a certain part of information like the calories, full allergy information, dietary requirements or the ingredients, then the administrator would have the ability to remove the business from the system or it wouldn't be added to the system due to lack of information.

The administrator would need to have good computer skills and have be able to understand the workings of the system. The reason for this would be so that they could make the necessary changes to the system (adding/removing data), along with providing any help to the customers with any problems they might experience with the system.

Customer:
The role of the customer is to be able to access the system and view all the businesses on it along with viewing the location and distance of the business. The customer would also be able to view all dietary requirements, ingredients along with nutritional information of the relevant items of food. The customer has the ability to filter their searches in order to find more specific results for what they're looking for. This could be the type of cuisine, the cost, dietary requirements, nutritional information (calories, protein, etc) or even how far the business is from their location.

The type of customer to use this app could be anybody from a student looking for a meal or a office worker looking for some where to get some lunch. The system can be used by anybody looking for food, as the system would offer the customer many options along with the ability to have additional information on the food. The customers would be given a link (contact us page) to which they could send the admin any problems they might be having with the app or some problems with the information provided under a certain business and could ask for these

problems to be solved. Therefore, the customer would be able to inform the admin of any problems they have, and the admin would be able to keep on top of any problems that a customer may be having, which would result in the issue being resolved to guarantee a smooth operation of the system for the customers.

Business:
The role of the business is split into both the category of being a primary and secondary persona. The reason for this is because a business can either be registered making it a primary user. The reason for this is because the business would have the ability to interact with the application by, for example, changing their menu. This would be done by the business changing the menu whilst providing the system with all the necessary information regarding the food (i.e. calories, ingredients, etc).

The second form of the business is a part of the secondary persona. The business could function this way if they are listed on the app but they hadn't input any data themselves to be displayed, i.e. an administrator acted on their behalf. An unregistered business would also be a secondary persona. By being listed on the app a business will be able to increase their reach. For this reason, the unregistered business is secondary as they don't interact with the system at all, however, their business is being directly affected by the presence of the restaurant recommendation application as they could potentially be losing customers.

The difference between the business persona and the other personas, is the sector it sits in (primary/secondary/tertiary), as the business sits in both primary for the hands on registered businesses, and in secondary for the unregistered businesses or business that have been input by an admin. The registered business sector fits in the primary sector with the customer and the admin as these are the main people who would be using the system for their own respective reasons. The customer would be using the app for recommendations, whereas the admin would have high level clearance to alter the system and the data found on it,while the business may only alter the data regarding their business and nothing else.

Other Users:
The other users considered in the creation of the application are tertiary users, though they wouldn't be making use of the system as such. This means that they would not actively use the system, however, the system would have some effect on them possibly in the work that they do. The type of users that would come under this section include people like Health Societies and the local council, as the system would be promoting healthier eating as it would show the customers the calories in the meals they would be purchasing. For this reason, health societies would have some involvement here as it would help promote their ethos of healthier eating. This would help encourage people to use the system as it would be helpful in finding the customer a place to eat that would be both healthy and something they would enjoy.

The Environment

The choice for Android is explained however most parts claims without citations

Restaurant recommendations can currently be found by searching online using a web browser or downloading a mobile application. Searching online often results in a subpar experience for the

user since websites tend to have longer loading times than that of a mobile application. Restaurant recommendation websites are often designed with a focus on PC use, however it is more likely for people to search for restaurants using their mobile phone because of the greater portability.Another disadvantage of searching online is that poorly designed websites that are not optimised for use with mobile phones can cause text and pictures to have bad readability and poor navigation resulting in an unpleasant experience for the user.

changed line spacing is not good , document should be consistent

Current mobile applications aimed at recommending restaurants can be downloaded from the Google play store (Android) or Apple app store (iOS). Our restaurant recommendation software is going to be built as a mobile application on the android platform. A mobile application is the clear choice for the software since smartphone ownership is commonplace among people and is expected to grow year by year. Smartphones are also usually kept on person allowing for easy access to the application at any time provided that the smartphone has an active internet connection via Wifi/data. The app will use the smartphone's GPS information to locate restaurants nearby. Public wi-fi hotspots can be found in many populated areas and are often free to use so users without data don't have to worry about not being able to use the app.

The platform of choice is Android rather than iOS since Android is much more popular globally and Android devices are also usually more affordable than iOS devices which means a greater amount of people will be able to benefit from using the app. The Android push notification feature can also be used to notify users with immediate updates such as when they are near a recommended restaurant. Publishing the app on the Google play store will improve app visibility since it ranks apps in order of interest(ratings and reviews) and also ranks them in their specific category which is 'food and drink'. An overall positive rating on the app will encourage more users to try it out which will lead to growth of the user base since the app will be ranked higher and more likely to be seen on the store. The ability for users to provide feedback by rating the app and leaving a review will be extremely useful for shaping the app according to the direct user feedback to provide a better user experience.

Tasks and procedures currently performed

Good tasks and prcedures might be better organised

Users of the system:
Customer, business, administrator

Maybe better to enumerate

Tasks of Customer:
Search (and subsearch categories)
Users can search for a restaurant to eat at using the app. The default search that the app will provide is using the current location of the user or the location the user inputs into the search bar. However the user can also select different categories when they are searching for restaurants. These will include:
Search by type (Indian, Italian etc)
Search by delivery
Search by dietary requirements (vegan, halal etc)
Search by calories per dish (this is a functionality that pre-existing food apps don't have)

Browsing Restaurant (before or after searching?)
The user will be able to browse the restaurants both both and after searching by a category. Before sub-searching the user will be able to browse the restaurants in close proximity to their current or desired location. They will then be able to click on a restaurant they are interest in and will be taken to the restaurants profile. There they will have the option to click on the following tabs, Information, Menus, Reviews, Pictures, to find out more about the restaurants such the exact address and see the dishes available with their calorie information.

Tasks of Business:
Register Business
A business will be able to register on the app so they will be shown up in customer's restaurant searches. To register the business will need to enter their address, the search categories they want to appear under (depending on the type of restaurant), whether they cater to certain dietary requirements and a link to their website if they have one.

Create Menu
Once a business has been registered and verified, the restaurant will be able to create menus which contain the food which they serve. They will be prompted to give the name of the dish, brief dietary information (vegan, vegetarian etc) and the calorie count of the dish. The business will be able to create as many menus as they wish including drinks and desserts.

Delete Menu
A business will be able to delete the menus they have created. However for a business to continue being displayed in searches they must have at least one menu on their profile.

Update Menu
Menus can also be updated. Names of dishes, calorie counts and dietary information can all be changed.

Tasks of Administrator:
Verify Business
After a business has submitted a registration to be listed on the app search, the application will go through to an admin. The admin will check that all the required information has been given and also that it is correct, then the business will be allowed to add menus to their profile, after which the business will be viewable when customers search in the app.

Delete Business
The admin will be able to delete businesses off the app either at the request of the business, if the restaurant has been closed down or if the restaurant profile is lacking required information and the restaurant doesn't provide that information in a given time period.

Shared tasks:
Register Business
Create Menu

Delete Menu
Update Menu

The app admins will also be able to carry out the same tasks as a business. The admins can carry out these tasks on behalf of a business.

Competing Software

Well written section but can be better organised

Competition:

3 key competitors have been singled out into 2 tiers for analysis.
Tier 1: Implies direct competition through the same medium – i.e App based restaurant search and recommendation system.
Tier 2: Competition that offers similar functionality through different mediums.

Tier 1:

Have the urls of these apps as footnote

Forsquare
Forsquare is a website and mobile app(predominantly app based) which allows users to search for information and reviews of facilities and events in ones geographical area, It also uses AI prediction to learn users preferences in order to make recommendations for places to visit. As of 2018 Foursquare has approximately 50 million registered active users and 2 million registered businesses.

Zomato
Zomato is a restaurant search and discovery service founded in 2009. It provides information and reviews on restaurants – including images of menus. Zomato is currently active in 24 countries and had approximately 191 million visits monthly. Zomato is multiplatform (app and web based) with app based interaction making up the majority of its users.

Tier 2:

Google (specifically google restaurant search integrated with google maps):
Google is a multinational technology company that focuses on internet related products and services. According to google analytics Restaurant searches have been the one of most popular trends and the search term “restaurants near me” (which shows restaurants, locations and reviews close to the users location) is used “extensively”.

Explanation and pros and cons table is very good

Pros/Cons:

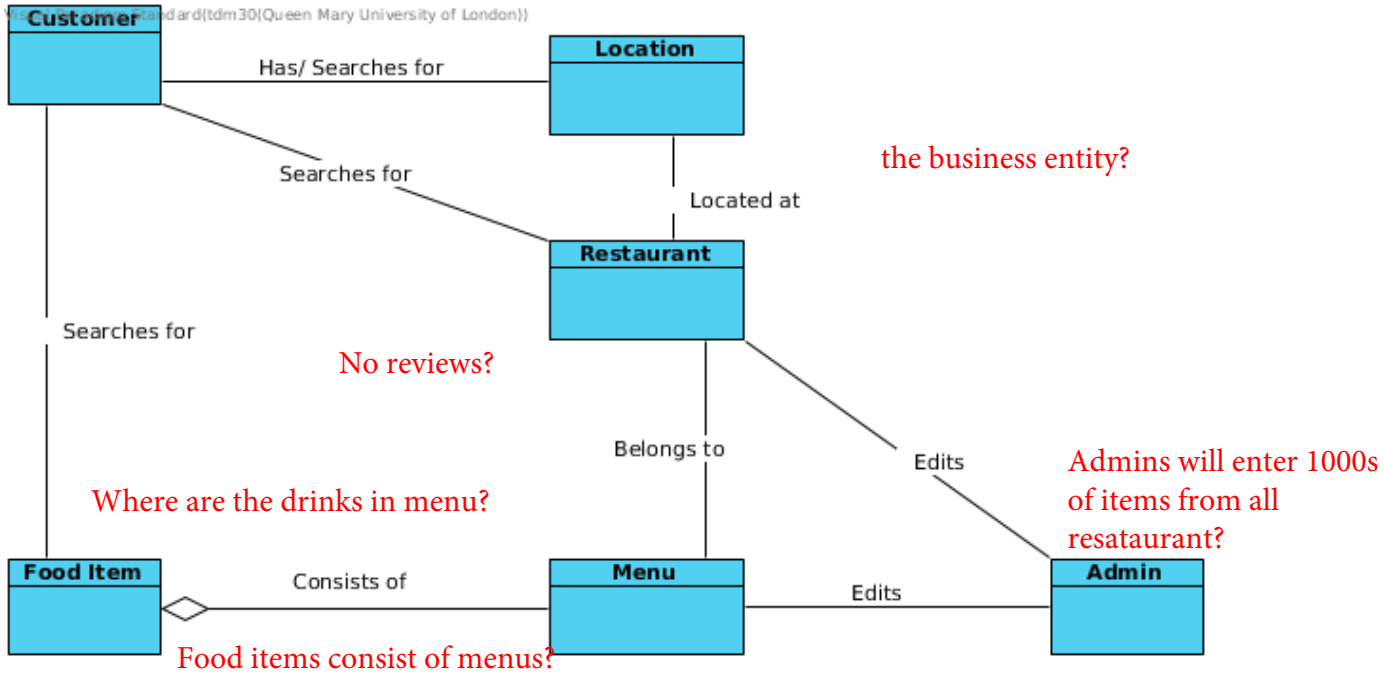
	Zomato	**Forsquare**	**Google search**
Key functionality points	-Simple, easy navigation -Food differentiated by unique categories, recommendation and types. -Profile stores favourites. -Includes non-Restaurant venues(Entertainment etc). -Uses a peer rating system out of 5. -Robust map search functionality. -Includes Menus of restaurants.	-Simplistic structure. -Search by meal(Dinner,Lunch,Breakfast). -Includes nightlife as well as other recreational activities -User tags and review blurbs are prominent. -Able to search via user tags.	-Extremely populated. -Content is compiled and catalogued via various sources. -Uses various review scales. -Robust and thorough search capability. -Search is based via queries(not tags as in the other options).
Pros:	-Simple & easy to use UI. -Search algorithm gives high priority to user ratings and reviews. -Accurately detects location and returns results within a reasonable distance -Robust search system due to user Tags. -intuitive map display.	-Fast simple search system -Easy categories make browsing faster. -Switch between map and list display.	-Lots of search options and results -Results have in depth information.

Cons:	-No search functionality by calorie count. -Images occasionally fail to display. -Too many other non-related options when searching.	-Search functionality is too simplistic. -No menu availability.	-Too much information in results. -Unnecessary/ Unrelated results are also shown. -No dedicated app.

A good summary is always a plus at the end of these kinds of sections

In conclusion: We can observe that the current competition does an adequate job at recommending local restaurants however they all fail to take into account more complex search queries based on societies advancing dietary requirement – I.e Low carb, banting, calorie count via menu items, allergens etc. We aim to expand on current technology by incorporating these various factors whilst simplifying the search process.

Domain Model



the business entity?

No reviews?

Where are the drinks in menu?

Admins will enter 1000s of items from all resataurant?

Food items consist of menus?

References Use IEEE and of course cite the source of information when you make claims

Mintel. n.d. Consumer awareness about the number of calories consumed per day in the United Kingdom (UK) in 2015, by gender*. Statista. Accessed January 21, 2019. Available at: https://www.statista.com/statistics/535541/awareness-of-calories-consumed-per-day-united-kingdom-uk/

I don't even remeber seeing thsi reference in the document