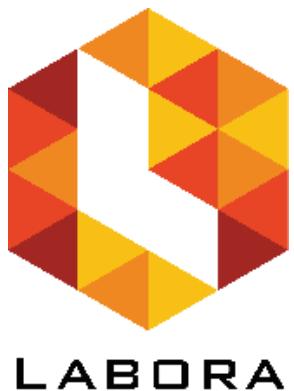


GROUP 16 – REPORT PROJECT PROPOSAL

SERVICE REQUEST APPLICATION – GROUP 16



Goldsmiths
UNIVERSITY OF LONDON

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IS52018C Software Projects: Project Proposal – Main Report

Concept Introduction & User Needs

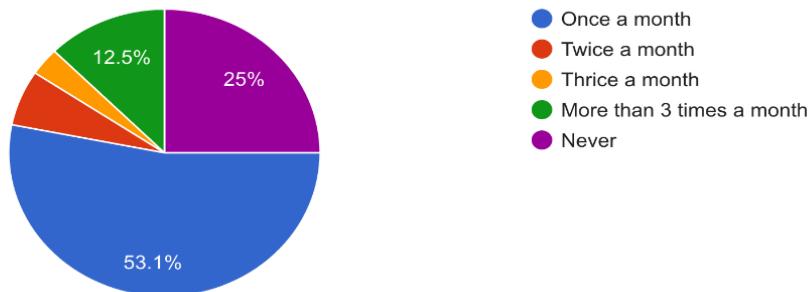
Our project idea is based around providing communities with a service for their needs. The name of our service is called Labora. The service that we provide is an app-based service that allows individuals to search for any type of service that they need. The way in which this application works is the user downloads the application and then creates an account. After doing that the user can search for any service that they need for example if they have a leak in the house and need a plumber they can search for plumbers and then all the plumbers that are looking for jobs, in the specified area, will get notified. Once a plumber accepts the job the customer will then be notified and can contact them through the in-app messaging service where they can then exchange all necessary information. In addition, more than one plumber can accept the job. In the event of that happening the customer can then view each plumbers profile and pick the one that they want. Moreover, this service that we offer also caters to the people looking for work. Workers (contractors) can sign up to the app, create their profiles and receive notifications when a service requester, which fit's their specification, requests a service.

Stakeholder Requirements

We identified our stakeholders by conducting external market research surrounding our concept. Initially, we sought out any competition we had, as we would have similar stakeholders to our competitors. We identified Gumtree as the main source of competition. There were also smaller competitors (e.g. NextDoor app and business directories). After, conducting this research we identified that our two main stakeholders were people who needed to request general services (e.g. furniture removal) and people who wanted to provide these services (e.g. contractors) [1]. Upon further investigation, we found that a lot of individuals who used existing service-posting websites, found it either inefficient or time consuming (**refer to pg. 14 - extensive market research**). This led us to believe that there may be demand for our application in the current market. In addition, we carried out a stakeholder identifier questionnaire, as well as face-to-face interviews. These were executed to consolidate our approach to building a service-request based application (**refer to pg. 22-28 – analysis of feedback**). Furthermore, when we analysed the results, we concluded that there is a lack of adequate resources or platforms, for individuals who are looking to get a service done. The diagrams below illustrate that 75% of individuals we asked required a service at least once a month. Also, their most preferred method for attaining the service was word-of-mouth. Therefore, we believe that there is a strong case for our concept, and that our main stakeholder's responses regarding our concept, will support its viability.

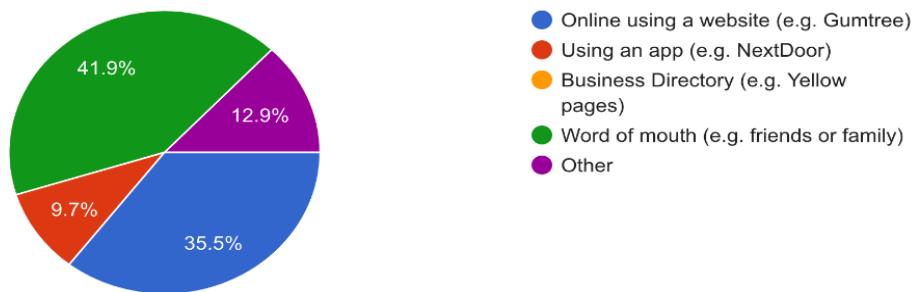
How often do you find yourself needing a service?

32 responses



If you did require a service (e.g. plumbing, tutoring), how would you usually find the provider?

31 responses



Prior Knowledge

A member of our group had previously had trouble finding reliable contractors to carry out a construction job. A contractor, who was in our network, frequently mentioned the lack of jobs, despite him being in a desired field. We carried out external market research, to get a better grasp of this specific markets dynamic. Our research contained searching for reasons why contractors lacked jobs. One significant issue which arose was that service requesters did not rely or could not find reliable contractors online [2]. This may have led to individuals becoming less willing to hire contractors online. Therefore, resulting in the under employment of most contractors, which currently use modern technologies (e.g. websites) to promote their platforms.

In addition, we used Google scholars to pinpoint any research into service requesting applications and found that no considerable academic research has been done regarding it ([refer to pg. 14](#)) We hypothesised that there may be a technological barrier to entry. To get an insight into who our target audience is and what technology people of certain age groups are used to, we created the table below ([refer to pg. 16-18](#)). The snippet (from the full table), displays the inventions from specific years. The inventions highlighted in red are methods for attaining a service provider (contractor). We see how business directories are very outdated, and today in some places nonexistent. However, websites (1990-99), and more recently mobile applications (2000-09) have taken over. Consequently, we found that if we decided to create our service request application, we will need to develop it in a form which is accessible, whilst still functional. This may ensure that

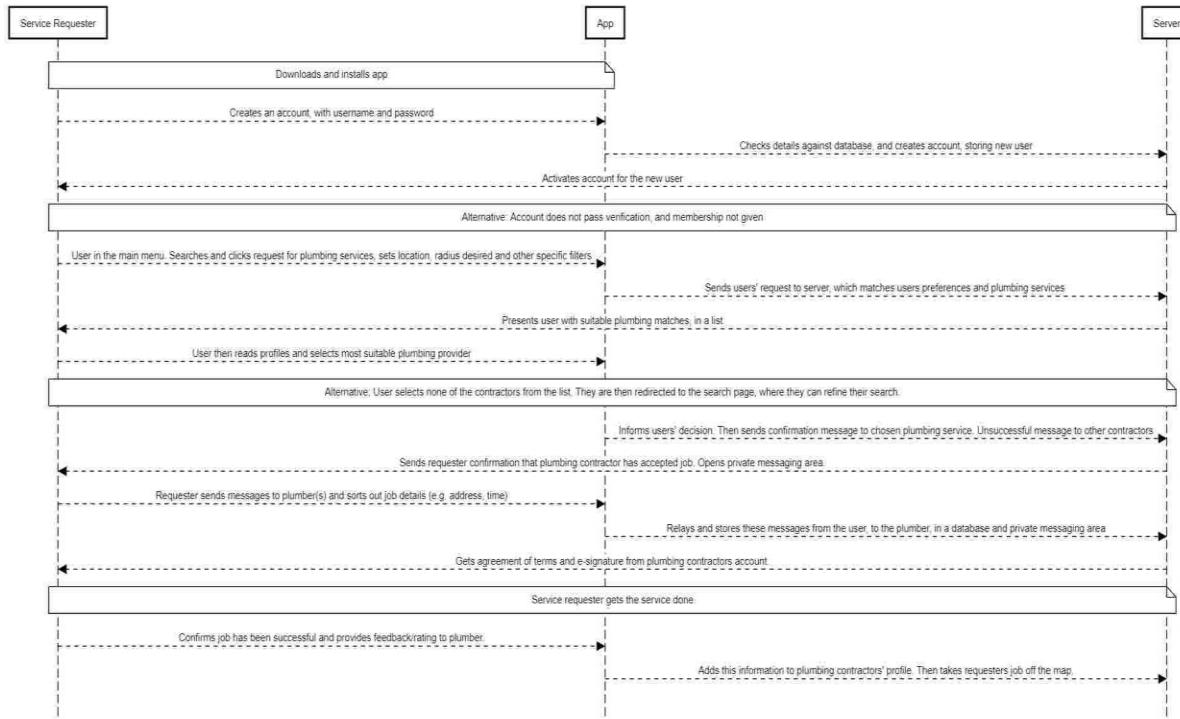
our potential stakeholders (service requesters and contractors) can utilise the app both effectively and efficiently. Thus, possibly providing a solution to service requester and contractors.

Before 1910	1990-99	2000-09
Vacuum Cleaner	Scanning Systems	MP3
Air Conditioning	Website	Wikipedia
Electrocardiogram	MEGA 1	BitTorrent
Radar	Linux OS	Kindle
Tea Bags	Iris Scanning	Touchscreen
Business Directories	VoIP	Mobile Apps
Plastic	Online Radio	OLPC
Electric Washing Machine	eBay	Electronic Voting
Radio Broadcasting	Wi-Fi	Vacuum Robot

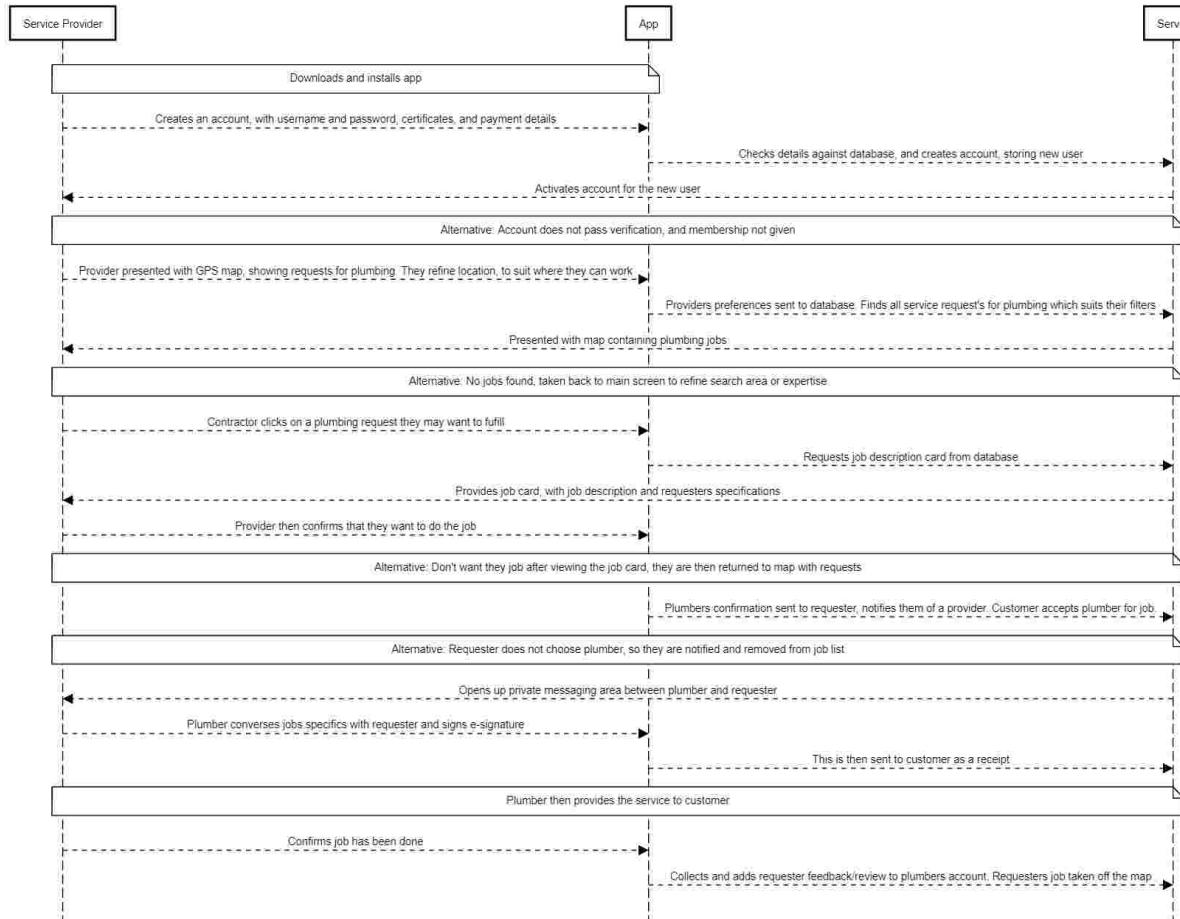
Design

We used three instances of UML: Activity, Use-case and Sequence. We started out with a timeline (use-case) of all the possibilities a user (service requester or contractor) could go through when utilising our application ([refer to pg. 33 and 79-85 - Use Case](#)). In accordance to our prior knowledge and stakeholder requirements, we have attempted to develop the process in a manner which caters for all users, with a range of technical abilities. In addition, the activity diagrams ([refer to pg. 35 to 36 - UML activity diagram](#)) illustrate all the scenarios a user could probe. For example, our stakeholder requirements market research has shown us that service requesters dislike the time it takes to search for contractors online. Consequently, our application will eliminate the time individuals 'waste' trying to look for reliable requesters. Therefore, our application may be more accessible to users than websites, where contractors post their services, as people can just search the service they need done and click 'REQUEST'. In addition, another issue brought up by our research ([refer to pg. 14](#)) was the fact that users didn't hire contractor's online, due to not trusting them or believing they were unreliable. The sequence diagram for the service requester below, shows how after each transaction a contractor performs, the service requester which had the service done, must leave feedback. Also, from the contractor's sequence diagram you can see that they are required to, upon registration, upload certificates and any previous job experience. As a result, this may mean service requester's can be more cautious. Therefore, this opens service requesters to a larger pool of contractors. Thus, conceiving our application to be competent.

Sequence Diagram - Service requester - Example: Requesting Plumbing Services



Sequence Diagram - Service Provider - Example: Providing Plumbing Services

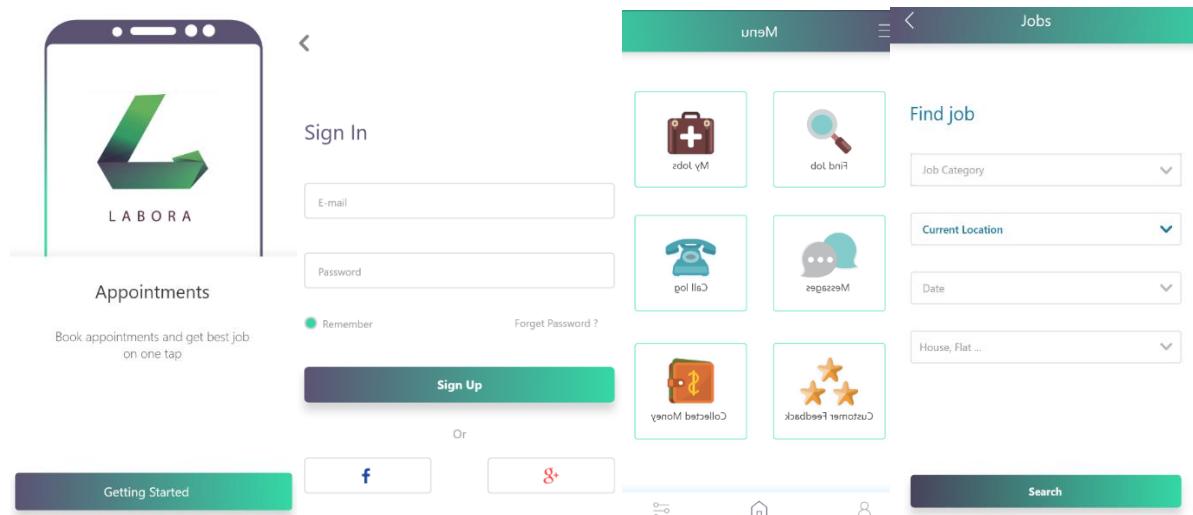


Prototyping

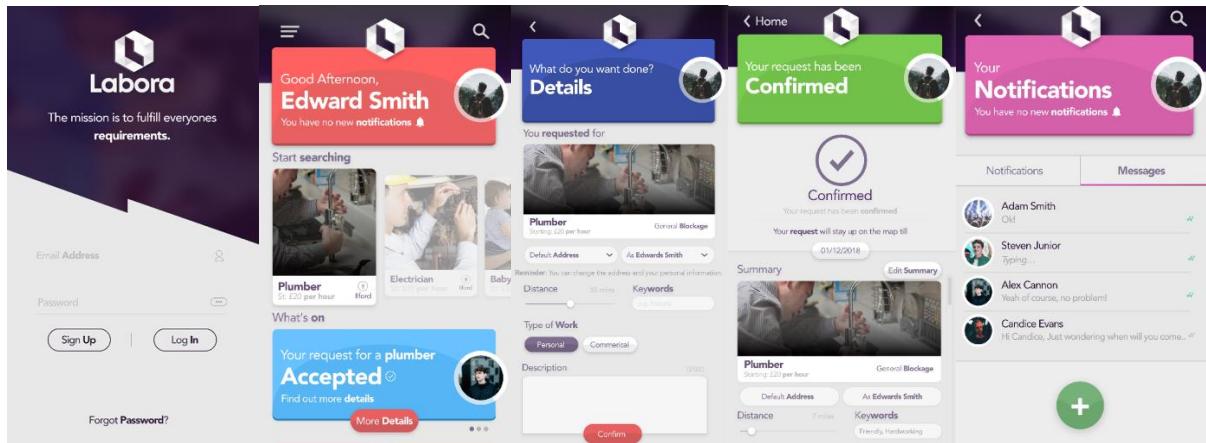
We got feedback to give us an insight on the stakeholder's opinion of the design and the concept. We designed two prototypes for the contractor and the service requester to interact with, using Adobe XD. (**refer to pg. 43-44 - prototypes**). We gave a taster on how they should interact with the product and shortly after, they interacted with one of the prototypes. We conducted an interview on their views on the product. We only showed one of the prototype designs as part of our A/B testing to our service requester. This enabled us to gain unbiased feedback. However, with the contractor we showed them the both prototypes. It proved difficult to find contractors who were willing to partake in user testing in such short amount of time. We conducted a questionnaire with the service requester and it proved to be useful as it corresponded with what we heard from the interview. We consider prototype 1 and 2 as two different designs rather than two models.

There was a common trend when it came to the user friendliness of one of our prototypes. They found that prototype 2 lacked the user-friendly aspect but thought it was visually pleasing. (**refer to pg. 45-62 – analysis of prototype**). This came from both stakeholders. The concept itself was well-regarded by both stakeholders and majority of the people said they would use the app if it was released. This information does prove to be important because it enables us to make the most user friendly whilst having good aesthetics within the app. The information will be applied onto our final product. We intend to stay connected with our stakeholders during the development phase of our app. Without our stakeholders, our app won't be catering for our desired market and it will switch off many users from even using our app. We want to find users who are willing to swap their existing service to adopt our method. We will do that by making them feel comfortable using the app. Hence, why testing is important in order to achieve the best possible mobile application.

Prototype 1 [3] – (**refer to pg. 43**)



Prototype 2 [4] – (refer to pg. 44)



Functional Specification

The application will be catered for two users. The service requester and contractor will have different functions. Both will need to have log-in portals. The contractor will have a map-based system that will allow them to find where people are requesting the services. There will be pinpoints on the map, so the contractor can see where the general location of the customer is on the map. If the contractor accepts the job, then it will automatically direct them to the service requesters address on the map. The service requester on the other hand will have a search-based tool which will allow them to find services that is to their needs. For example, customers can find a plumber who can fix their tap or an electrician who can help with garden lightning. Then, from a tap of a button, they can confirm their details and request for a service. This will then be added on to the contractor's map and from there, they can accept it or reject it the job offer.

Other functions that both the contractor and the service requester will share is the messaging system we will implement as means of communicating with each other. Also, customers will be allowed to post reviews and pictures of the job that the contractor undertook. Contractors can also post a review on the customers. Furthermore, we will need a database system to store data. In addition, we look to implement a functionality which allows payment between the service requester and contractor, most likely a third-party payment processor (e.g. PayPal). The diagram below is our technical architecture. It has been tailored to our Minimum Viable Product ([refer to pg. 73 - technical architecture](#)). The diagram represents the core functional aspects of our application. Our various features will need to interact for the requester to effectively utilise the application, and this is demonstrated by the diagram.

System Requirements Specification

Please [refer to page 73 to 85](#) of the appendix for an overview of our SRS.

Ethical audit

Since we started thinking about our application, we have highlighted the importance of ethical factors to be respected because workers and customers are involved.

Privacy

Our application is a platform that works with geolocation. When an individual request's a service from our application, "Labora" will activate the GPS in the user's device. Alternatively, they will have to enter their address manually, but this could pose a privacy concern. For this reason, we have found a

solution that is to obscure the client's address until the contractor has accepted the job. This will avoid showing the exact address of the customer. Therefore, adding a layer of security.

Right to work

"Labora" is a platform that works as an intermediary between customers and freelancer professionals such as plumbers, painters, electricians, etc. We check, as required by law, that the contractors who are registered with us, have the right to work [5], respecting the immigration rules and have a clean criminal record. We also check if the documents provided by them are genuine and the applicant has permission to do the type of work they're offering. After validating, we have the legal obligation to securely keep the documents supplied by them, respecting the rules of data protection [6].

Legal rights

Respecting the rules of 'working time regulations', we will not allow users registered as contractors to work more than 48 hours a week. However, they will not have a minimum number of hours to work a week, as they are self-employed. Therefore, they can work whenever they want.

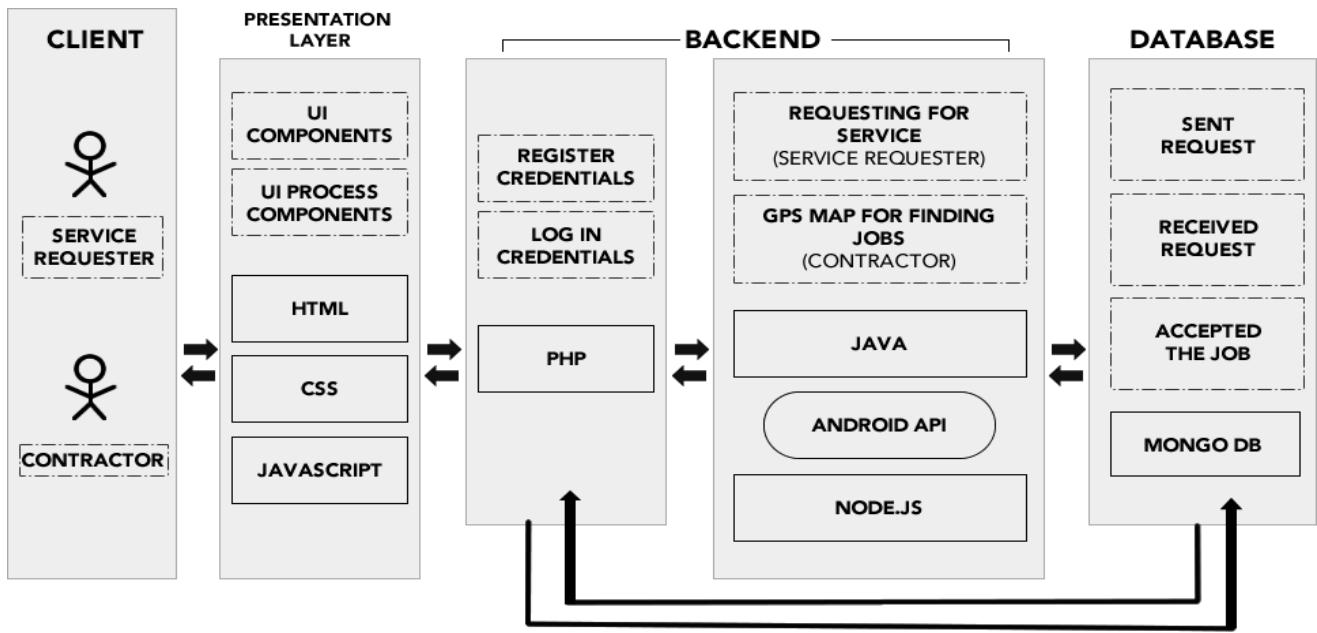
We will not allow anyone under 18 to work with us or register an account on our platform. This is so that we can avoid the risk of having a child labour case, within our service request application.

Technical Architecture

For the database, we decided to go along with MongoDB because it is flexible and can store larger amounts of data, compared to an SQL database. Also, it enables us to build applications faster and manage them at an efficient scale. The log-in and registration system will be supported by PHP since it is widely popular. Also because of the low complexity in learning the language. The application will be Java based because we already have developed the skill during our module. Also, Android apps often use Java. The user will be interacting with MongoDB by using the server-sided scripts which is PHP. It will need to persist the customers' service request including the location, job type etc. This will automatically be recorded as a collection in our MongoDB's database.

In terms of our front end, we will be looking to use HTML, CSS and JavaScript. This is purely because the experience we have with using it in past projects and they're easy languages to employ. We will be using JavaScript libraries such as Node.js which can be used to create the service requesting part as it will use real-time information which can be developed through Node.js - something which Netflix adopts. When contractors open their map, the system will need to provide the service request data and display it on the map. This is through Node.js. Node.js is also useful for creating the messaging system which we plan to use when both stakeholders are communicating with each other. Node.js also supports mongo DB databases. The application will be accessible and user friendly as our intention is to build a combination of a native app and a website that is optimized for mobile devices which will meet our stakeholders' needs.

(refer to pg. 73 - technical architecture)



Evaluation Plan

We will be required to test and evaluate it. This will be done during the development stage, as well as after. We will be creating the MVP (minimum viable product) for our service request application (**refer to pg.73 – MVP**). Development will begin by assigning two group members each to research and create, one of three components (frontend, backend and database), for our service request application. When the app is at a functional state, we can begin testing them individually (pg. 87 for extra evaluation plan).

Project management

This term we started out using a basic tracking sheet. It allowed us to keep track of separate tasks, their completion status and hours put in by each member. We also utilised a Gantt chart, which meant we could now track each member's progress. In addition, it also enabled us to visualise milestones ahead of time and allocate additional resources where we felt necessary. A crucial component of our project management was communication. The group kept in frequent contact via two weekly, face-to-face meetings (one including the supervisor) and social networking (WhatsApp). Also, we incorporated file storage platforms Google Drive and GitLab, so that we could keep track of the work we were completing. In addition, we have started using Trello, regarding the Kanban

aspect of our project. It will help identify what we have completed, ongoing tasks and what we hope to achieve in the future. Moreover, for the next term we'll need to ensure we keep track of our technical development. We have planned to use GitHub, a software collaboration platform, as our codebase. This will facilitate simultaneous development. We will hand out tasks to each member of the group and we will set a deadline. In addition to this deadline period, we will also have daily progress checks to ensure all members understand what they need to do or get assistance if required. As a result, this may result in components being developed on time. Furthermore, from our Gantt chart, Kanban and scrum, we will know if we are behind or ahead of our schedule. If there's a case where a component is taking longer than expected to create, we will allocate more (or free) resources (time and members) to help finish that specific process. We have outlined our plan for next term. (**refer to pg. 86 – Gantt Chart plan**).

Conclusion

To conclude, our concept idea is an app-based service providing communities with any service for their needs. The services can be anything. For example, a plumber for someone that needs a plumbing in their home. As mentioned above we have 3 main stakeholders for our service which are employees, customers and contractors. Customers being our external stakeholders and a very key stakeholder as they give us business along with contractors who also have a keen interest as we provide them with work and in return keeps our business running as we can provide the customer with a worker for their needs. We ensured to gather relevant information regarding our concept idea very early on in order to give us a clear picture on how we could go about doing it and how we could improve. We gathered market research from online sources along with creating questionnaires for both contractors and customers. Following on from gathering market research we then analysed the data we received and created thorough analysis of each data and summarised it. Moreover, we began the design element of our concept by starting off creating the UML case diagrams for both customers and contractors. Within the UML case diagrams, we gave a step to step guide of how the operations will be carried out. Prototyping was a big step that we carried out very thoroughly and dedicated most of our time, energy and efforts towards as we wanted the prototypes to look the best they can be. We created prototypes for both customer and consumer. Overall, we conducted a thorough and well thought out approach in each aspect of putting our idea together and took a professional approach to each aspect through holding weekly meetings discussing all relevant points.

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Appendices

Milestone 1: Software Project: Local Services

- **Consider how you might find people to discuss your project idea with:**

Market research is crucial in trying to make a successful application for the user. It also helps us to identify gaps in the market as we can hopefully fulfil these with our ideas. The project idea can be discussed through setting up questionnaires based upon whether the idea would be useful. These questionnaires would be personally given to a select few of users in our target market. Thus, they will give us feedback on the idea and how we can potentially develop it further. Public forums are a good way of gathering potential users whom of which we can discuss our project idea with.

- **Consider the other stakeholders that might be relevant if you go on to develop the idea**

The user experience is the most crucial aspect in this application. We will try our best to take in to consideration all stakeholders in order to ensure a user-friendly experience.

Internal Stakeholders

- Managers (Our project manager)
- Employees (Our group)
- Owner (Our supervisor)

External Stakeholders

- Customers: Home owners & Individuals who request for services and require help.
- Workers: Freelance workers who advertise what service they offer
- Surrounding neighbourhood: They may advertise how they can help other people
- Government

- **What is the idea**

The concept revolves around the idea of people (e.g. customers who are home owners or need help) to request for a service which a freelance worker will provide. Then essentially, the freelance worker would accept the work and agree on terms via the messaging system the application will have. Services would include for example, a baby-sitter service, plumbing service, handyman service and extra. The application will use a GPS system which workers can see where people want the job to be undertaken.

Essentially, it follows the same eco-system Uber employs.

- **Example of this idea in use**

This example is in the context of a babysitter. If the individual requires a babysitter, they can advertise it on the app by adding the details such as what service they need, the timeframe, how many hours they require the service for and so on. It will be posted on the map which then, the worker can see that a job has become available because they will receive a notification on their phone. Then, they will click on the pinpoint on the map and will receive the personal details and can contact them through the apps message system. From there, they will discuss hourly pay rates and other relevant information. The app would also have a rating system which can reassure the people on the level of quality they will receive from the service or job.

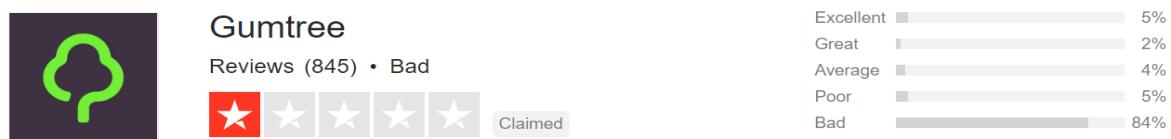
Milestone 1B: Software Project: Extensive Market Research

Introduction

Our product/service is a general services app which could be used within a local community or on a national scale. It will allow users to post a need they have, for example emergency plumbing. This will then show up on the apps' system and people qualified or with the right skill set, will have access to view the job. There will be two types of user accounts, one for people requesting a service and one for people providing it. Our app is based around the same principle as uber and uber eats, which works by making the consumer advertise their needs.

Market & Competition

We are entering a market where it is not fully saturated, and there is competition. Our competition includes websites such as Gumtree, council websites and apps on various app stores (e.g. NextDoor). Although there are not many websites, we have a major competitor in Gumtree. They provide services ranging from tutoring to childcare, and their brand name gives them a slight upper hand. However, although they provide a place for providers to advertise their services, they are not operating in the same way that we wish to operate. We are a request services app, whereas they are a more search-and-pick oriented platform. Therefore, they are not a direct competitor for our app.



This figure is a screenshot of a Trustpilot review page for Gumtree. At the top left is a user profile icon. To its right is the text "Review Gumtree now". Below that is a row of five star icons, the first of which is red. To the right of the stars is the text "Review company". Below this is a "Filter reviews" dropdown and a language selector set to "English". In the center, there is a review card for a user named "Alun" who has written 2 reviews. The review text reads: "Appalling company. Rude and lazy customer service. Do not use. Rude. Arrogant. Unreasonable and lazy customer service." Above this card is the text "Published 5 hours ago". To the right of the review card is a "TrustScore 0.7 out of 10" box. Below the review card is a "Visit Gumtree" button and the text "Spread the word. Tell your friends what". A "Trustpilot Business" sidebar on the right encourages SEO optimization with the text "Improve SEO, invite customers to write reviews, and reply for free. Get Trustpilot Free" and an icon of a rocket ship.

Furthermore, I researched Gumtree's reviews online, and I got the overall feeling that Gumtree lacked the simplicity and customer support that was needed, when providing a platform for services online. Most of the negative reviews for services came from the fact that service providers, who paid more for their ads, got their company or service advertisement posted at the top of the searches. Although this seems reasonable in business terms, this does not ensure customers who are looking for contractors, are finding the most suitable contractors for them. This practically narrows the customers options, especially if the service requestor has limited technical and research skills. The use of our app would mean customers receive a full list of contractors who are willing to do the job, and at the customers budget and specifications. As a result, this means the customer can then save time, instead of having to spend hours looking for a suitable person to do the job. Consequently, this

eases the process for both providers and requestors, as they have a platform wherein, they do business under compatible circumstances.

Regulations & Standards

The two main stake holders regarding our service request app are: the service requestor and the service provider. We understand that to provide a platform, where by customers advertise a need and contractors apply to fulfil that job, there will have to be certain regulations and standards in place to protect those involved.

We have researched what rights consumers and providers have when exchanging money for services online. The minimum information to be provided by the contractor includes:

- Name of service provider(s)
- Geographical address
- Email address
- Registration number
- VAT number
- Details of any professional body/institution with which service provider registered
- Prices must be clear and unambiguous (also including whether prices are inclusive of tax and delivery costs).

The Consumer Contracts (Information, cancellation and Additional Charges) Regulations came into force 13th June 2014. This regulation has been put in place to regulate most contracts made between a 'trader' and a 'consumer'. Within our app, we will also have a terms and conditions, which both types of users (service requestor and service provider) must accept if they want to create an account. Therefore, this ensures that we are not liable for any damages or issues between consumers and contractors, and we are merely an intermediary for bringing two parties together.

Theory and Research: Academic Search

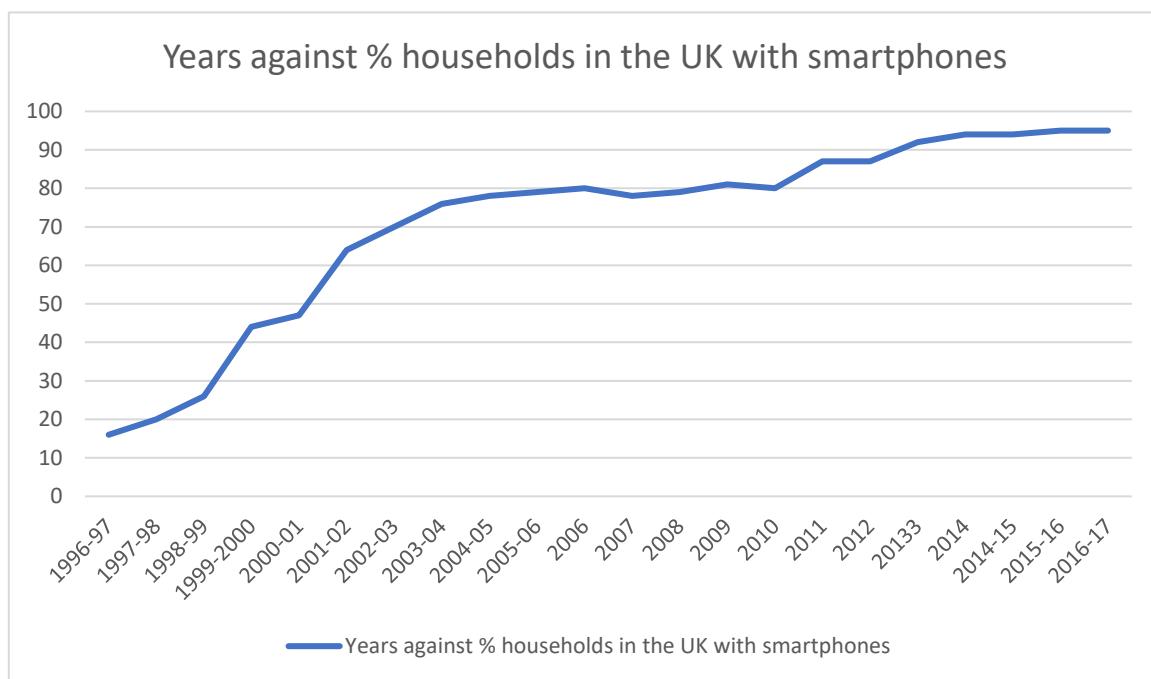
Moreover, we did additional research into whether the apps' general idea has been investigated. We used Google scholars to find any research into whether communication systems have been built to link contractors and service requestors. Although we did not find anything specifically related to our general service request app, we did find research regarding matching mobile users and service providers. The research is based on users pulling profiles from a data base. This is like how we will be storing contractors with a profile, and requestors choosing who they want to carry out the task from a list of profiles.

We believe the research conducted is good as it has been patented. The inventor of the technology is Hirohisa A. Tananka, who has a Ph.D. from Stanford University (2002) and an A.B from Harvard University (1997). He has been employed across many universities as a professor from 2003 up till the present day, where he is now a professor in the University of Toronto. Although, he does specialise in the field of physics. He has had much of his work patented, which adds to his credibility. The current assignee of the patent is Google LLC. Therefore, this adds to the reputation of the inventor.

Research has gone into communication between a user and a database. However, there has not been extensive or specific research into a general service request platform/application. Therefore, we still strongly feel that there is a market for our app and that there is no direct competition.

Analysis

The service request app we are aiming to create is quite convenient for modern times, as almost everyone nowadays has access to the internet or owns a device which enables them to get online. It completely gets rid of the need for business phone books (e.g. Yellow pages). Also, it may even become the better alternative to service locator websites (e.g. Gumtree). This is because, our app doesn't require the customer to have 'good' technical skills. Instead, they are just a click of a button away from getting a whole list of contractors that suit their budget and specifications. However, we do accept the fact we must adapt our app to accommodate for the groups of different users (e.g. older users). For instance, doing research on the average age of app users, we found that 18-24-year olds spend 93.5 hours or 12.5% of their time using apps, compared to 55-64-year olds, who spend just over half of that same time, using apps (55.6 hours). We believe this is due to the older generation have less technical skills, which are needed to utilise apps. We have created the graph below which shows how the percentage of households in the UK which own smartphones increased from 1996 to 1997 (data was provided by Statista):



From the line graph above we see that practically every household in the UK has a smartphone. However, the problem doesn't lie in not having access to apps, it comes down to the accessibility. Users may not be able to see, hear, move, or not be able to process some types of information easily at all. There are many reasons why users can find it hard to efficiently access and use an app.

Before 1910	1990-99	2000-09
Vacuum Cleaner	Scanning Systems	MP3
Air Conditioning	Website	Wikipedia
Electrocardiogram	MEGA 1	BitTorrent
Radar	Linux OS	Kindle
Tea Bags	Iris Scanning	Touchscreen
Business Directories	VoIP	Mobile Apps
Plastic	Online Radio	OLPC
Electric Washing Machine	eBay	Electronic Voting
Radio Broadcasting	Wi-Fi	Vacuum Robot

Furthermore, we have created a table of inventions from before 1910 all the way up to the present year. Above are 3 columns from the full table (find the full table under 'Extracts'). They each contain an invention which is/was used to contact contractors in that era. We have highlighted them in red. We believe, once we have conducted initial interviews and further questionnaires, the younger age groups will respond that they have used applications or websites, compared to the older aged

categories, who will probably have used business directories to contact service providers. This leads us to believe certain age categories have a preferred method. As a result, we must build our application in a manner which caters and facilitates all age groups. One way we can do this is by changing the interface of the app depending on the age of the user (e.g. if it's a user, aged 52, the interface must use large print, as well as less complex looking navigation system). Most ultimately, we can only create an effective app once our research has been conducted and analysed. Until then we can only assume and infer what users prefer.

Inventions Table (1910-2019)

The red highlighted inventions are specifically methods for attaining service's

Before 1910	1910-19	1920-29	1930-39	1940-49	1950-59
Vacuum Cleaner	Toasters	Microwaves	Colour TV	Navigation System	Optical Laser
Air Conditioning	Gas Mask	Robot and AI	Ballpoint pen	Desk-sized Memory	Rechargeable Batteries
Electrocardiogram	Word Cross	Lie Detector	Solar Powered House	Chain Reactor	Fibre Optics
Radar	Flip Flop Circuit	Coolant chemicals	Synthetic material	Transistor	Nuclear Power
Tea Bags	Fighter Planes	Electric Blanket	Radar	Barcodes	Space Satellite
Business Directories	Electric Refrigerator	Frozen Food	pH meter	Jukebox	Gastroscope
Plastic	Suoerconductivity	Loudspeakers	Speed Photography	Frisbee	Integrated circuit
Electric Washing Machine	Spectrometer	Camera	Helicopter	Slinky	CAD System
Radio Broadcasting	Geiger Counter	Radio	Photocopying	Kidney Dialysis Machine	UNIVAC

1960-69	1970-79	1980-89	1990-99	2000-09	2010-19
Computer Mouse	Microprocessor	Sony Walkman	Scanning Systems	MP3	Apple iPad
Light Emitting Diodes	Mobile Phone	Flash Memory	Website	Wikipedia	Hyperloop
UNIX	Ethernet	CD	MEGA 1	BitTorrent	Supercomputers
Compact Discs	Public Key Cryptography	DLP Projection	Linux OS	Kindle	Quantam Computing
Ruby Laser	Personal Computers	WWW	Iris Scanning	Touchscreen	Sony Alpha
Sketchpad Program	Bagless Vacuum	Nintendo	VoIP	Mobile Apps	Bloom Box
SABRE	Ink Jet Printer	Video Gmes	Online Radio	OLPC	Sarcasm Detection
Defibrillator	Laser Printer	VCRs	eBay	Electronic Voting	Iron Man Suit
DRAM	Email	Cable TV	Wi-Fi	Vacuum Robot	Woolfiller

Milestone 2A: Software Project: Stakeholders Requirements

In order to build a successful application, we need to take into consideration all stakeholders when trying to develop this platform. We looked at the potential stakeholders and their needs.

Our **main** stakeholders will revolve around two user bases

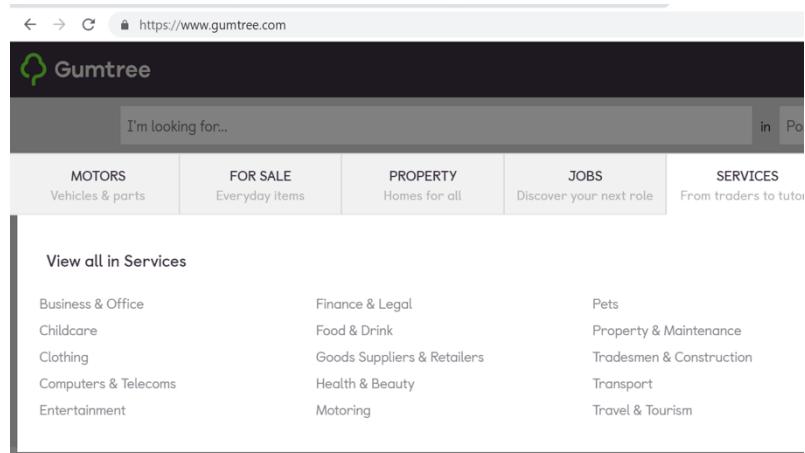
- Freelance Workers
- Customer: Individuals who request for the services for the freelance workers.
 - An example of a usual customer would be a homeowner

Finding stakeholder requirements

- Internet research
 - Problems people face when finding workers or finding customers
- Questionnaires
 - Making a Google Form which our stakeholders will fill in which will give us a clearer picture on what problems people are facing and how we can meet their needs.

The way we've found out about our stakeholders is to look at real-life issues people face. For example, we found out what issues freelance workers face when trying to find work as they're often unnoticed as they may be start-ups. Also, websites such as checkatrade.com are often hard to advertise for start-ups. In terms of customers and their problems, we found out through internet research that they often can't find workers who can fit their time frame.

We have conducted our initial external market research activities. We discovered that there are some competitors (e.g. NextDoor app). However, our biggest competitor was Gumtree (<https://www.gumtree.com/>), a British online classified advertisement and community website. They posed the biggest threat to our app out of all the other applications/websites. Although they allowed people to post their services online, they did not have an area where consumers can post their needs.



From the screenshot above you can see Gumtree have an area to browse the services people are offering. However, no area for anyone looking to request a service. In addition, when looking at customer reviews I have noticed that there were many negative reviews regarding hoax advertisers. We believe with our app we can eliminate the problem of fraud. This can be achieved by making sure all those who are signing up to provide a service, create a profile, including certification and documentation of their profession. We also found out that the Consumer Contracts Regulations came into force 13th June 2014, which protects the rights of the consumer when requesting services

online. In addition, when trying to research 'local service request systems/application' on google scholars, the results were quite vague. This led us to believe that our market is equally quite dubious, possibly because most providers are making a platform for providers. Whereas, we intend to put consumers (service requesters) at the centre of our operation. We do believe our app is viable and if we enter the market early and build a good brand name, we can become successful. However, due to the current nature and speed of the technology industry, eventually many more competitors, including existing large firms can implement a similar system to ours.

Draft a short paragraph that succinctly describes your requirements and market activities.

With the way of the freelancer approaching the customer, it will allow them to find work easily because it will be the customer requesting; the freelancer can easily fulfil that request by touching a button. This also solves the problem for the customer as they can find workers who fit their timeframe and won't need to go through the excruciating process of calling every worker to see they're busy or not. Also, a benefit for the customer is that freelancers are cheaper and completely flexible.

As a result, both stakeholder needs are being met.

Our market activities included initially searching for competitors which either platformed the same service as us or similar services. We found through our opening search online and on app stores (e.g. Google Play store) that there were a few companies providing general services to consumers (e.g. Skillvo Local Services Network and Gumtree). However, we quickly realised that not a lot of them created it in a way which allowed a user to advertise their need. After conducting further market research in the form of customer reviews and google scholar, we found that there are regulations in place to protect consumers when purchasing services/good online. Therefore, we have concluded that there is a requirement for our app in the current market and that it is also viable, due to the lack of direct competition.

The relation between stakeholders and application

Although there will be one app for the users to download, the app itself will be catered to both of our main stakeholders. The freelance worker will have special privileges and will be assigned to a membership that will allow them to find customers who request for the services through the GPS map system that we will be incorporated. They can also add information about their job. The customer will have a different interface. For example, they will be given options on what service they require and how much they're willing to pay. They don't have access to the GPS map system. Both users will have a messaging system as a means of communication.

Milestone 2B: Software Project: Functional and Non-Functional Requirements

Functional requirements of our app:

- Allow specific users (requesters of a service) to advertise their service need.
- Allow specific users (providers of a service) to apply to the needs being advertised.
- Have two different user interfaces depending on who is using the app.
- Be able to incorporate GPS so that consumers can list their needs in a localised way.
- Allow providers of service to access local job lists, perhaps even on a national level.
- Consumers of the service must have full access to the profile of the service provider.
- Must give providers a profile building section as well as an area for attaching qualifications or relevant work experience.

Non-functional requirements of our app:

- Consumers of the service must have security, knowing that their exact location address is not released until the service has been agreed upon.
- Our app must be easy to use, thus eliminating the issue of users having to possess technical skills.
- Our app must be able to host thousands of users at a time.
- Must have login area, including email and password. This will help keep the account secure.
- Users must have the ability to enlarge the information. This helps people with visual impairments.
- Must have start up tutorial when user first downloads app. This is to help them navigate and learn the basic areas of the application.

Analysis – Interviews for service requesters

Total interviews conducted: 8

Number of interview questions: 11 (Service Requester Questions)

Significant points we have identified and that we will discuss in this analysis:

- Different age groups tend to use different methods to find service providers/contractors
- Most believe the process of finding a reliable contractor hard
- More individuals are using technology
- Features to add and implement in our app

As part of our initial, internal market research, we conducted face-to-face interviews with several willing, interviewees. We knew we could collect a lot of interviews for the service requester side, as it was generally about finding individuals who had previously undertaken a service. The interview process was simple, yet effective. It consisted of 11 questions, based on the interviewees past experiences, knowledge and preferences regarding services they've had carried out or may want to carry out in the future.

The first question was quite generic and asked for their age group. This allowed us to get an idea of the age range of the people who took part in our interviews. This question was one of the very few closed questions, as we wanted to get as much

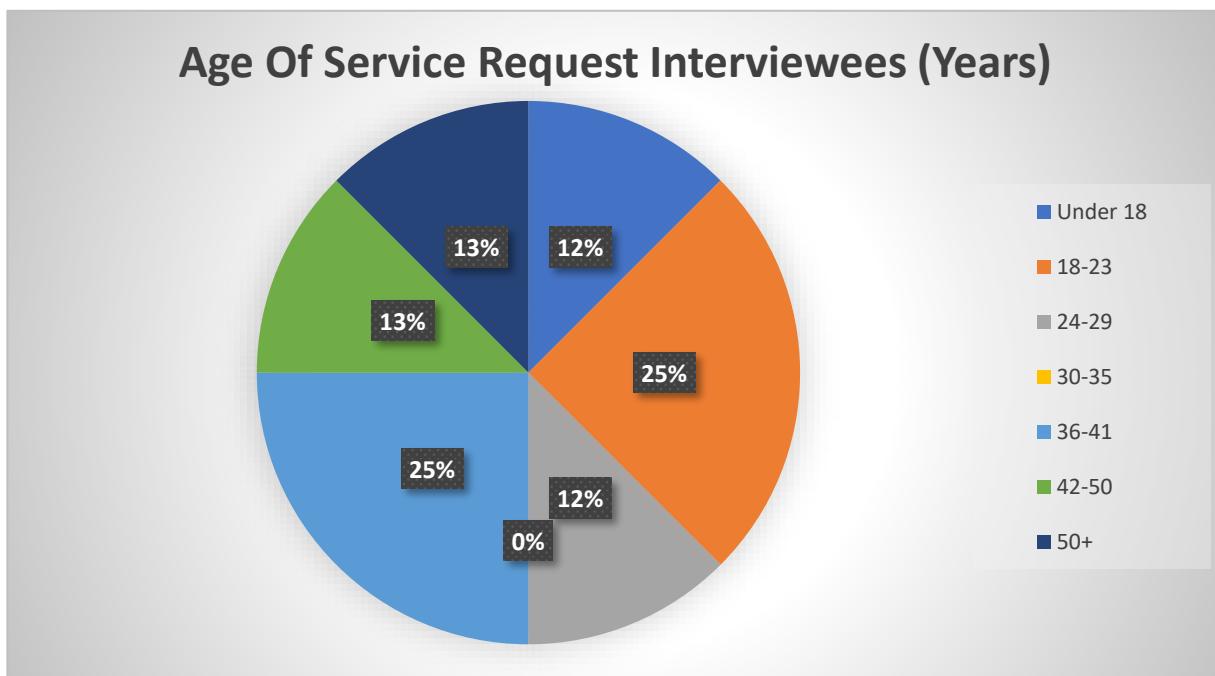


Figure 1

verbal response in text form from the individuals taking our interview, as possible. As you can see from the pie chart in figure 1, we interviewed at least one individual from every age group (except 30-35). As a result, we were able to, at the very least, get a response from almost every age category. Therefore, adding credibility to our initial research.

In addition to that closed question, we asked the interviewees which methods they use when looking for a service provider/contractor (e.g. plumbing tutoring). Below, in figure 2, is a graph displaying methods to find a service and the number of individuals from the interview who use them:

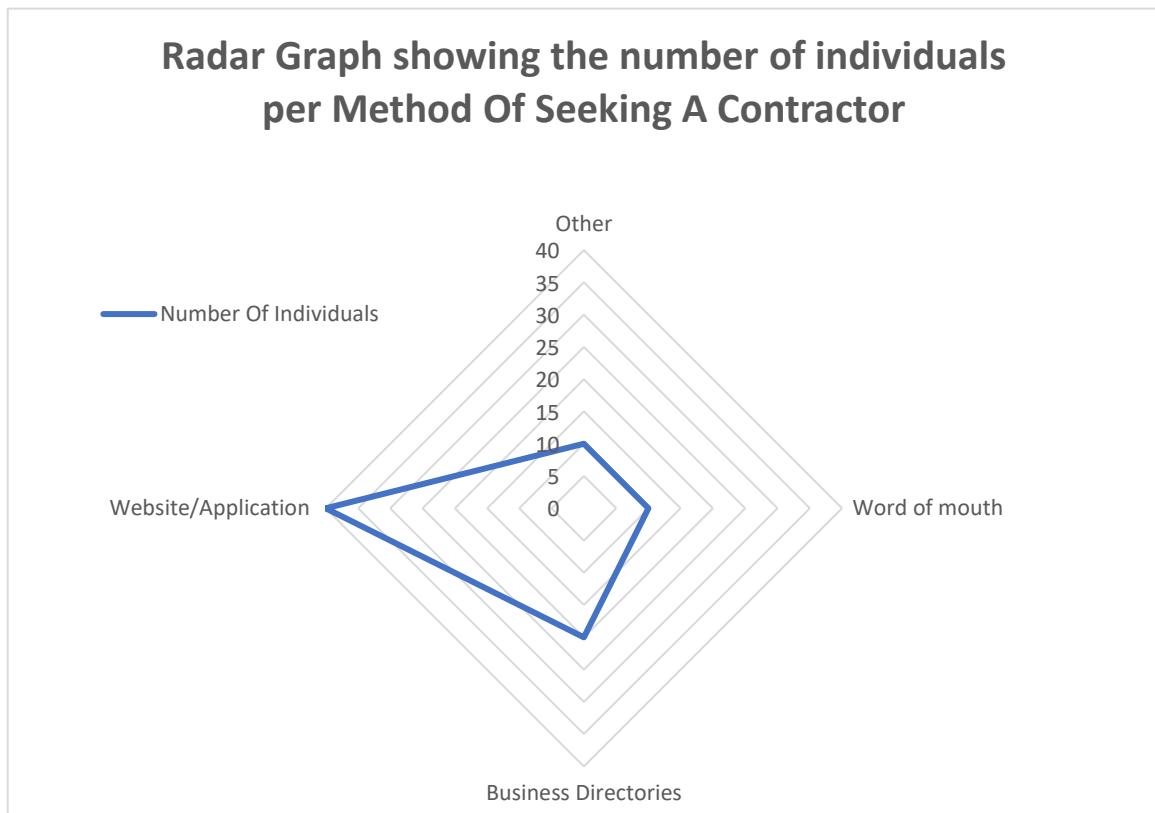


Figure 2

This diagram portrays that out of the 8 interviewees, the preferred method for finding a contractor is via a website or application. As well as this we have found out that those who picked business directories, are of the older age groups. Thus, this leads us to believe they find it hard, or do not have the right skills, to fully utilise modern technology. Which links into our extensive, external market research. Therefore, this consolidates our idea for building an app. However, we must ensure that the application we build is both high-quality, yet efficient and accessible to everyone who may use it.

Furthermore, we also get an idea from the responses that although there are various ways on contacting/finding a contractor, there is still not a single method which dominates this field. As a result, we believe by creating our app we can help eliminate this issue in the market and provide a quick, easy solution. This means, individuals who require a service to be done, no longer must search endlessly on websites or applications, or rely on family members. Instead, they just request the service they want, wait till contractors apply to the request, and then choose who they would like to employ from a list of approved contractors.

Moreover, from our initial, extensive, external market research, we found that 99% of UK households now have access to the internet or a smart phone. This is supported by our interviews. All individuals who took part in this interview said they owned a smartphone. However, they did mention that they did not use it as efficiently as they could, either because they were used to old methods or because they lacked the skill to do so. Consequently, we can infer that if we developed

an app that was user friendly and changed interface to meet different user requirements, we could eventually change their habits, and move towards a more technological approach.

Additionally, the benefit of having these interviews meant that we could give the interviewee a good idea of what our application is supposed to do (function) and what it is supposed to look like. As a result, we got constructive criticism on our concept, which meant we had space to improve. For example, a specific individual believed the concept was a good idea, however, they didn't see how it was accessible for users with a physical disability. They suggested having visual and audio enhancements. This led us to take note of what deemed our application flawed. Therefore, we can now go and evolve our work further to accommodate users with an impairment. Most ultimately, having different people's views on our app enabled us to see short comings of our work, we would never have seen ourselves.

Overall, we have gained a much better insight into the service requesters point of view from these initial interviews. It has allowed us to correctly identify our target market (ages 18+, with a few exceptions in the older generation) as well as, give us ideas on how to expand it. Also, now that we have conducted our introductory internal market research, we can now revise and adapt our plan in order to fit the service request users' specifications, and improve our app. Along with this, we have now created questionnaires, as the second step in our research. These questionnaires are just a condensed version of these interview questions. We aim to collect more quantitative data, with multiple option-oriented questions. Hence, supporting and consolidating our initial findings. Possibly, even giving us a more definitive area to upgrade.

Analysis for the First Interview – Contractor

Total interviews conducted: 2

Number of interview questions: 10 (Contractor Questions)

What we have found out from the first interviews from the Contractors **point of view**

- **Both** contractors will use this type of app.
- How they **find** customers.
- The **importance** of reviews.
- Whether they like the **concept** and if they would **use** it.

As part of our market research, we conducted interviews with contractors who are in the trade. However, it was extremely hard to organise interviews with contractors as often, they would be no replies. However, we did manage to find two contractors who were kind enough to give their views on what they thought of the concept and thus, be part of this development process. We knew we only had two contractors, so therefore, we tried to get as much as detail from them as possible. Hence why we decided to ask 10 questions to get a deeper understanding of the concept. The interviews were carried out by email and video calling as it was difficult to organise a face-to-face meeting with them.

First Question – Age Category

From the two interviews, one of the contractors were in the age range of 18-24, and the other was in the range of 36-41.

This shows that there's potentially that the age range might be diverse, and the application may cater for all age ranges. Also judging by the external research, we know the app will targeted at the age range of 18-65. Although we didn't interview a person who was 41 and above, we are confident by the interview results that it may cater for all ages.

Second/Third Question – Industry and Business/Sole Traders

From the interviews we found out one of the contractors works as a handyman and the other works as an electrician. We also found out that one of them works independently on the side whilst working for a business to earn extra money. The other works as a sole trader.

This proves that the app may be heavily used by people who work in the trade of building and construction. The app is to be targeted to all people who want to carry out services. Also, the contractor said that they work on the side on their own to make extra money. This could be a brilliant method to help workers use this app as a part-time method to do small jobs or one day jobs just to earn more money.

Fourth Question – Forms of Advertising

The response we received from both contractors is that they do use online services such as Gumtree in particular. This helps them to find customers. For one of the contractors, social media is a major influence in helping to get customers as they post pictures online which people can view and thus, contact them.

However, according to one of the contractors, this is not an easy method to get customers. This is because there're so many people online that the market has become so saturated. Therefore, they turn to other methods such as word of mouth which they go through friends and family to pass on information about their work. This gives us another reason why we wanted to develop this app because we want to make this much easier for the worker to find the customer which will hopefully ensure jobs are found easily as compared to posting it on Gumtree. We think that it should be customers posting for help and workers accepting the jobs which would prove to be the solution for the both parties.

According to another contractor, their business uses the old-fashion approach of using the yellow pages. However, this method is declining as many people don't even turn to yellow pages anymore. According to the Guardian, it is going to stop printing from January 2019, so this would pave way for an app like this to come to the market to help even businesses find customers.

Reference:

<https://www.theguardian.com/media/2017/sep/01/yellow-pages-to-stop-printing-from-january-2019>

Fifth Question – Size of Job

The contractors say that the jobs they receive vary time to time. The electrician has said that he usually undertakes large jobs because the job takes a long time to finish. However, for the other contractor, he mentions that majority of the time he gets small jobs because he's a start-up. From this, the app can hopefully give workers the chance to expand their portfolio and experience, so they can undertake jobs that are bigger.

Sixth Question – Communicating Results

Both contractors communicate their results via pictures they send to potential customers. One contractor puts their images on social media for people to view. This gives them an opportunity to build that customer base.

From this, we can take out a feature which we will be implementing to our app. Our app will have a feature where customers can post images which will allow them to communicate their results. This way, customers can see how the contractor executed the job.

Seventh Question – Importance of Review

The contractors have raised the importance of having good reviews. They both mention that it is very crucial in getting customers because their first point of call is to look at reviews. From there, they will decide whether they want to hire the worker or not. As mentioned before, contractors tend to use good word of mouth to attract customers.

Therefore, we will be implementing a review system where customers can put opinions on the work that the worker has executed. If they didn't like it, they can express their disappointment through the reviews which can help other customers to choose whether they want that worker or not. If a worker has a bad score, their worker membership will be revoked as we want customers to have the best possible results. However, if customers like the job the worker executed, then they will most likely put a good review which will help enhance their score which in turn will attract customers to hire their services.

Eight Question – Concept: What they like about it

The contractors both adore the concept. One of the features they like from the concept was the fact that it follows the Uber Eco-System. They think this will be an interesting concept as there hasn't been an app that uses that system in the market. Another feature they like is the fact that it is the worker finding the customer not the other way around because they think this will ensure people will find jobs and allow unnoticed workers who aren't on websites such as Checkatrade.com to get jobs easily.

From this research and these interviews, we get a broader idea on how the concept will fulfil worker's needs.

Ninth Question - Concept: What we can add

One of the contractors had said that they don't have certification to prove their validity as they're a start-up and on course to getting a certificate. They think that having a certified stamp on their profile who prove their certificates should be a feature. We think this is a brilliant idea and will implement it to the app. This ensures that start-ups get a chance to prove themselves. They also mentioned to follow checkatrade.com's model on how they verify checks by doing background checks, ID checks, interviews and references from past customers.

We want to give opportunity to start-ups and we also found out through experience that not many people have certifications but they're very good at what they do.

Tenth Question – Would you use it?

Both contractors have said they would use the app. This in turns tells us that workers will be willing to use this app and would be suited to our target audience. They believe it is a platform to help build experience in the service they provide.

Overall, we did get an idea in detail on the perspective of the contractors on their views of the concept. This research has given us a greater insight in order to make the best app that suits workers and customers alike. However, it would've been better to get a greater scope of people to get an even better understanding from the contractor's point of view.

First Service Requester Questionnaire – Analysis

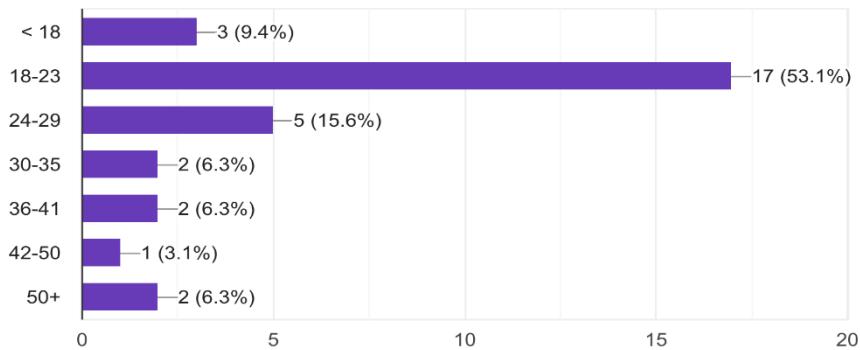
Number of responses to questionnaire: 32

In order to get an initial insight into who our market contains and what sort of impression they get when first exposed to our concept, we conducted a questionnaire on Google Forms. We used a combination of both closed and open questions. This is so that we could obtain quantitative and qualitative data.

The first question was regarding the age of the individual. Below is the graph of the results:

What age category do you fall in?

32 responses

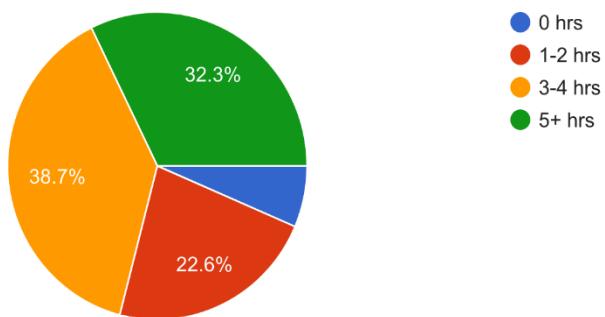


From the graph above we see that the majority of responses came from 18-23 year olds. The next greatest numbers came from the age groups above and below this group. This leads us to believe that most of our target audience is from the younger, more technologically advanced era. However, we can also infer that the numbers outputted do not correctly represent the entire market (service requesters in the UK).

We then asked users how many hours they approximately spend on their phones (in hours) a day and if they have ever deleted an app within a week. The results for both questions are below respectively:

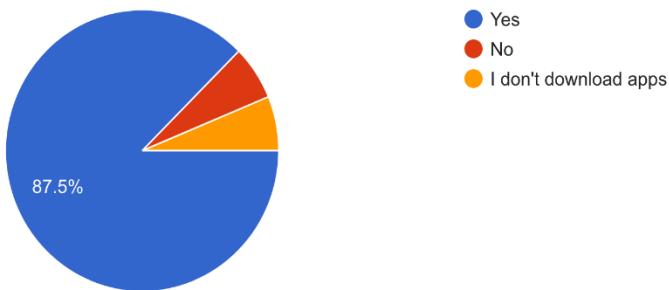
How many hours, approximately, do you spend on your phone a day?

31 responses



Have you ever downloaded an app, and deleted it within a week?

32 responses

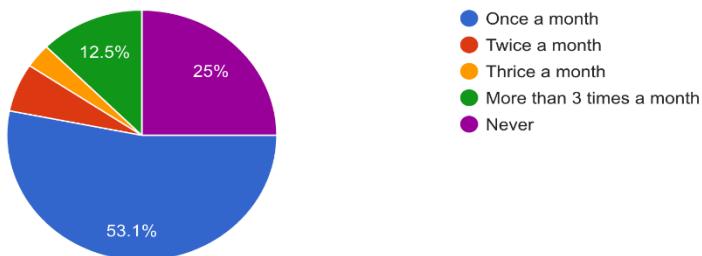


These questions were posed to the people taking the questionnaires, as we were trying to see how engaged users are with their phones and more importantly apps on their phone. From the results we see 38.7% of the responses chose 3-4 hours, and most people downloaded and deleted an app within a week. As a result, this portrays that a lot of users would like a mobile application. Therefore our concept for building an app is supported. However, in order to make the users' keep the app we must ensure it suits their requirements and is much easier to use than any other method they currently use to request services.

In addition, we asked questions relating to how often users need a service and what methods they use to request those services. Below are the results respectively:

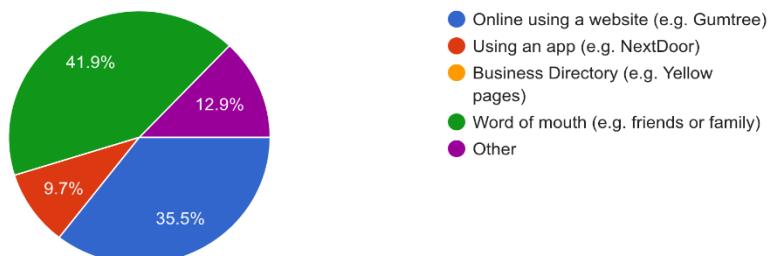
How often do you find yourself needing a service?

32 responses



If you did require a service (e.g. plumbing, tutoring), how would you usually find the provider?

31 responses

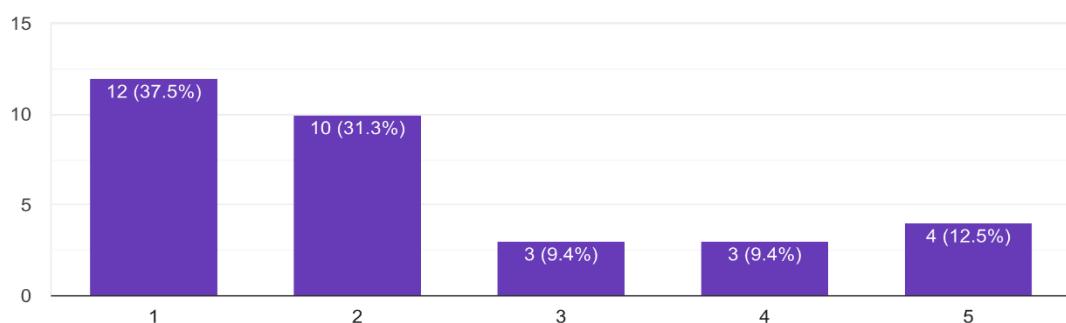


The graphs above are very significant. They have allowed us to identify how often a user needs a service done, and how they went about finding them services. Majority of users said they required services once a month (more than half at 53.1%). This shows there is a market for application. Although we are in an age where most things can be found at a click of a button online, a large portion (41.9%) of the response's indicate users prefer word-of-mouth to request services, compared to more modern methods. As a result, we can infer here that current technologies available to request services are either inaccessible or harder to use. Consequently, we must ensure that our app caters for all users, with different needs. Therefore, this may allow us to become successful in our aspiration to create a viable service request service.

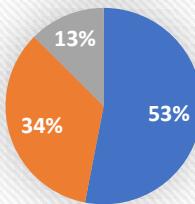
We had a question in relation to how important customer reviews were on a good/service to the user and if the user has had an unsuccessful service provided to them. These questions were included so that we could get a better understanding of how significant a role, customer reviews take, when influencing a user's decision to go with a contractor. Also, to see how many unsuccessful services provided per response. The graphs for each question are below:

How important are customer reviews, on a good/service, to you?

32 responses



Have you ever experienced an unsuccessful service that has been provided to you?



■ Yes, the service provided was unsuccessful ■ No, the service provided was successful

■ N/A, I have never been provided a service

As per expected the graph above shows how important customer reviews are when deciding which good/service to pick (22 people agreed). Therefore, we will incorporate a customer feedback system on each contractor's profile. As for the unsuccessful services provided, we conclude that the 21.9%this was as a result of hiring contractors who were under-qualified for the job. We believe our app can resolve this issue by requiring every contractor who signs up to our, must provide

certification and qualifications. This may lead to service requesters picking the right contractors for the job. Consequently, the service can be provided successfully. Therefore, possibly reducing the number of unsuccessful services carried out.

Lastly, our final question was created for the sole purpose of getting valuable feedback from the user. This was our chance to get their comments and ideas on what could be added to our application, to better suit their needs and needs of the target audience. Below are submitted responses:

Location - see people in your area who can provide the service

Location/ ETA

Broad range of services, and for example the services suitable for the age group of the user will be highlighted first (e.g. Tutoring for me)

T&C stating what is and what isn't covered by the service, what things that can and cannot be serviced, simple UI/navigation

Price range (willing to spend)

Payment handling, reviews

How fast they can start helping

Rating system

A button to press so that you can hear a person reading the text allow so you don't have to read it yourself

I would like to see a job history on the contractors' profile

A selection of different services for example painting, garden cleaning

Recommended contractors for certain jobs

Comparing different deals from different companies

Easy navigation for someone as old myself

Testimonials

Tutorial at beginning, when app downloaded first time

Accessible for elder users

Attached copy of certificates of the contractors

Require previous customers to make a review when they have service done. Protects new users like me, also gives people a good idea of who they are employing. Not everyone who is qualified is 'good'.

Previous jobs done.

Stars for how well a contractor is.

An option for laborers, who aren't professional, but can lend a hand. E.g. just a person who is free in the area and can help me clean out my garage.

Suggested contractors for my job.

Security of location and reviews from previous customers.

How long until my service arrives

As you can see from the comments above, there were various features recommended to us by our questionnaire takers. We analysed each response and found an underlying similarity between them all. The responses reflected the idea of having an application, which serves service requester. Like other modern-day apps and websites. However, the most interesting factor was usability and accessibility. We concluded that users wanted a great functioning app, but they also wanted it to be created in such a way, which can be used by all. Therefore, we have now taken note of the main ideas this feedback has provided us, and will look to implement them in our prototypes, and prototype testing.

Overall, most ultimately, we believe that the conducting of this questionnaire has been successful. It has allowed us to get a precious outlook of what our potential users may want to see and utilise. The various questions within this questionnaire were specifically designed to give us data, which we could analyse and make conclusions from. Furthermore, the admittance of the feedback at the end has really given us vision to eventually develop and improve our existing concept.

Milestone 4A: UML - Timeline (Use Case Diagram)

Service Requester UML Timeline

1. The customer downloads the application.
2. Create an account. The customer will provide information such as their address, post code and other personal information.
3. The customer will have to log in with their username and password.
4. The system will accept their log in.
5. The customer will be presented to the main menu.
6. The customer can search service they want to hire (e.g. plumbing and tutoring). They will be matched to correct ones via keywords.
7. The customer can choose whether they want the waypoint set at their primary address or secondary address.
8. The customer can also add information about hourly rate and a job description.
9. The customer will press the 'request' button.
10. The system will register this and acknowledge that the customer has requested for a service.
11. The system will present to the customer that their request has been placed on the GPS map for workers in that field will see.
12. The customer would have to wait for a contractor to accept their request. The system will find matches.
13. If a contractor accepts the customer's job, the customer will be notified by the system.
14. If more than one person accepts the job, the customer will receive a list of contractors who can carry out this service.
15. The customer can view the profiles and reviews and decide which contractor they would want.
16. The customer will accept one of the contractors available.
17. The system will notify the contractor that their job has been accepted by the customer.
18. The customer will have access to the message system as soon as they accept. They give their details (address and contact number) and job specifics on the service.
19. The contractor then confirms the job request.
20. The system will take the job off the map.
21. Customer gets service done.
Or
22. The customer will reject the contractor(s)
23. The system will leave the customer on the GPS map for other contractors to accept.
Then loops back to step 12.
24. There will be a time limit for the customer to confirm the job with the contractor. If the customer doesn't accept the job in the time limit, then the job will be rejected automatically
25. Then the customer would have to fill in another job request.

Contractor UML Timeline

1. The contractor downloads the application.
2. The contractor opens the application

Split this in two

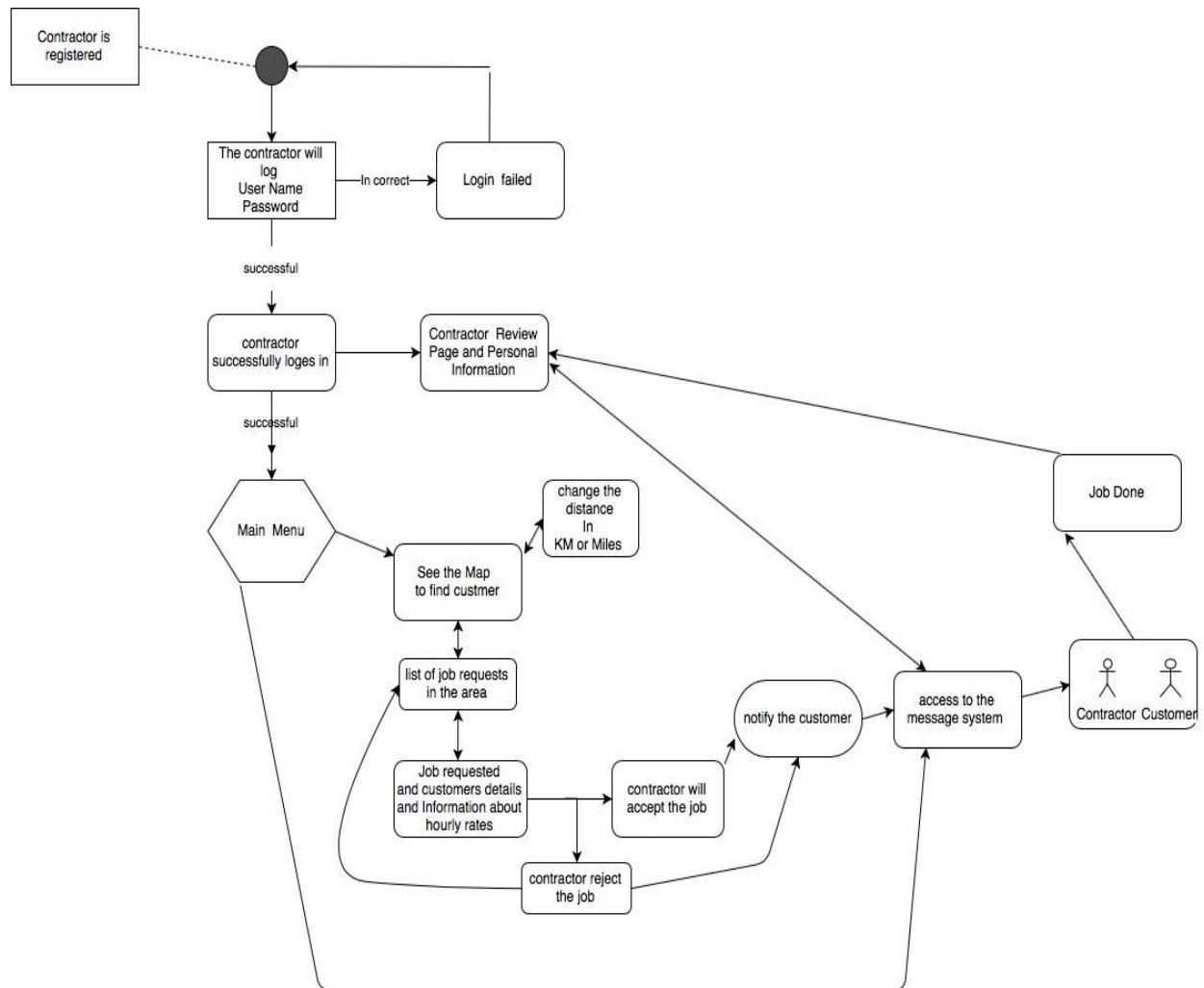
3. Create an account and provide information about their work – the contractor would have to tick the ‘worker’ box.
 4. The system would request for any certificates to authorise their validity of their work.
 5. The contractor would provide for any certificates to prove their validity.
 6. The contractor would scan and upload it via PDF or JPEG format
 7. The system will request the contractor to wait 48 hours for their account to be activated.
 8. After the 48 hours wait, the system would email the contractor that their account has been activated.
 9. The contractor would receive the email and click on the link provided.
 10. The contractor would enter their credit card information.
 11. The system requests for authorization and MasterCard accepts the payment.
 12. The contractor will accept the transaction and payment will be taken.
-

13. The contractor will log in with their username and password.
14. The system will accept their log in.
15. The contractor will be shown the main menu
16. The contractor will be presented with the GPS map which shows potential customers who would want the contractors service.
17. The contractor can change the distance, add keywords. Also, add the post code on the whereabouts they want to work.
18. The system will respond back a list of job requests in the area
19. The contractor will click on one of the job requests and a card will appear which allows the contractor to open the customers details
20. The contractor will be presented with details as given by the customer. Information about hourly rates and a job description will be shown here.
21. The contractor will accept the job.
22. The system will process this and notify the customer.
23. The system will allow access to the message system where the contractor and customer can discuss further about the job.
24. The system will also show the customer personal information to the contractor.
25. The contractor will have to wait for the customer to officially accept.

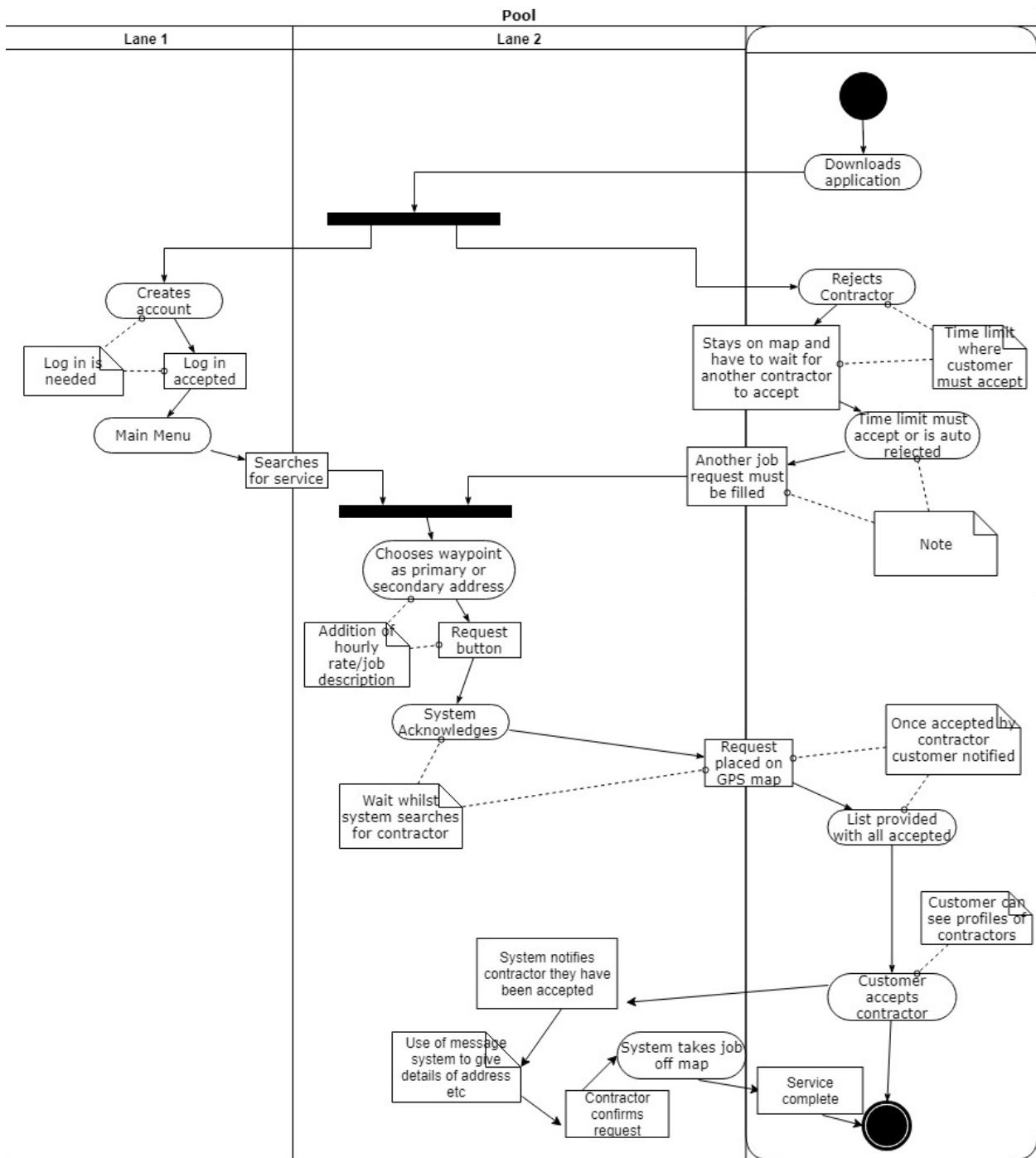
Or

26. The contractor will reject the job.
 27. The system will process this and will change the pinpoint colour to black (which means the contractor has rejected the job).
 28. The contractor will be presented with more jobs in the area.
 29. Once the job has been confirmed, the contractor and the customer will meet up personally
-
30. The service will be undertaken.
 31. The customer can give the opportunity to review the contractors work and upload pictures.

Milestone 4B: UML – Activity Diagram - Contractor

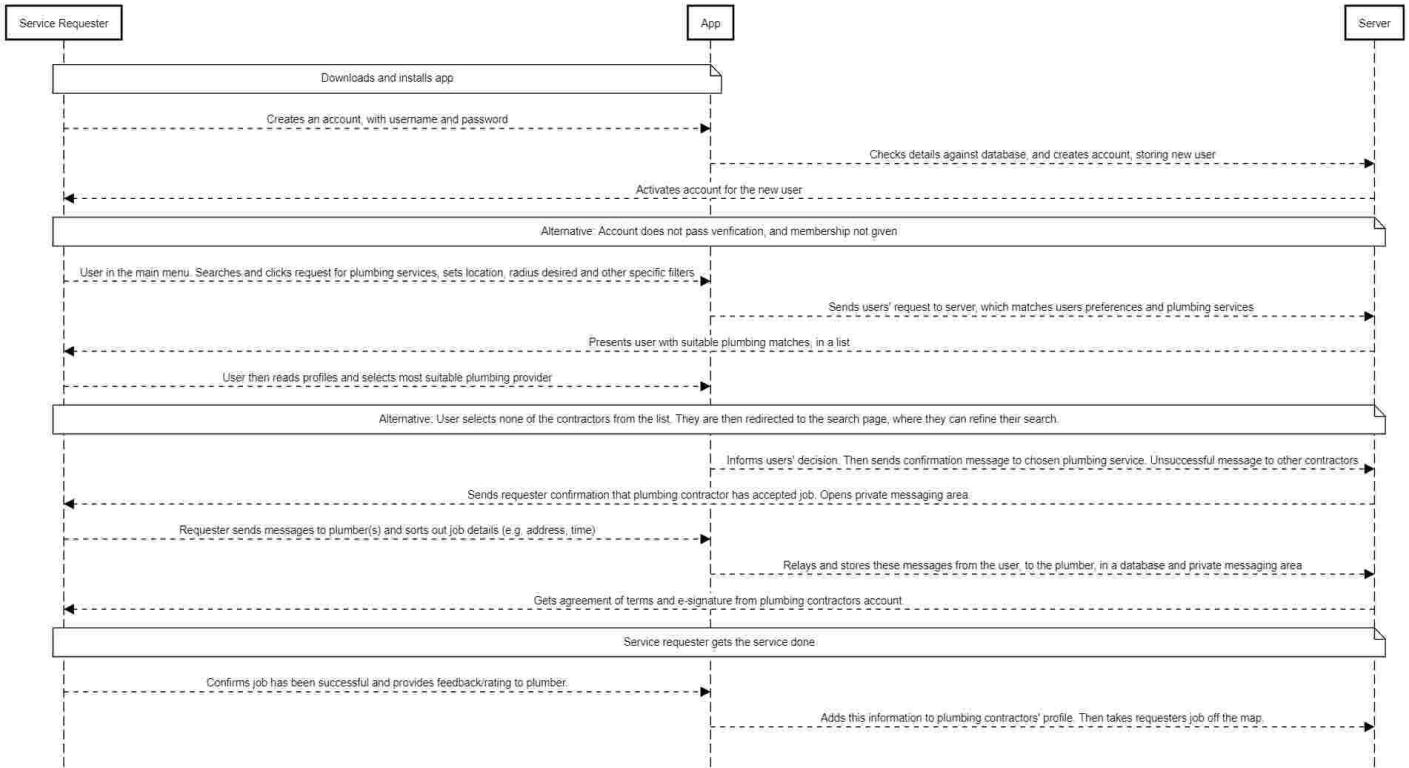


Milestone 4B: UML – Activity Diagram – Service Requester

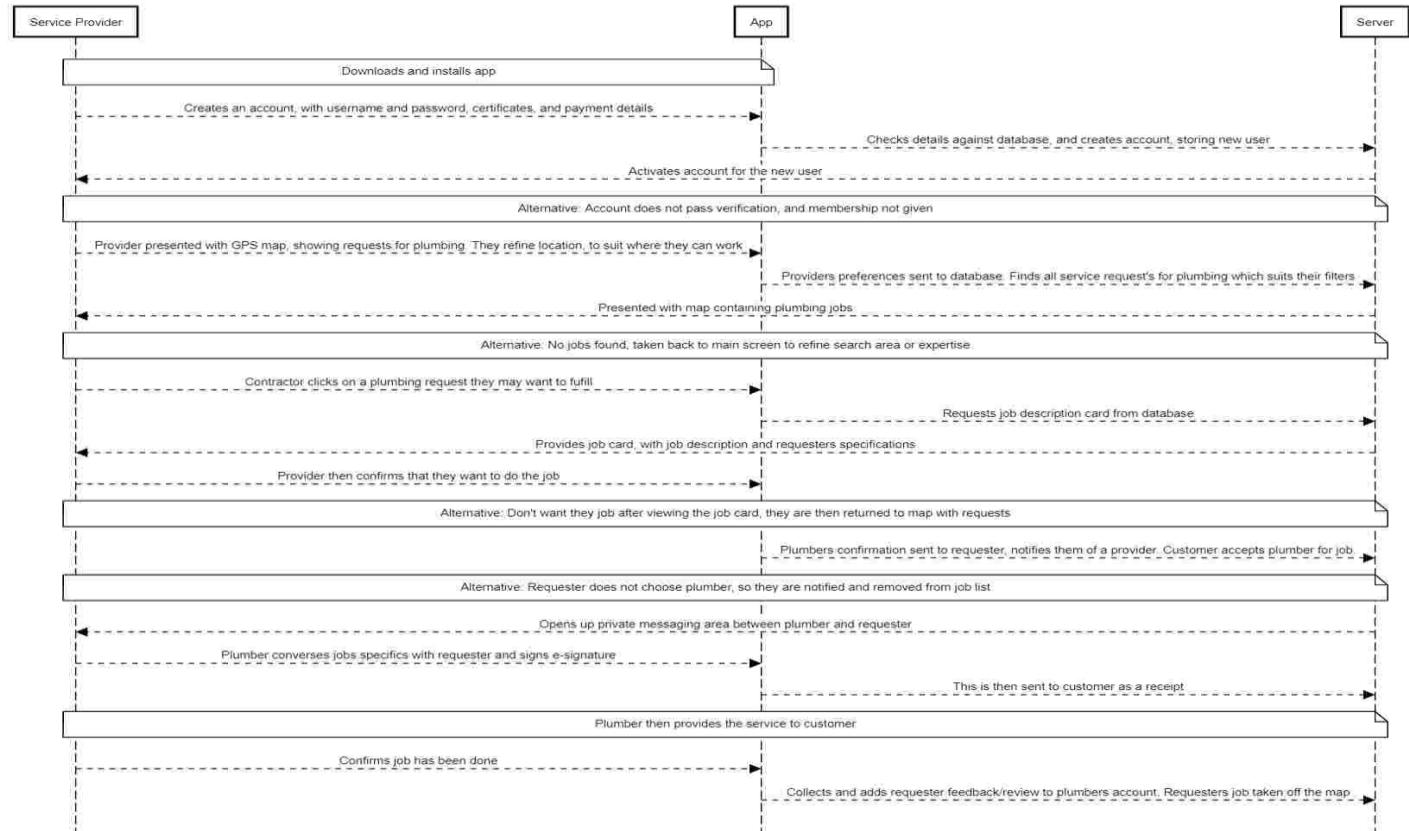


Milestone 4C: UML – Sequence Diagrams

Sequence Diagram - Service requester - Example: Requesting Plumbing Services



Sequence Diagram - Service Provider - Example: Providing Plumbing Services



Milestone 4C – Paragraph for service model

We have created 3 separate diagrams to visualise the functionality of our service request application. We initially started by outlining our main features and abilities of the application. We then created the use case (timeline) UML. From there we were able to create the activity diagram which showcases interactions and responses between the user and our app. Finally, we created the sequence diagram which outlines the process user requests go through (e.g. request service, server then relays the messages and check with database, and a response is given back to the client).

Milestone 5 – Identify Prototype Questions and Project Management

Identify the open questions that will need to be answered with prototypes and what aspects of the design can't be finalised until the questions have been answered

There are many open questions that need to be answered about our prototypes. These include:

- How easy is it navigating through our app from initial use?
- Can anything new be added to improve the user interface?
- What do you notice straight away when you open the app?
- Did you find the display suitable and appropriate for a services-based app?
- What current features can we update, to improve the usability and accessibility?
- Is the app accessible? If yes, why? If no, why?
- Does the colour scheme match/suit the product (i.e. service request app)?
- What design structures could we add to improve the designs?
- What software could we use to develop the prototypes further?
- Does our logo represent the app well? If not, what can be added or changed?
- Does the name of the app, suit the industry it's based on (i.e. services)?

The aspects of the design which we cannot finalise until the open questions (above) are answered include:

- The final user interface (e.g. different interfaces for certain ages).
- The number of features on a screen (i.e. users may find it over complicated).
- The number of 'pages' on the app (e.g. have 3 pages max: main login, service search, messaging screen).
- The colour scheme for the app (e.g. colours correctly representing what they are portraying).
- The final design structures.
- The final logo for the app.
- The final name of the app.

Identify what will be prototype in what way

What will be prototyped is our service that we are providing. Our service that we are providing is based around offering a service that the wider community needs for example a plumber for your home or any household needs etc. The way in which it will be prototyped is we will come up with 2 unique designs and then we will gather feedback from our customers and contractors on which design they think is the best and what we can do to improve it. After gathering the feedback, we will then edit and finalise the main design.

Produce a plan to work with stakeholders to use the prototypes to help answer the open questions.

We will be showing our prototypes to customers and contractors. There are such of many ways to show the prototypes to our customers and contractors such as:

- Power point
- Storyboard
- Export/send by email
- Printing

Power point

Using the power point is one of the ways to present the prototypes. You can either send the power point to customers or contractors or show it to them directly. Showing the prototype to customers and contractors would allow them to go back to previous slide whenever they want. Also, if the customers or contractors don't have power point on them then you can save the file in WMV format which is accomplished of playback on window media player and could be uploaded or sent.

Storyboard

Second way is doing a storyboard of our prototypes to show. With storyboard the customers and contractors will have a better conceptual overview of all the screens of our design and the connections between them. This is one of the easiest ways to show the prototypes, but the quality will not be the best because it will be hand drawn. It will create a clear representation of the aim of our prototype. Likewise, the storyboard can be done on computer which would be easy to present the idea as instead of reading a synopsis you can speak to the customer and contractors.

Export/send by emails

Sending it by email is one of the fastest ways of showing the prototypes to customers and contractors and getting feedbacks from them. This will be mainly for people who we can't see them by face to face because they might be far away from us. Also, it's the same as talking face to face to a person but it will just be communicating using the email.

Printing

By printing the prototype will be much easier for customers and contractors to read and understand it. This will be suitable for people who we will be seeing face to face. It's easy to present and it allows more detail and explanation. It allows a detailed breakdown of the essential information we will be delivering to customers and contractors. Also, it helps to keep our customers and contractors engaged and helps them to follow along easily.

Milestone 6 – Review Prototype Questions and Project Management

Review the open questions that will need to be answered with prototypes and what aspects of the design can't be finalised until the questions have been answered

There are many open questions that need to be answered about our prototypes. These include:

- How easy is it navigating through our app from initial use?
- Can anything new be added to improve the user interface?
- What do you notice straight away when you open the app?
- Did you find the display suitable and appropriate for a services-based app?
- What current features can we update, to improve the usability and accessibility?
- Is the app accessible? If yes, why? If no, why?
- Does the colour scheme match/suit the product (i.e. service request app)?
- What design structures could we add to improve the designs?
- What software could we use to develop the prototypes further?
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- Does the name of the app, suit the industry it's based on (i.e. services)?

The aspects of the design which we cannot finalise until the open questions (above) are answered include:

- The final user interface (e.g. different interfaces for certain ages).
- The number of features on a screen (i.e. users may find it over complicated).
- The number of ‘pages’ on the app (e.g. have 3 pages max: main login, service search, messaging screen).
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- The final design structures.
- The final logo for the app.
- The final name of the app.

When beginning our review of our prototype testing questions, we wanted to trim down and condense the questions. This way we would get elaborate responses from the interviews and questionnaires. Also, some of the questions we identified were quite like each other, therefore, reducing them allowed it easier for us to collect data and get an overall idea of what individuals thought.

Review what will be prototype in what way

What will be prototyped is our service that we are providing. Our service that we are providing is based around offering a service that the wider community needs for example a plumber for your home or any household needs etc. The way in which it will be prototyped is we will come up with 2 unique designs and then we will gather feedback from our customers and contractors on which design they think is the best and what we can do to improve it. After gathering the feedback, we will then edit and finalise the main design.

Upon review, we correctly identified what we will be prototyping (two versions of service request application), and how will we will do it (make 2 versions, get feedback, and improve our idea).

Produce a plan to work with skate holders to use the prototypes to help answer the open questions.

We will be showing our prototypes to customers and contractors. There are such of many ways to show the prototypes to our customers and contractors such as:

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When getting to the task of how we would present our prototypes to the interviewees, we decided to go with: Storyboarding, Video demonstrating how the app works, and Exporting (e.g. by putting links to our Adobe XD version of the application, as well as the online questionnaire). We agreed that these were the most effective methods, especially considering the projects' time constraints.

Prototype Version 1

<https://xd.adobe.com/view/3a45ec13-039f-4bde-4ee4-69adbfe67868-4c74/?fullscreen&hints=off>

Appointments

Book appointments and get best job on one tap

Menu

- [Find Job](#)
- [My Jobs](#)
- [Messages](#)
- [Call log](#)
- [Customer Feedback](#)
- [Collected Money](#)

Jobs

Job Category

Current Location

Date

House, Flat ...

Search

Available Jobs

Profile	Name	Profession	Location	Distance	Price
	Tom	Painter	Lewisham St., London	0.7 km	£6.50
	Sheldon	Cleaner	Lewisham St., London	0.6 km	£5.00
	Lucy	Electrician	Lewisham St., London	1.2 km	£7.30
	Kim	Plumber	Lewisham St., London	1.4 km	£9.00
	Hannah	Cleaner	Lewisham St., London	1.6 km	£4.50

Customer

Tom

I need Painter it's 6x2m wall

£6.50
(per Hour)

Photos

Call

Personal Information

House address

Book Appointment

My Jobs

My lastest jobs

Add a job

Painting
£7.30

Fixing broken table
£5

leaking sink
£7.30

Create Job

Upload a Photo

Name of the job

Job Categories

Date

Price per hour

Publish

Prototype Version 2

<https://xd.adobe.com/view/858cb737-4785-4bb4-6c53-eac6e0015d56-f3bd/?fullscreen>

The screenshots illustrate the Labora app's interface across four main sections:

- User Login:** Shows the Labora logo and the tagline "The mission is to fulfill everyone's requirements." It includes fields for Email Address and Password, and buttons for Sign Up and Log In.
- Notifications:** Displays a red header "Good Afternoon, Edward Smith" and a message "You have no new notifications". Below is a "Start searching" section with three cards: Plumber, Electrician, and Baby sitter. A blue banner at the bottom says "Your request for a plumber Accepted" with a "More Details" button.
- Service Request Creation:** A "Details" screen asking "What do you want done?". It shows a request for a "Plumber" to handle a "General Blockage". The "Type of Work" section offers Personal or Commercial options. A "Description" field is present with a "Confirm" button.
- Service Requests:** A green header "Your request has been Confirmed" with a checkmark icon. It displays a summary of the request: "Plumber" for "General Blockage" at a "Default Address" with "As Edwards Smith". The summary includes a photo of a plumber working on a pipe and a "Edit Summary" button.
- Message Center:** A pink header "Your Notifications" with a message "You have no new notifications". It lists messages from users Adam Smith, Steven Junior, Alex Cannon, and Candice Evans. A green "+" button is at the bottom.
- Search Function:** A green header "Find your service/job Search" with a "Suggestions" section showing icons for Plumber, Electrician, Babysitter, and Tutor. Below are search filters for "Default Address", "Plumber" (with "General Blockage" and "Pipe Fitting" options), "Plumber" (with "Power Flush" option), "Plumber" (with "Installation" option), and "Plumber" (with "Heating" option).

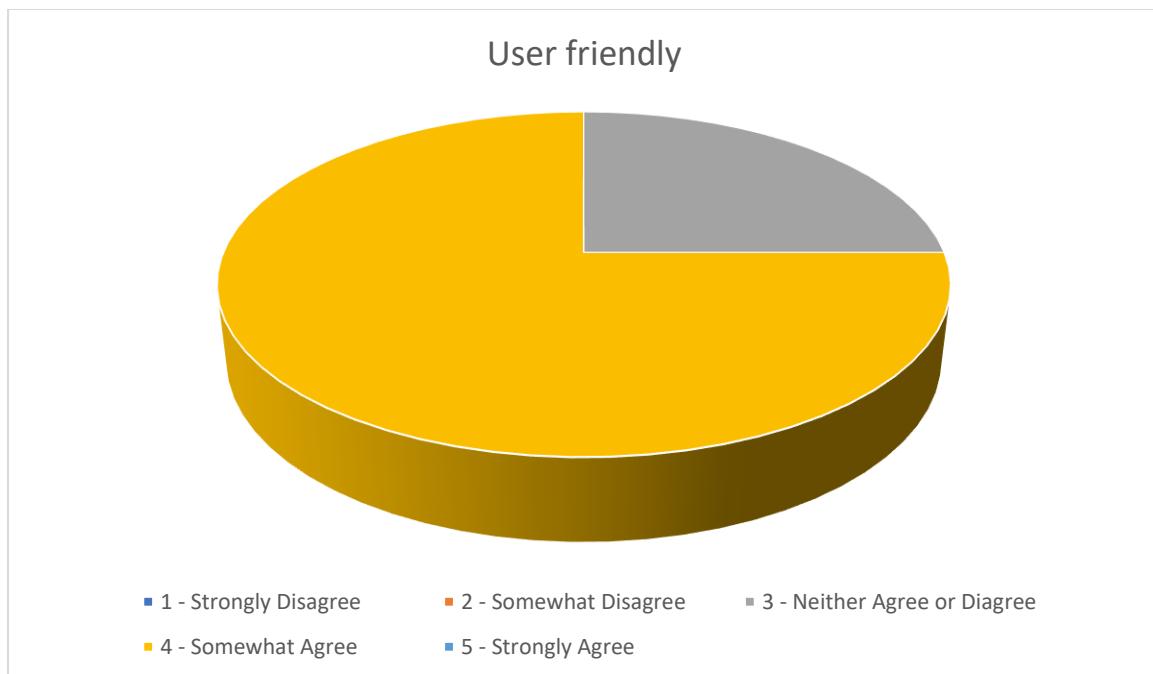
Analysis Prototype 1 Interviews

After we finish the first prototype, we interview people and let them use the application to get feedback from them. ¾ of the people agreed that the application is simple to use. All of them agreed that it is very easy to navigate. They liked the logo and the design of the application. From the people we interviewed we figured out that the application need improvement most of the people did not find it enjoyable. They found the application attractive however it needs some improvement. Most of them said the application is in good content and they would like to use it in the future and recommend it to their families and friends. Most of the customer would like to use the application rather than spending so much time searching on websites and we need to improve the security of the application and find a way to verify the contractor's certificate. However, they recommend it to improve the application more before using it.

Analysis - Prototype 2 Interviews

We started our project with an initial 'First' interview and 'First' questionnaire. We collated these results and analysis and created two versions of our service request applications, via Adobe XD. We then needed to test these two prototypes. We did this with the 2 methods: Face-To-Face Interviews and Questionnaires. This document will aim to analyse the feedback interviews, conducted for prototype 2 testing, of our service request application.

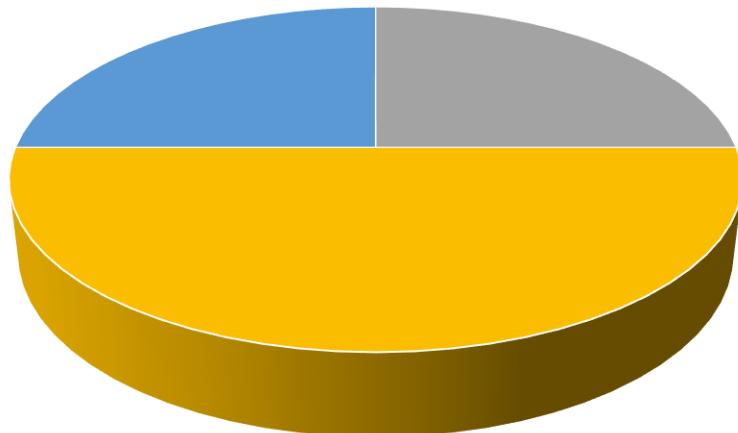
The interview has a combination of closed and open questions. This is since we would like to collect quantitative and qualitative data. The questions are related, so we can make direct comparisons and correlations between results. Below are graphs for each criterion, and the number the interviewee awarded them. It is based on how strongly they agreed/disagreed. Along with this you will find a summary of the feedback provided by the interviewee and analysis of what the results portray.



This was the first criteria we had on our feedback table. As you can see from the pie chart, 25% of the testers somewhat agreed that the prototype was user friendly. This leads us to believe the interface is relatively easy to use and can be used by many different age groups. Also, from the longer, open questions after the feedback table, the general comments we got were similar, in the sense that the prototype was quite user friendly. They found that once the menu was found, it became easy to use. Therefore, we have concluded that we shouldn't change the friendly aspect of the interface too significantly, as it is seeming successful.

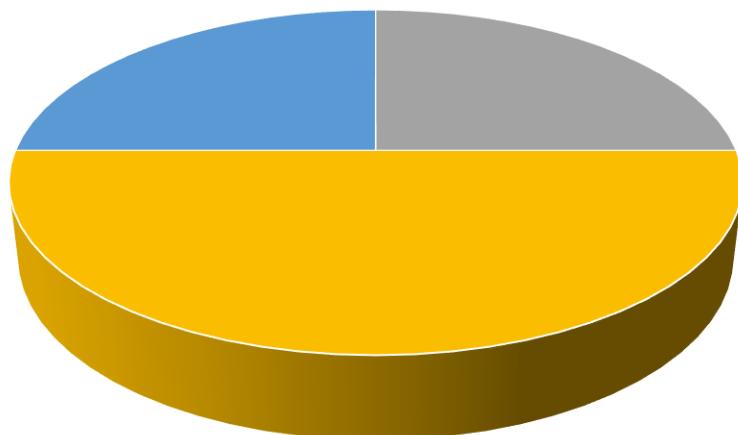
The next question and feedback criterion were regarding how easy it is to navigate. From the graph below, you can see that half of the interviewees thought that it was easy to navigate. The comments correlated with these scores. Interviewees stated that once they found the menu, they were able to freely navigate the application. As a result, this means we must improve the display for the initial menu drop down icon. Consequently, this will make it easier for users of our application to fully utilise it. Therefore, we have made the decision to research and develop our existing menu icon for the future increase in accessibility for users.

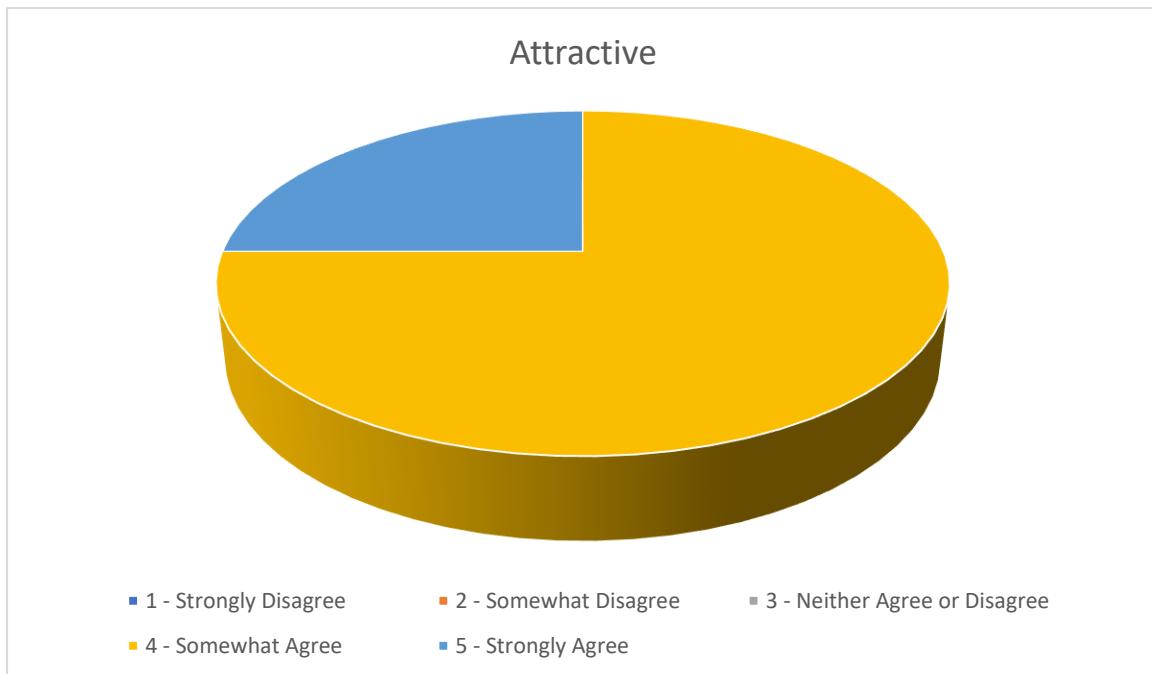
Easy To Navigate



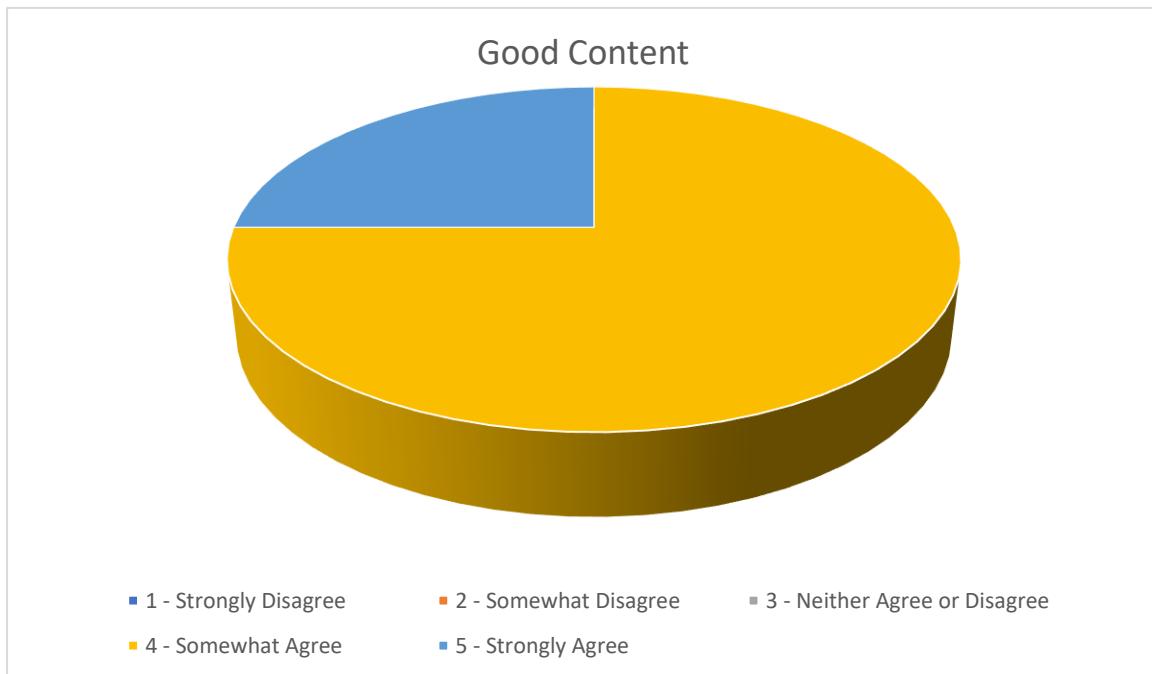
Furthermore, we come to the criterion and question about the enjoyable aspect of the application. As the graph below shows, 50% of the interviewees somewhat agreed. This tells us that half of the testers found this prototype either unpleasant or had no 'fun' when testing. However, interviewee number 4 stated 'It is more enjoyable than searching on Gumtree'. As a result, we find that our app's enjoyability is befitting, but there is space for improvement. Therefore, although it is easier for some to use when attaining services, we can do more e.g. animations, default filters which will make it enjoyable, yet usable, for all our users.

Enjoyable





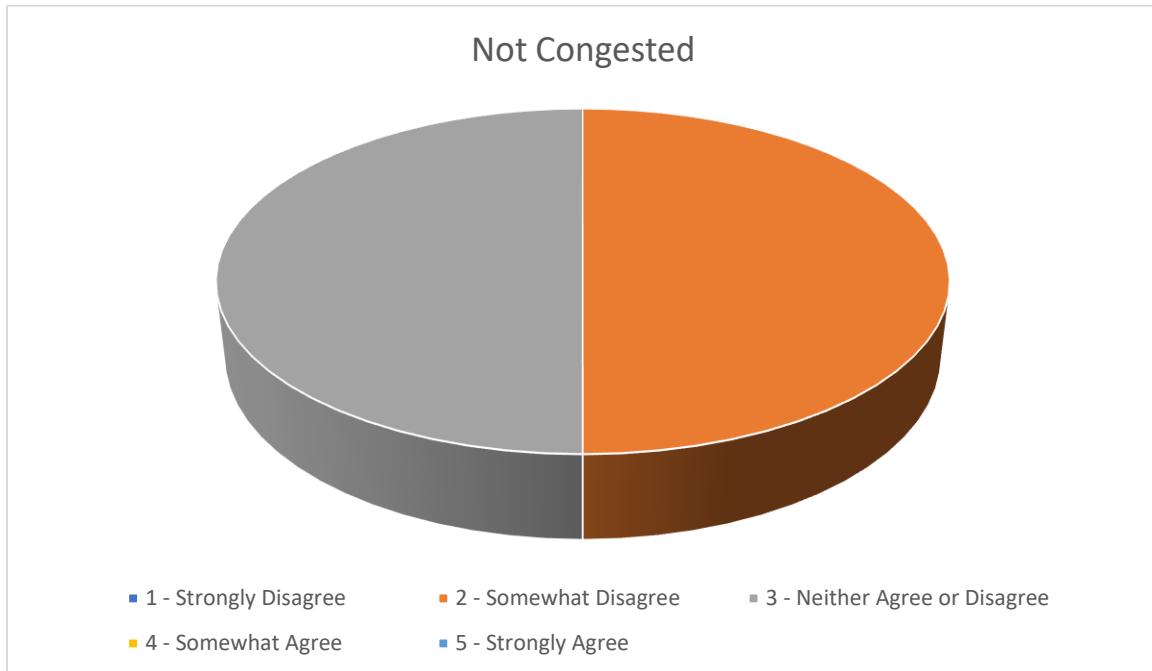
The graph above displays the results for if the testers found our prototype 2 attractive. 75% of testers agreed that the prototype was attractive. We also got feedback from an individual who believed this prototype was very professional. This leads us to believe that our prototype is quite alluring. As a result, because we didn't receive too much criticism for the visual aspect of our prototype, we will try to keep most features in our final service request application. Consequently, this means that we will have more time to develop other parts of our application. Therefore, we made the decision not to significantly change anything appearance wise.



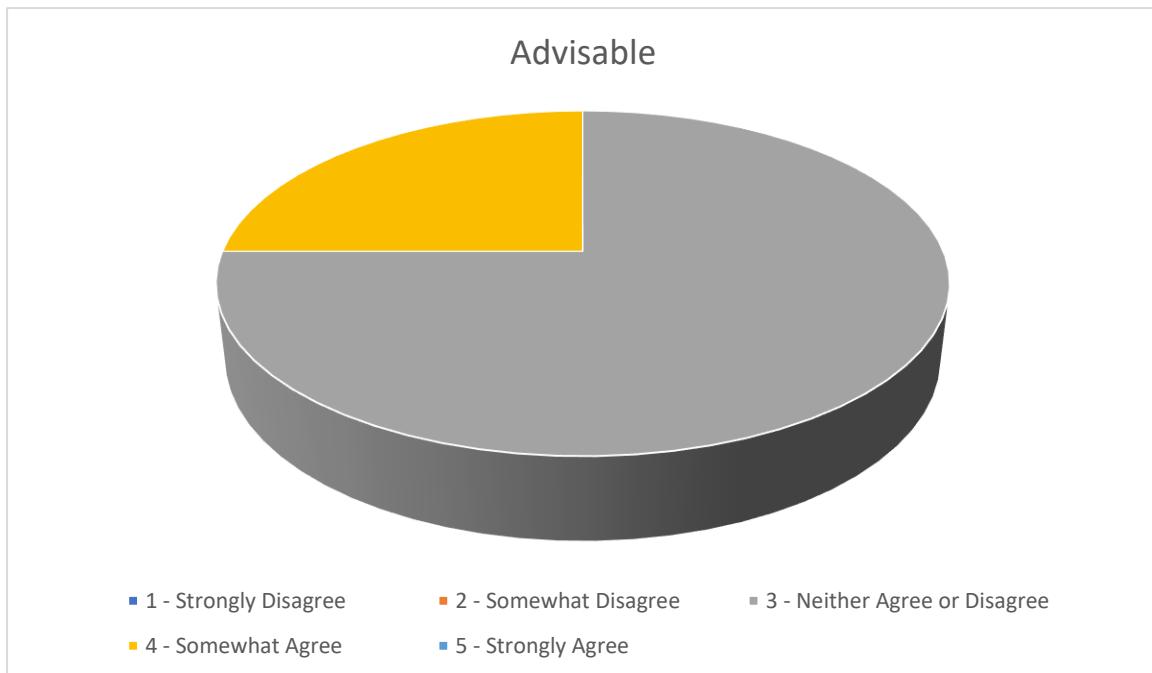
Moreover, we move onto analysing the results for good content. The graph above shows that 100% agreed that our content on the prototype was good and related. The feedback also suggested that the content we provided is complementary. We can see from this that no changes need to be for the content section of our application. As a result, we will pass this on when creating our final version of

the app. Therefore, we have agreed that no changes, unless necessary, will be done to our service request related content.

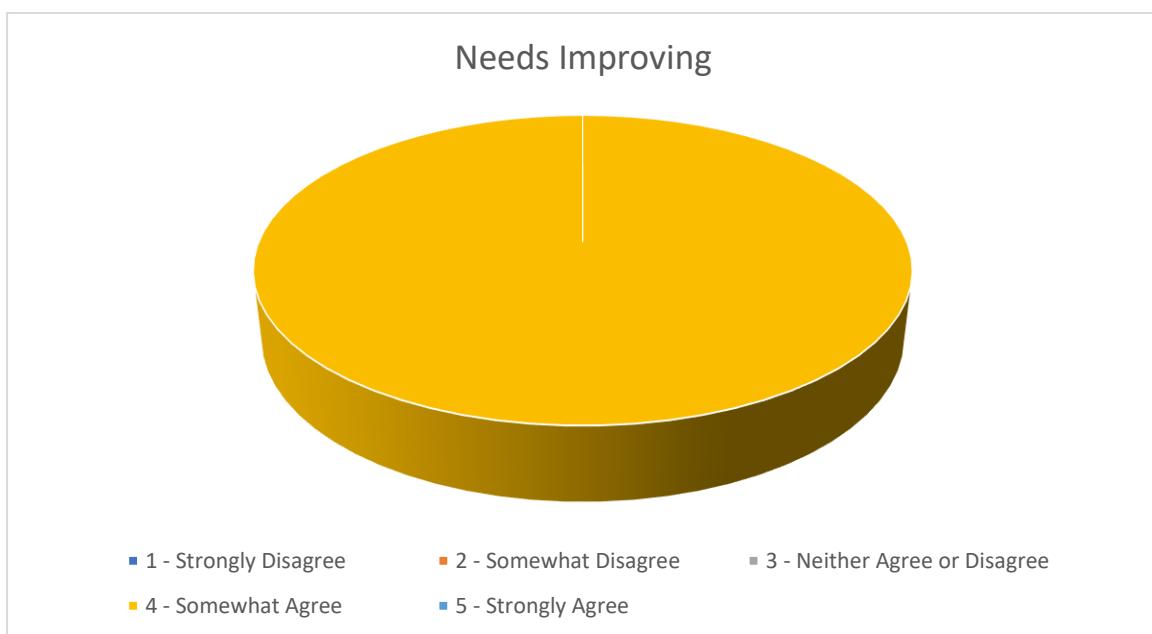
The next criterion on the list is in relation to whether our prototype version 2 is not congested. The pie chart below demonstrates how testers found our application to be quite congested. No one agreed that our prototype was not congested. As a result, we can infer that because previously the same testers agreed the app was attractive and user friendly, the factor holding them back from fulling agreeing was the fact that our home page was quite congested with content. Consequently, we will reduce the number of items on a page at a time. Therefore, this may cause our application to become easier on eye. Thus, improving accessibility and usability.



The penultimate criterion and question were regarding advisability. The pie chart quite clearly reflects that the testers are not sure whether they would recommend our application or not, based on their initial experience with our application. 75% of users neither agreed or disagreed that they would recommend our app. As a result, this shows us that we have not built something which can ultimately replace their existing methods for requesting a service. Consequently, this means we must improve and develop our current prototype and eventual application, so that it not only caters to all potential users, but also takes the place of their current processes. Also, from the open question relating to advisability, many of the testers believed they would recommend it to friends and family, however, to selected members, as they thought the prototype to be too complex for some individuals. Therefore, this section of feedback will be pivotal in achieving our target, of creating an application which is user friendly, yet effective in requesting and receiving a service.



The final criterion and question were perhaps the most significant and most important for the future and direction of our service request application. The pie diagram below shows how all testers of our prototype believed there was a need for improvement. 100 % of prototype testers somewhat agreed we had to evolve our current version. The feedback for the questions had a general similar trend amongst them. The feeling was that the prototype needs some adjustments before it can be used as the final piece. For example, an answer an individual gave was regarding the usability and accessibility and how it lacked this. This leads us to believe we can expand our research and look for ways to simplify interfaces. As a result, we can create a more inviting and easier to use application. Consequently, this will mean our subsequent users will find it more straight forward and uncomplicated than other means of service requesting e.g. Gumtree website. Therefore, based on these results and constructive criticism we can further advance our prototype.



Overall, most ultimately, we conducted this interview and feedback form in order to collect results which could either support our progress and direction or inform us where we are falling short. After analysing our results, we see how we must add (or take away) from this prototype 2 so that it becomes more accustomed to our target audience (service requester). However, we did receive some positive aspects of our, for example, the general concept of a general service request application was liked by all. This can be seen in the feedback at the end of the interviews. As a result, if we can incorporate the conditions the testers advised e.g. tutorials, easier to locate menu button and less congested pages, then we can certainly find users more willing to swap their existing service request methods to adopt ours.

Analysis for the Prototypes Interviews - Contractor

Total interviews conducted: 4

Number of interview questions: 8 (Contractor Questions)

Two prototypes

As part of our user testing, we asked the same two contractors whom of which we conducted the first interviews with to test our product. We wanted to find out whether the concept work and, if the designs that we created runs smoothly as we anticipated. We want to make the best possible design so therefore, we gave the contractor two designs and decide from there, what is the best in terms of user friendliness and aesthetics. We will take this feedback into consideration and make the final product based on the feedback to make the 'perfect user experience'. The way we conducted was different. We gave the contractor a list of what they rate each aspect of the app from user friendliness to whether the design needs improving. We first conducted the prototype 2 interview first, then after that, we conducted the prototype 1 version.

Prototype 2:

User Friendliness:

3/5 (Contractor 1)

- They were on the fence about the user friendliness. They believe that the buttons are big, so it is very good for accessibility but however, they don't like the fact that there is too much going on in the main menu.

5/5 (Contractor 2)

- They say it is very simple to use. They like the feature of finding customers through the app and, the messaging feature which allows them to talk to potential customers without meeting them face-to-face.

From this we can gather that the opinions are mixed. There is one contractor who thinks it's not as user friendly whilst the other thinks it's extremely simple to use. We need to take contractor 1's views on board and try to make it simple as possible. We will make the main menu just have the GPS as the main menu so that the user is already immersed into finding a job already. As soon as the user drags the menu up, they will see a list of buttons making it easy for the contractor as everything will look organised.

Easy to Navigate:

4/5 (Contractor 1)

- They said that the buttons are clear and big enough to navigate through the app. This means that our app is capable for people who can't see clearly as compared to others. We want to make accessibility a key feature, so a voice-command feature would make the app easy to navigate.

5/5 (Contractor 2)

- They also said it was easy to navigate and it was clear for the user to know what pages lead to what pages on the app.

The navigation side is most important element in the user experience side. This is because we want to make the user have the best possible experience when going through different pages in the app. If it is not clear, then it makes it hard and users will be put off from using the app. We also want to make the app cater for all users, therefore, we are implementing voice features, so it will be suited to visually impaired users as well.

Enjoyable:

5/5 (Contractor 1)

- They said that it was enjoyable because it would be useful for themselves. They also said that it suits both parties when it comes to finding work and jobs. They also think the GPS map makes the application feel more hands on and the animations/transitions is very cool when you are switching pages.

5/5 (Contractor 2)

- This contractor said it will be a better alternative to using websites such as checkatrade.com. They also mention it will be a brilliant platform to find customers for themselves.

We are committed to provide an enjoyable user experience so that users can use it. The reviews we got here has fulfilled that as we want to make the app to feel interactive and feel more hands on. We want to make the user feel fully immersed into finding a customer by implementing the GPS map on the menu.

Attractiveness:

5/5 (Contractor 1)

- They like the colours that I have implemented in the different pages and think the app looks contemporary and would blend in the current market of apps.

5/5 (Contractor 2)

- They also said the same as contractor 1 by saying they like the different colours in different pages and that it just generally looks visually pleasing.

We don't want to make the app look like an eyesore. We want the app to look upmarket and blend in with the contemporary feel and the brand of our application. However, looking at the reviews on the user friendliness, people would prefer if we maintained having a user-friendly look whilst having the same attractiveness. We will be discussing this with our contractors in the coming weeks as they will be part of our development team, so we can make the best possible design. We think the app design should hold the principle of 'form follows function'.

Advisable:

5/5 (Contractor 1)

- They said that they will recommend this application to their friends and family because they would need their services in the future. They also mention that they will recommend this app to their fellow workers.

5/5 (Contractor 2)

- They also said that they will recommend this application to their friends and family. They believe that it will be a great platform for customers to find workers and workers getting jobs.

We want the whole concept to work. Therefore, we want to make it so that everyone passes down the message and recommend our app to others. This will give us confidence that if we develop this to be how we vision it, then I think we can see people sending positive messages about our app.

Needs Improving:

3/5 (Contractor 1)

- Their main concern is the fact that it's not as user friendly as they expected. They believe the main menu and other pages on the app feel too congested. They think that we should simplify this and whilst keeping the same theme. They also think it is not ready to be used as a final design.

1/5 (Contractor 2)

- A completely different perspective as they said it doesn't need improving at all.

We have two different opinions once again. The contractor 1 would like to see the app redesigned so it's more user friendly whilst keeping the attractive element. We will take this feedback on board. It does correspond to what people have been saying in the service requester side so this is something we will closely working with the people we interviewed.

Concept:

We asked two extra questions about the concept. We asked will the contractor use this app once it is released and whether concept works. Both contractor's responses were that they would use the app because it enables them to enhance their experience in the field that they're working in as they don't often find jobs as easily. It also allows them to find jobs without paying large fees which helps with trying to maintain a healthy profit for their business. When asked whether the concept works, they both responded with yes. These interviews have enabled us to get a bigger picture of our app. We now know a lot more which allows us to develop one app that considers all users.

Prototype 1:

We created another prototype on Adobe XD. We considered this as prototype 1 as it was a stripped-down version in terms of the features the application had. We asked the users on their opinion of the concept that we created. We also gave them the same questionnaire format on what they rate what features of the app from 1 to 5. Here are the responses both contractors provided.

Contractor: 2 Labora	1	2	3	4	5
	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
User Friendly*					
Easy to Navigate*					
Enjoyable*					
Attractive*					
Good content					
Not Congested					
Advisable					
Needs Improving*					

Contractor: 2 Labora	1	2	3	4	5
	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
User Friendly*					
Easy to Navigate*					
Enjoyable*					
Attractive*					
Good content					
Not Congested					
Advisable					
Needs Improving*					

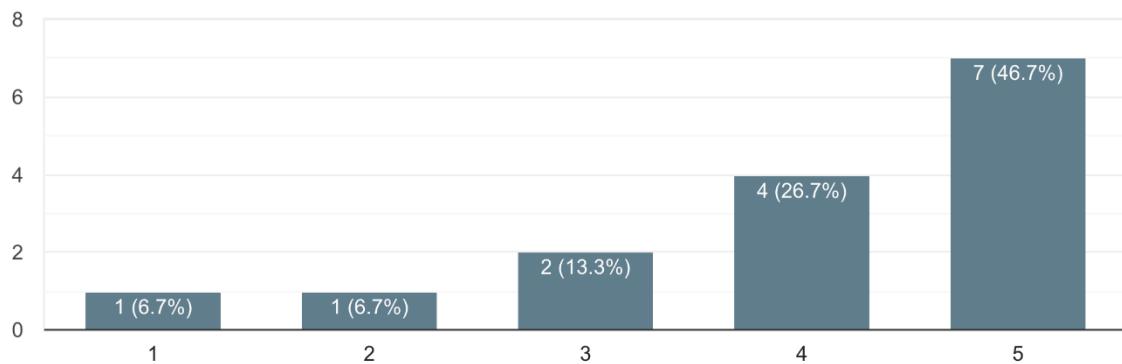
Both users' responses were largely positive. When we asked the question, one contractor had said that the designs are as good as each other. They also said it wasn't as enjoyable as compared to prototype 2. They think the GPS map feature on the main menu was a contributing feature in making the app feel more enjoyable and interactive. But nonetheless, they feel the app still has its own unique attractiveness and doesn't feel congested. On the other hand, the other contractor had said that the app feels clean and simple. They think prototype 1 is more user friendly compared to prototype 2. However, they think that if they bring the attractive element and the user-friendly element to one design, it would make for the best app in terms of user experience.

Labora Prototype 1 – Questionnaire – Analysis

After creating prototype 1 we distributed a questionnaire and received feedbacks from 15 people, who responded and allowed us to understand where our work is good and where we can improve.

Rate the User Friendliness

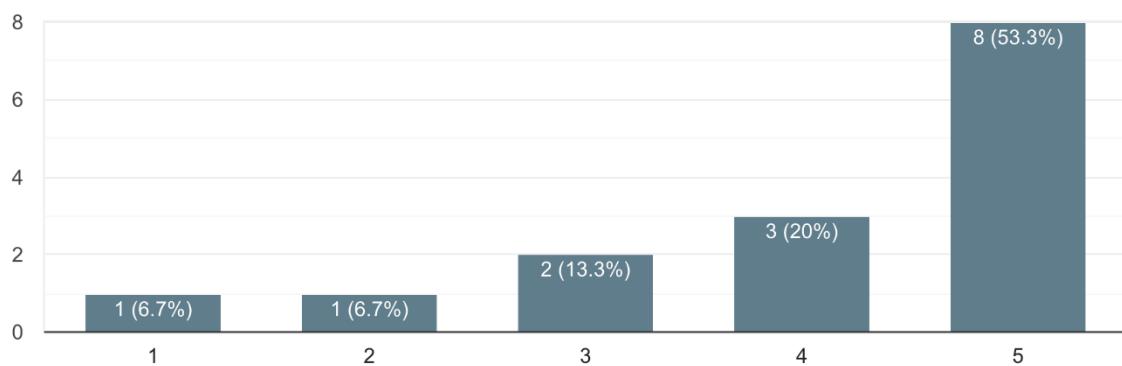
15 responses



From the answers of our interviewees, the question on user friendliness shows that they found the interface easy to understand and easy to use, 7 out of 15 people voted with maximum points, but there are also 8 other people who did not give the maximum, so we can understand from the chart that some improvements can be made.

Is it Easy to Navigate?

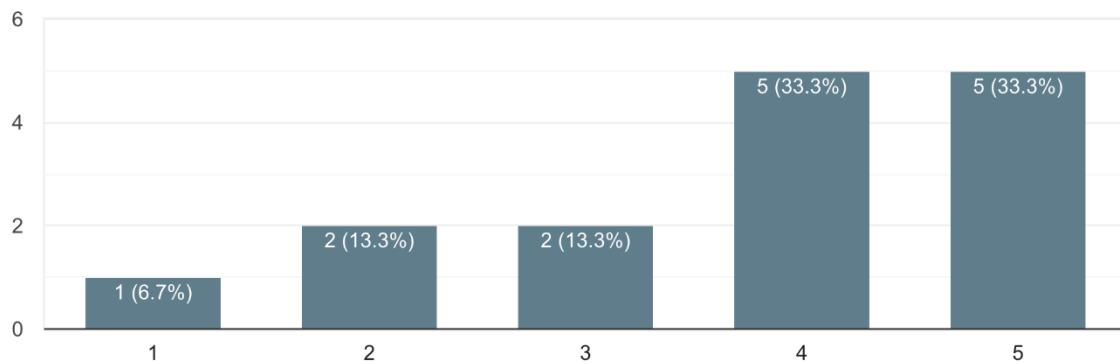
15 responses



We asked if the prototype we showed was easy to navigate, and the answer was very positive.

Is it Enjoyable?

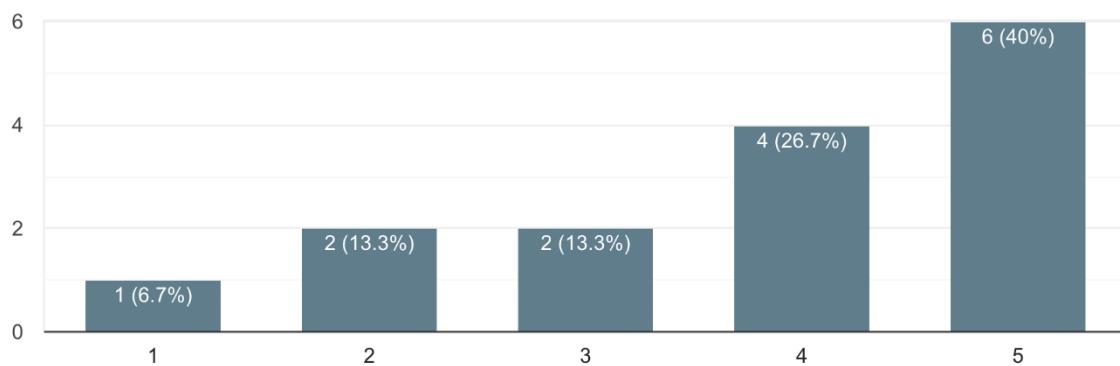
15 responses



When asked if they found the application enjoyable, the results show that the majority agreed.

Is it Attractive?

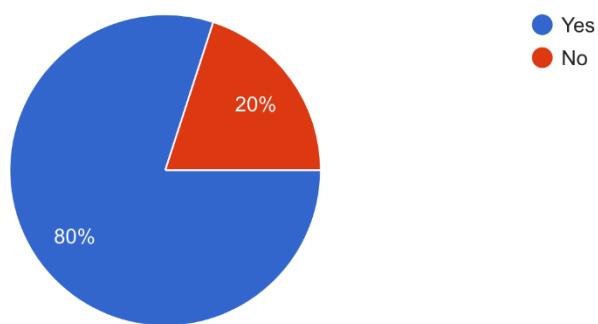
15 responses



The platform is also quite attractive for users, this is supported by the interviewee's comments in the interview questions feedback.

Is the text (font) readable?

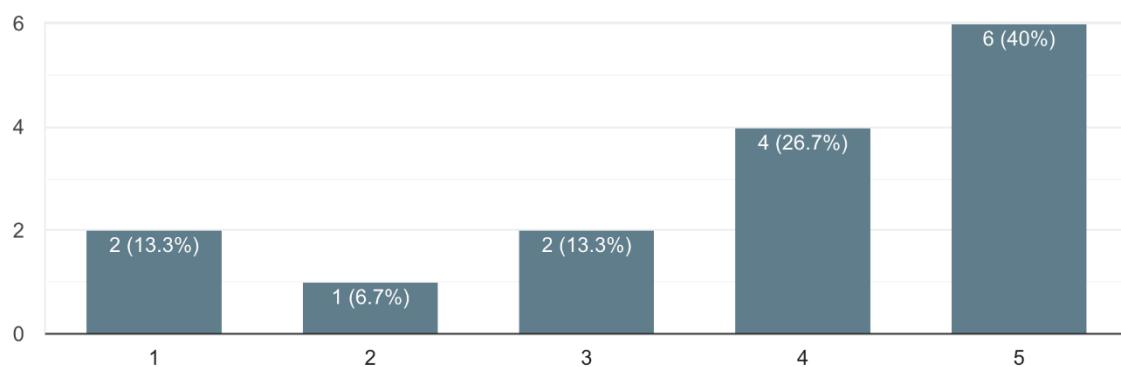
15 responses



To the answer if it is readable, 80% have confirmed 'yes', so the fonts have been chosen well.

Does it have Good Content?

15 responses

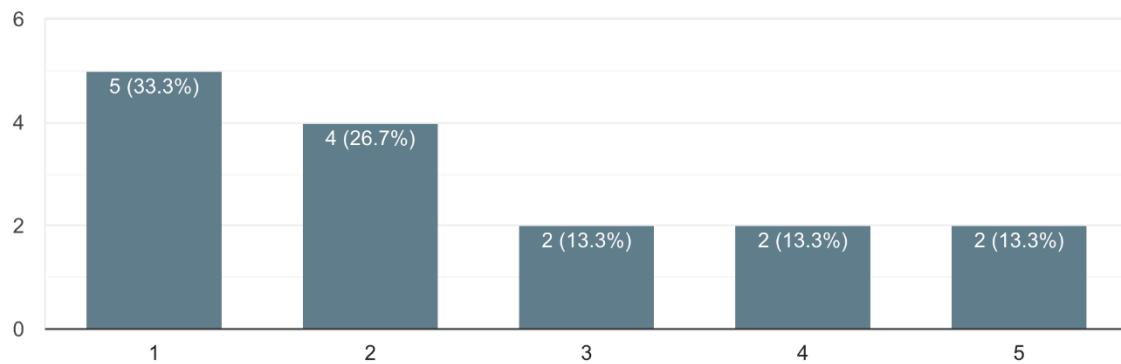


Out of 15, 5 individuals told us that there is good content, but the others' response was different, nearly 1/3 said there isn't enough content, and they advised us to add more of it.

Most likely, our interviewees would have liked to see more services and more options on the interface of our service application prototype.

Does it feel congested?

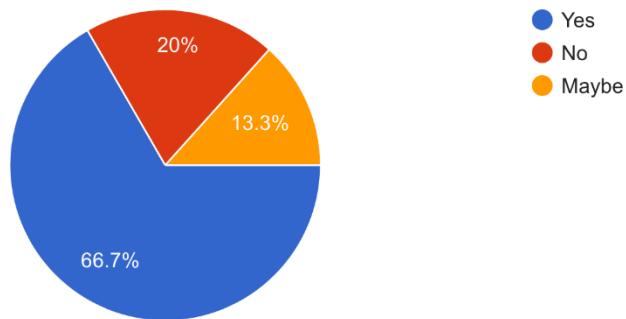
15 responses



From this graph we understand that the people who tested our prototype version 1, they found it quite uncongested, nearly 60% founds the platform simple to use and easy to navigate. Therefore, we will try to keep this simple nature present in our final version.

Would you recommend our application to other people?

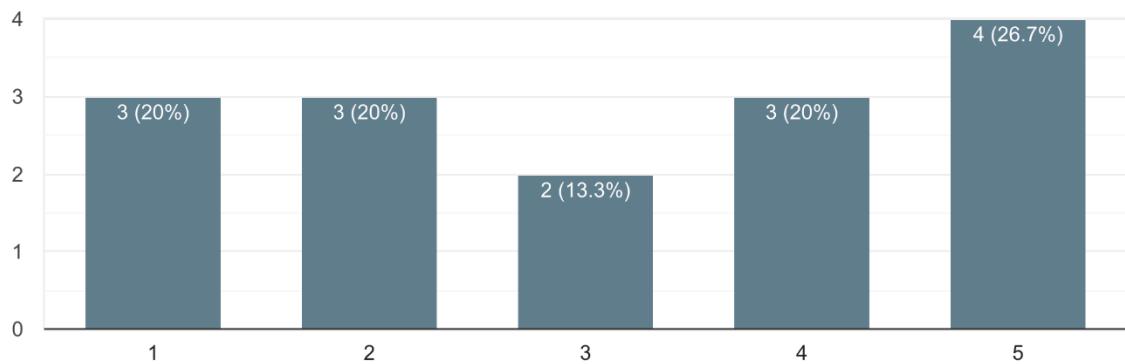
15 responses



Many would suggest our application to friends and family (66.7%), because this many people have told us they might need it. The other 20% said they will never suggest our app because there is already something similar or because they will never use it. The rest, at 13%, are in doubt.

Does it need improving?

15 responses



Our feedback to the question of whether we can improve our prototype have got various comments. Some told us that the prototype version 1 is already good, whilst others instead advise us to work harder and improve the functionality and the design.

Any suggestions on what we can improve?

3 responses

Great design! Maybe add a filter for price range on the find job page.

improve the content

you must improve navigability

Our interviewees at the end of the questionnaire gave us some tips to improve our platform, they advised us to add a search filter, for example for the price, while others told us to increase the content, while others told us to improve navigability, especially between pages.

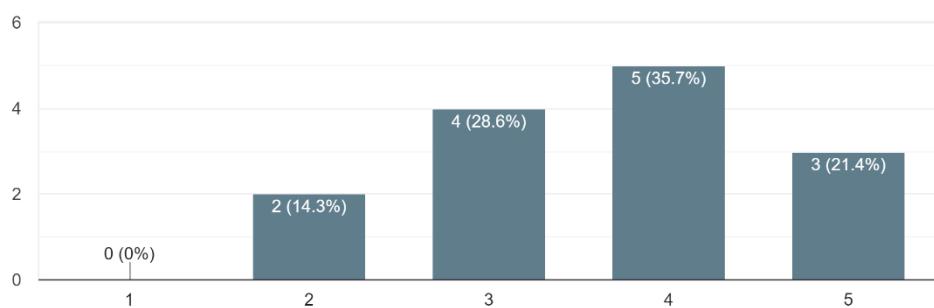
Labora Prototype 2 – Questionnaire – Analysis

We completed the prototypes. We then needed a way to test and get feedback for them. This was achieved in the form of face-to-face interviews and questionnaires, so that we can collect both quantitative and qualitative data. In this document, we will analyse the responses for the prototype 2 questionnaire.

We started off by asking how user friendly and enjoyable the service requester application prototype is, also how easy it is to navigate. The graphs for these questions can be found below:

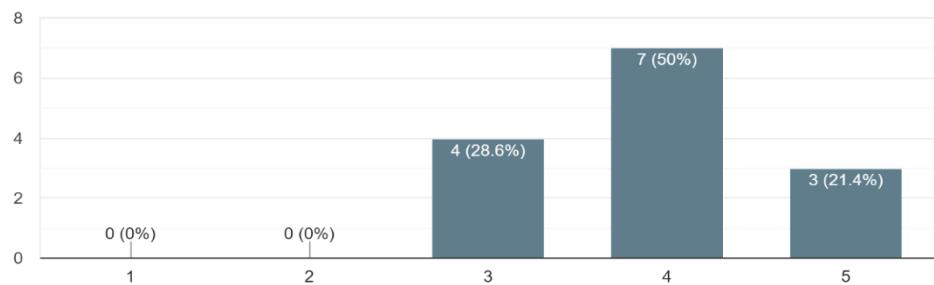
Rate the User Friendliness

14 responses



Is it Enjoyable?

14 responses

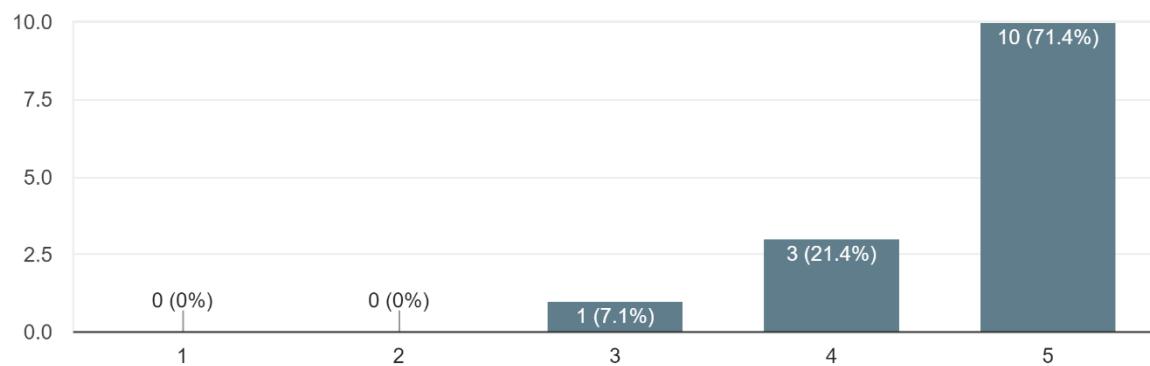


Overall, from these initial few questions we see that the app is generally quite usable. However, due to the mixed nature of the results, and how spread they are, we can infer that there are improvements to be made. For example, although majority of the responses (8) for user friendliness is rated either 4 or 5, we do find that 2 (14.3%) individuals out of the total responses, found our prototype 2 unfriendly. Similar case for navigation. Although, 7 people thought navigating the prototype was quite easy, another 7 either weren't sure or didn't find it easy. As a result, this leads us to believe that we must improve our navigation and overall user interface. Consequently, this may be vital in making sure the application is accessible. Therefore, we may ensure service requesters/contractors find our application easier and more effective to use than their current methods of service requesting/providing.

The next three questions are regarding the visual aspects of the prototype. The results for the questions are below:

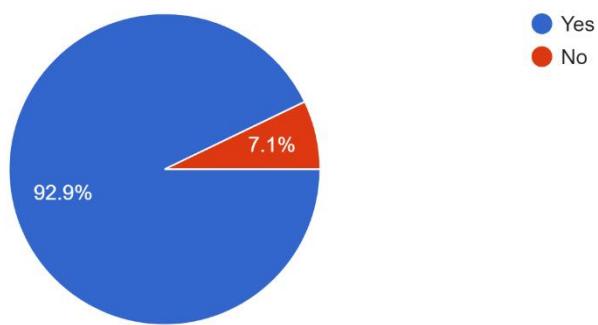
Is it Attractive?

14 responses



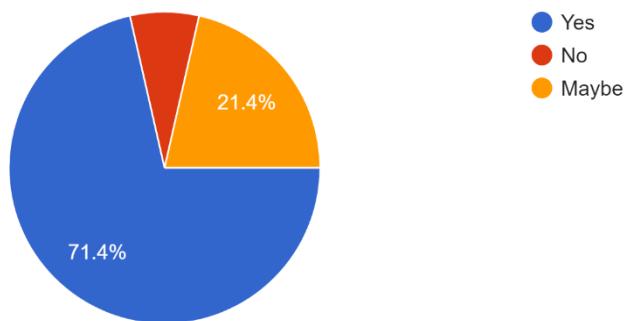
Is the text (font) readable?

14 responses



Do you like the concept of the different colour scheme in different pages?

14 responses

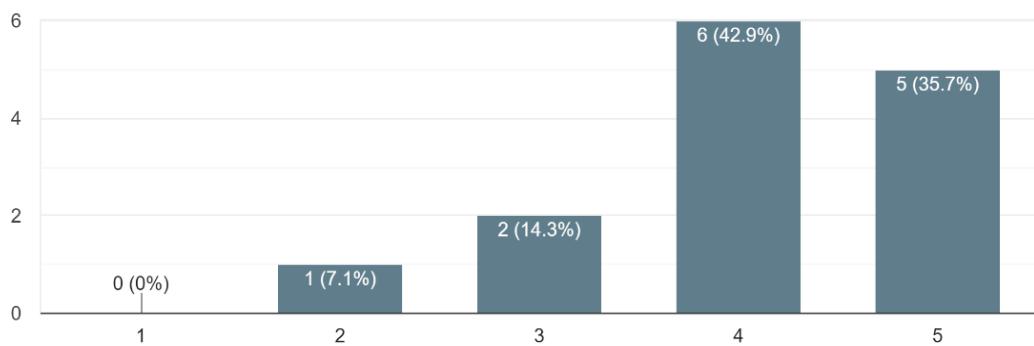


The first question asked whether the initial impressions of the prototype was attractive. 92.8% of responses agreed that this was the case. Also, no responses disagreed that it was attractive. Therefore, we agreed the display was appealing. The next question was about font, 92.9% agreed that the font was readable. We assumed this would be the case, as we did investigate which fonts were most readable and incorporated one. In addition, when developing our app, we aim to create a system where interface changes with user requirements (e.g. more font options or text-size setter). The last question was in relation to the different colour scheme used on separated pages. 71.4% of the responses said they did like this concept. As a result, this portrays to us that our display features are correct. Therefore, we can spend more time on developing other features of the app e.g. accessibility, as we believe we have been successful in fulfilling this requirement.

The next two questions are about how good the content is and how congested it feels. The bar charts for the responses are below:

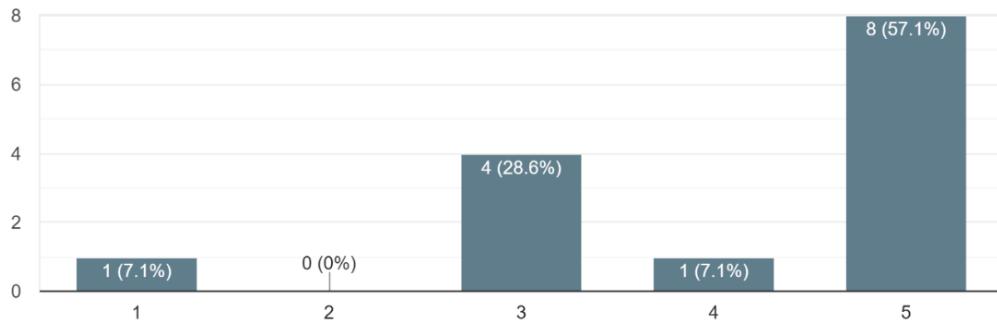
Does it have Good Content?

14 responses



Does it feel congested?

14 responses

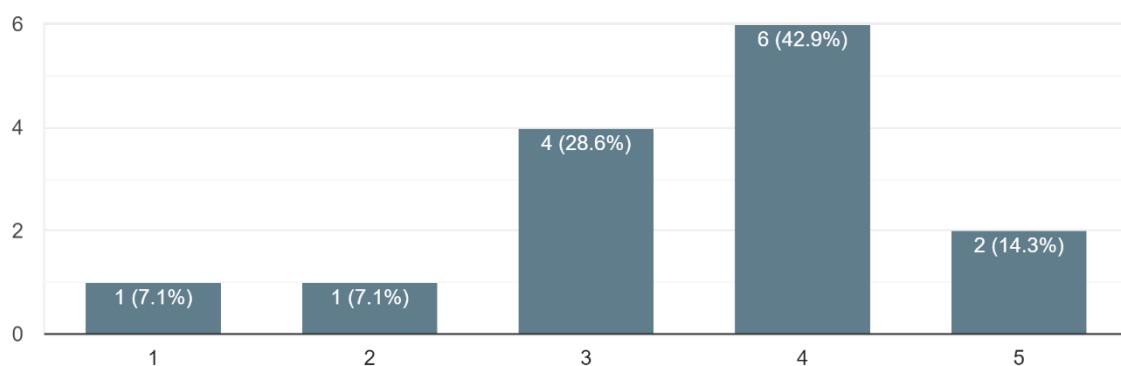


The results above do have quite a spread distribution. The question on good content had 9 people agreeing, however, 3 people were unsure and 2 didn't believe the content was 'good'. This leads us to believe our content is either very vague or quite confusing. As a result, we must ensure in our final product we include suitable, clear content directly related to either service providing or service requesting. The next question is whether the prototype pages feel congested. Most users agreed this was the case (57.1%). Although 4 users weren't sure, and 1 user disagreed, we knew we had to decrease the number of items on a single page at a time, especially the home page. We discussed and investigated how we could give users who wanted to access extra features, the chance to, and we concluded that we will make a pull up bar, like Instagram's. This means, users get the essential parts of the application presented in a clear manner, and any extra features they wish to view, can be seen if they swipe up. As a result, this reduces our issue of congestion, whilst maintaining our auxiliary features.

The final three questions were some of the most significant questions, as they let us know whether individuals would recommend our app and what we could do to advance it. Below are the results:

Does it need improving?

14 responses



Any suggestions on what we can improve?

7 responses

Accessibility

Change user interface

Improve display for visually impaired. Also, I didn't know that was a side menu when you click the icon.

Less congestion

There are too many colours on the first page, feels like too much to take in at once but the design of it is very good

I think that app does need a bit of improving. There's a lot going on. I'd appreciate it if it was simpler.

Less congestion, because it looks packed. Tutorial.

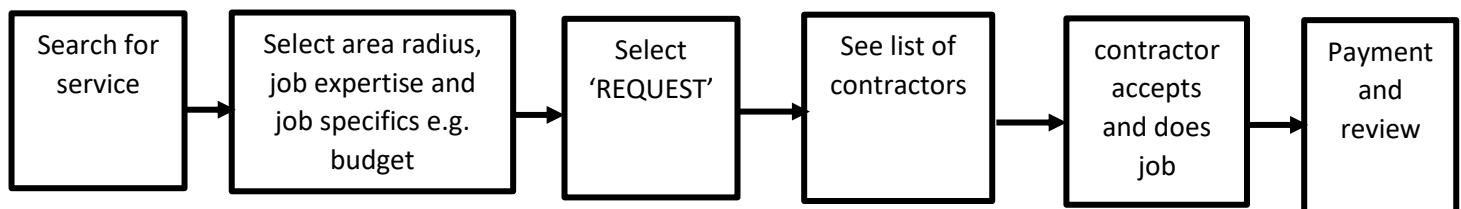
As stated above these are the most important questions, as they let us know how successful this prototype has been. Also, they show us how we can improve and progress for the final application. The first question asked the individual whether they would recommend our app, 50% said yes. However, a large proportion were unsure (42.9%). This leads us to believe we must improve with the user's feedback if we wish to increase the number of recommendations, as our current prototype is not yet a suitable replacement for service requesters/contractors. The second question is regarding whether we need to improve. Out of 14, 8 responses indicated we need improvements and the following question gave them a chance to tell us how. We received various comments. The general output we took was that the interface was not as friendly and accessible as it could be. As a result, we need to work and focus on the user interface and implement helpful new features e.g. separate display for visually impaired users. Consequently, this will allow more individuals to utilise our application. Therefore, this may increase the viability of our product and make users of our application want to substitute their existing methods for receiving/providing services.

Overall, most ultimately, we believe that the conduction of this questionnaire for our prototype 2 was essential for us to gather quantitate data. We did also receive feedback for our application, which is a bonus. As mentioned before, we have now analysed this data and along with the analysis of our prototype interviews'. We will now be confidently able to produce one final prototype which shall incorporate all changes and modifications, including user recommendations. Our target is to create an efficient and useful application which facilitates all users in our target market and completing this testing phase may allow us to do so.

Backlog

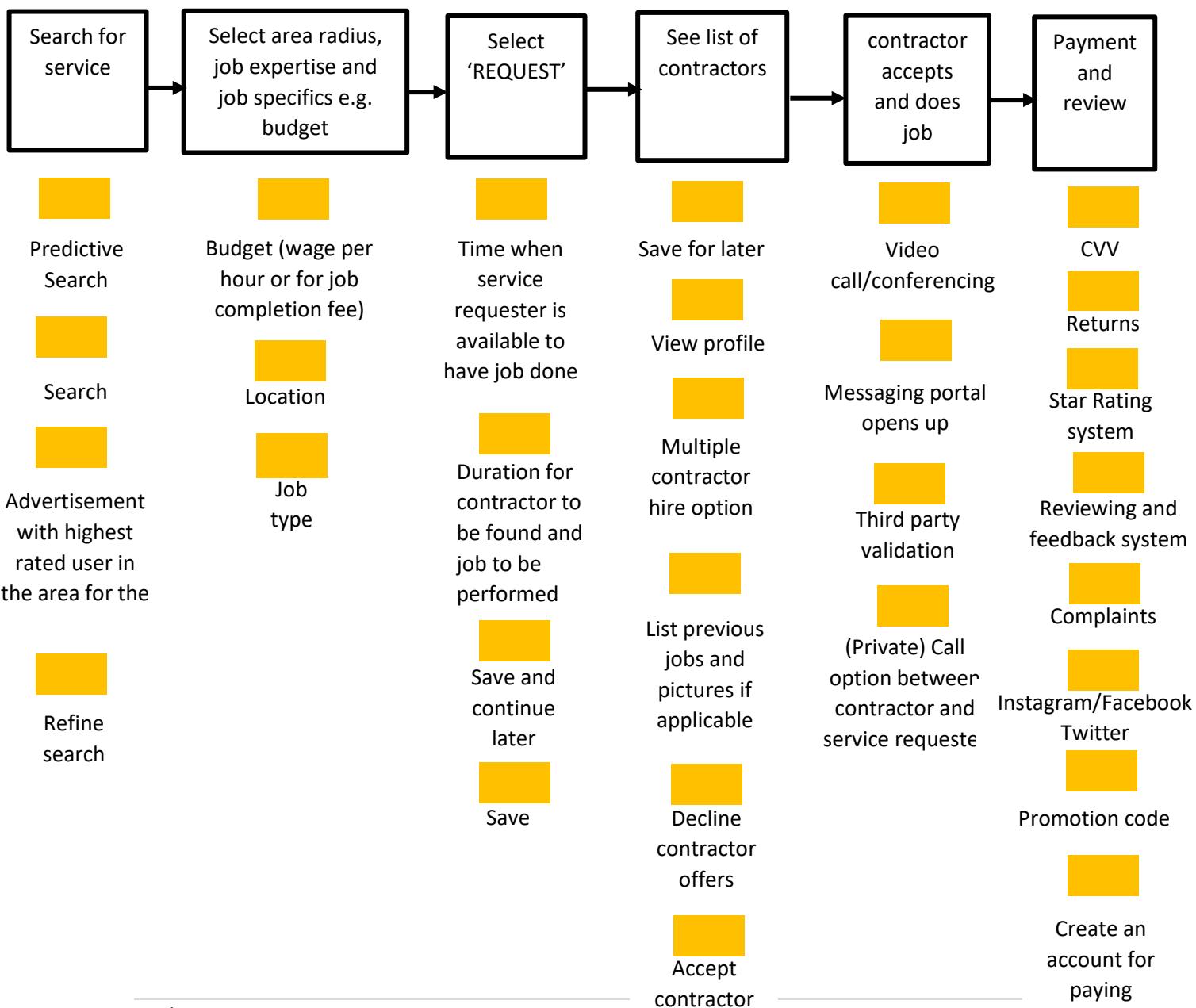
Backlog (1):

- Detail the core functionality as a work flow



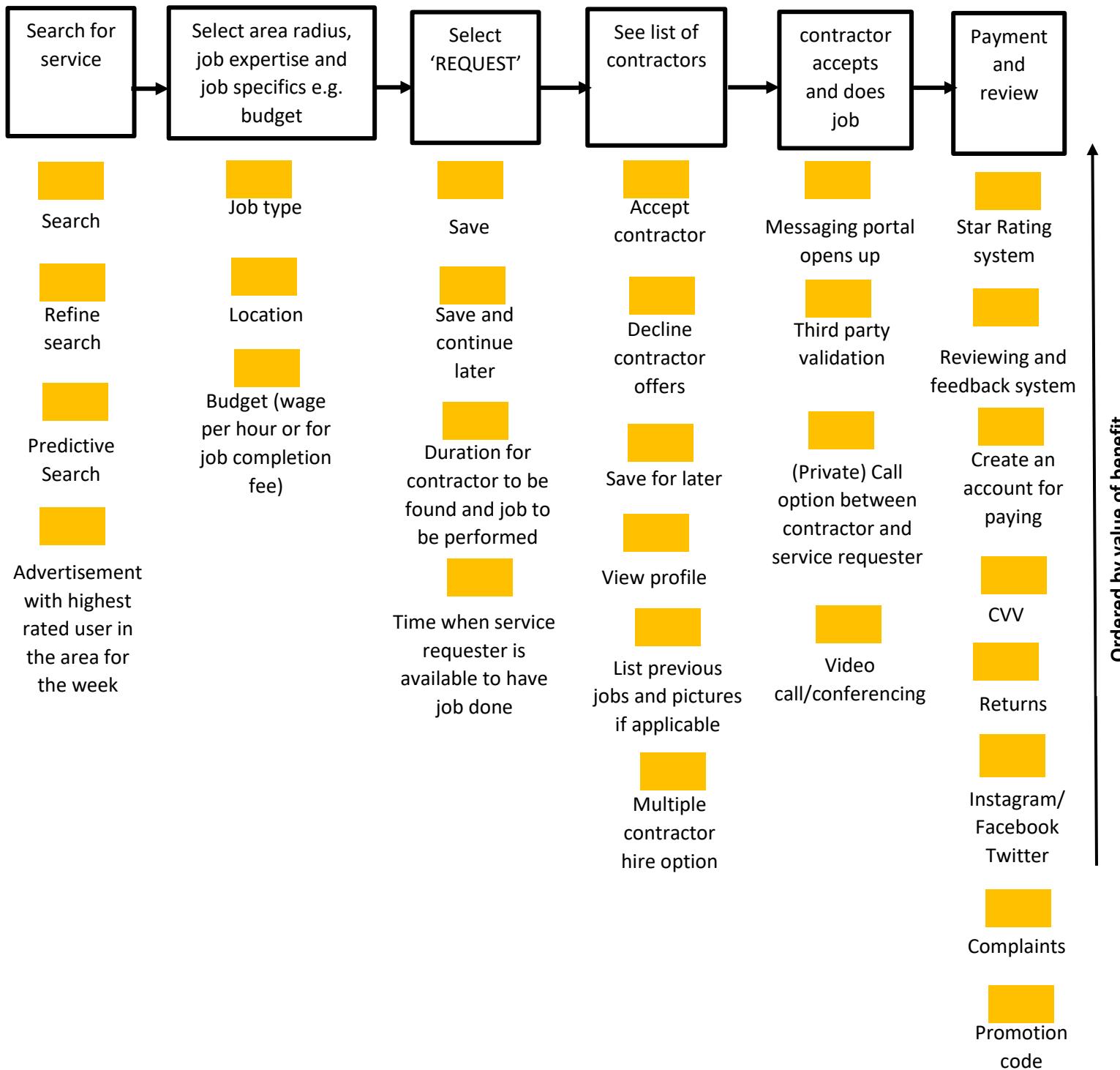
Backlog (2):

- Product Feature Group (what is done at each step)



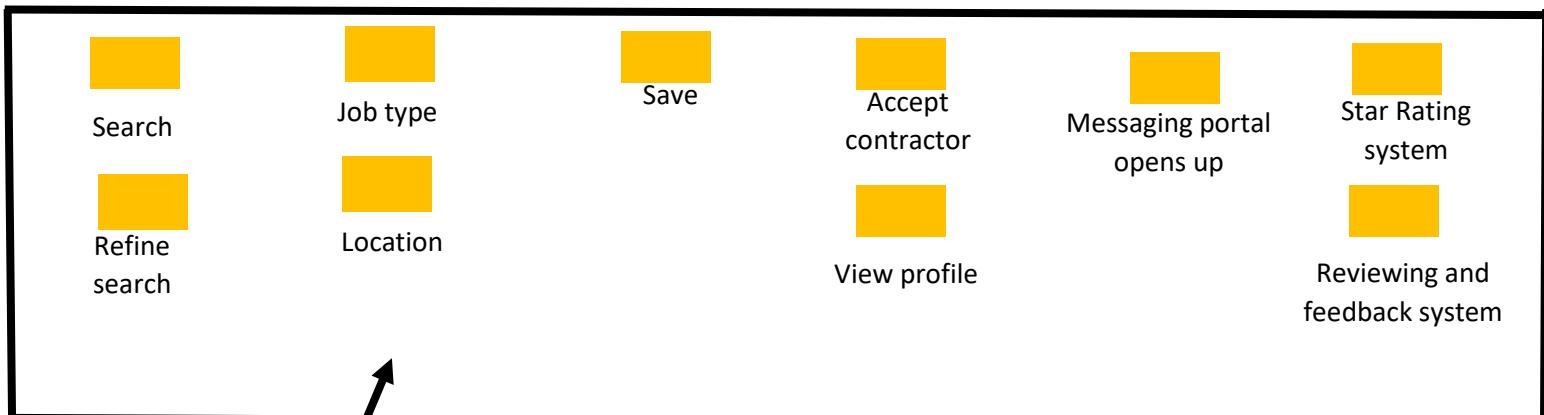
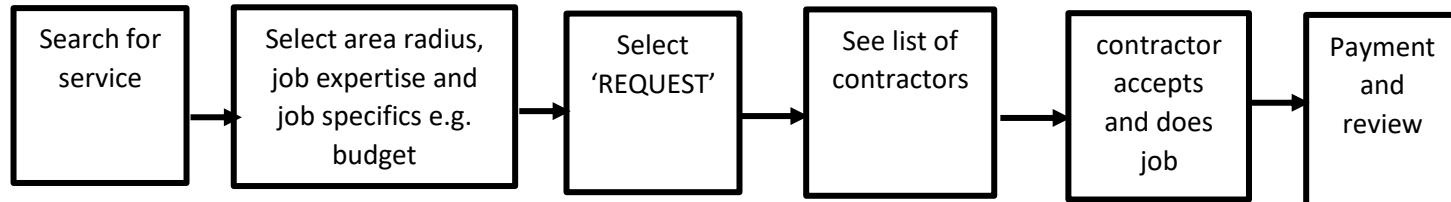
Backlog (3):

- Prioritise Features



Backlog (4):

- Identity First Delivery



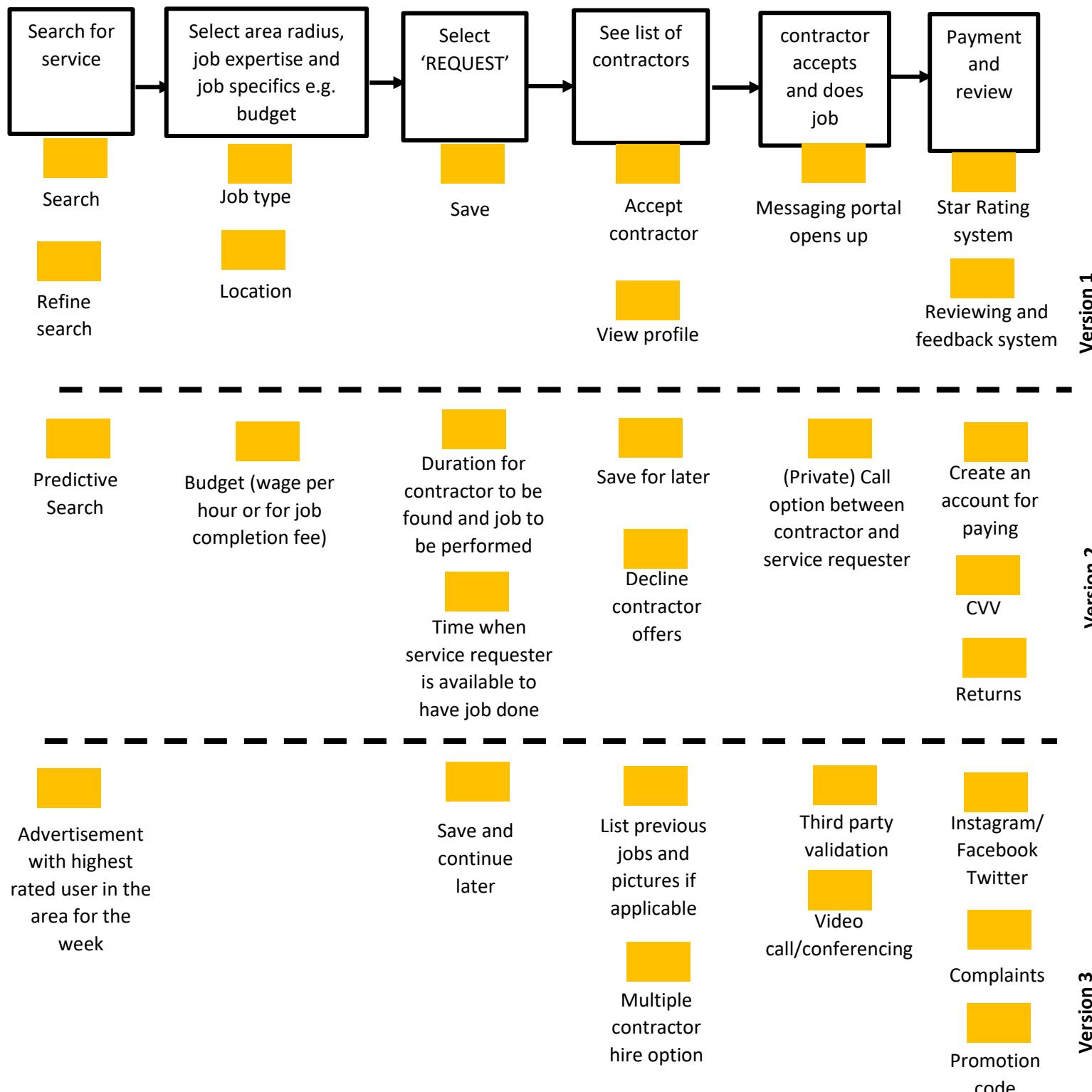
Minimum Variable Product (MVP) for our service request application

Predictive Search	Budget (wage per hour or for job completion fee)	Save and continue later	Decline contractor offers	Third party validation	Create an account for paying
Advertisement with highest rated user in the area for the week	Duration for contractor to be found and job to be performed	Save for later	(Private) Call option between contractor and service requester	CVV	Returns
	Time when service requester is available to have job done	List previous jobs and pictures if applicable	Video call/conferencing	Instagram/Facebook Twitter	Complaints

Other features we have thought to implement in our service request application

Backlog (5):

- Identify Subsequent Delivery



User Stories

Contractor (Detailed Scenario):

As an electrician (contractor), I want to find customers who require my service and find jobs, so I can make a living out of this. Jobs could include fixing their wirings or installing new electric power systems.

I will use the application as a platform to help me make money. I will firstly find potential customers via the GPS map the app provides who want my service. I will then find out more details about my potential customer and talk to them via the messaging system the application has. I will talk to them regularly and fit a schedule in which suits both parties. If the customer requirements and my requirements have been met, they will accept the job and I will meet with the customer as we planned. After the job has been executed, I will ask my customer to give me a review based upon how I have executed the job. I will also have to give a review based on how they were as a customer by giving them a rating and general feedback.

In turn, this will help me achieve a living out of this.

Service Requester (Detailed Scenario):

As a service requester, I want to find contractors to fulfil a service that I require. For example, I need to install a new sink, I would call a plumber to help me with that.

I will use the application to find workers that I require by tapping a button. I will pay them what will be owed for undertaking the service. First, I will go on the app and press the search button to find a service. Then, the search will give me a list of services and its speciality. I will click to proceed then I will have to confirm my personal information which includes my address, the description of the work they must carry out and the dates. I will click to confirm, and the details will be transferred to the contractor and from there they will have the opportunity to look at my details. Then, I would expect a message from one of the contractors and we can discuss further information regarding how they will execute the job and confirm our dates. I will also be given the opportunity to accept the job and from there, the contractor will come on the date that they promised. After the job has been executed, I will give them a review on how good their job is and upload any pictures on how well they did the job.

In turn, the result would mean that this app would help me find workers as fast as possible as compared to other websites.

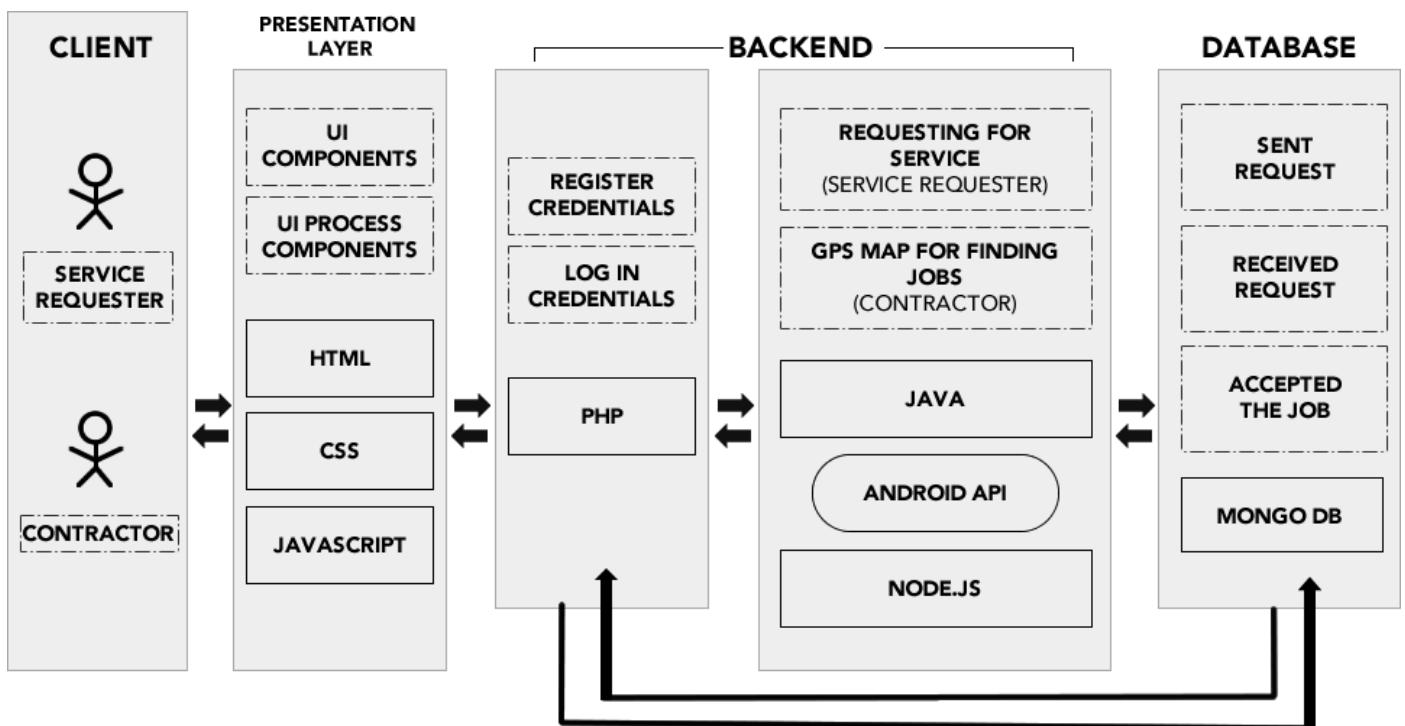
As a/an	I want to...	So that....
Service Requester	Find a Plumber	They can help me fit my sink.
Service Requester	Recommend this app to my friends and family	They can help them whatever service they need.
Service Requester	Recommend this app to people in the trade	They can use the app to make money for themselves.

Service Requester	Find a Baby Sitter	They can manage my child whilst I am away.
Service Requester	Message contractors regarding information about the job	I can get a greater insight on the details e.g. what time the contractor has confirmed, what job they will execute.
Service Requester	Add a review for the contractor	Other customers can see how well/bad they executed the job.
Service Requester	Accept the contractors job confirmation	The job is confirmed and is given to the contractor. The request will be taken off the GPS map.
Service Requester	Change address	The contractor will know where to undertake the job.
Contractor	Find a Customer	I can start earning money and making a living off it.
Contractor	Recommending the app to friends	They can use the app and make a living out of it. Also, it will help people find workers if they require it.
Contractor	Use the GPS map to find customers	I will know where the customer is based and thus, find out my travelling options when I will be working there.
Contractor	Message the customer	To inform them when they are willing to start the job and whether they fit my time schedule.
Contractor	Add review on the customer	Other contractors can get an idea on the rating of the customer.

System Requirement Specification (SRS)

Technical Architecture and Application's MVP

This document will aim to specify our technical architecture. It will be referring to our minimal viable product (MVP). After discussion amongst group members we have concluded that our MVP for the service request app will be a platform where an individual requires a service, places this request on the map, and contractors respond. The diagram below outlines our plans for the components of the application. It consists of the 3-fundamental constituents: Frontend (User interface), Backend and a Database



Frontend - (User Interface):

In order to create our front end for our service requester application, we have decided to utilise the languages HTML (Hyper-Text Mark-up Language), CSS (Cascading Style Sheets) and JS (JavaScript). There are multiple benefits of using these programming languages. For example, a specific benefit to our group, is that we have members with experience in creating user interfaces, with HTML/CSS/JS. In addition, a technical advantage is that the languages are very easy to employ. There are various resources to help in our development of the front-end user interface. For our technical architecture to meet our MVP, we will design the interface in a manner which is user friendly and facilitates accessibility.

Backend:

Furthermore, we investigated which programming language we could use to develop our backend system. We initially set out to adopt PHP (Hypertext Pre-processor). Our main reason was due to the low complexity required to learn the language, and how globally used it is. However, we then researched alternatives. We found Java libraries, more specifically Node.js, which can be used to create the actual service requesting part (backend) for our application. It is

also quite popular nowadays with company's who want to provide real-time web applications (e.g. Netflix). We will continue to apply php, for our login credentials page. The combinations of these languages will allow us to create out MVP.

Database:

The database of our application was either going to be MySQL or MongoDB. This is since these programming languages are commonly used, alongside other database management software's. After communicating our ideas within our group, we have decided to use MongoDB. This is because it is more flexible and can hold larger amounts of data than a SQL server. For our MVP, we need something that is scalable (horizontally) and dynamic. We can achieve this by programming using MongoDB.

How each component will communicate:

Whilst creating each segment of our service request application, we will need to have an idea of how they will interact with one another. We will give a basic explanation on the general case (service requester requests service, contractors respond), and how our MVP's factors cooperate concurrently.

Firstly, the frontend contains all the things that can be read, displayed or run (i.e. HTML/CSS/JS). HTML tells the browser what content it is e.g. "list", "paragraph" etc. CSS tells the browser how the elements should be displayed. JavaScript tells the browser how to react to some interactions from the user. The backend contains all aspects that run on a server, and not in the browser or on a network connected computer (e.g. the internet), that reply to other computer messages. The diagram above shows how our application will have 2 sections for the backend: Login credentials (PHP) and Service Requesting (Java/Node.js). Finally, we will require a database to keep track of all user profiles and transactions. This will be achieved through the Database Management System (DBMS) MongoDB.

The main architecture which specifies how our frontend and backend will interact is server-rendered application. HTTP request to a server rendered app. The browser then sends a HTTP request and HTML page is sent back by server. Whilst receiving/transmitting request, server queries database and places it into a template. When the page loads in the browser, HTML defines what things are, CSS displays them and JS for any interactions. The browser connects to a server. That server sends the front end to the browser. Then the front end explains how the browser should communicate with the server.

HTML is a mark-up language and therefore does not interact with anything. PHP is a sever side language which spawns HTML. This is then sent back to the browser (client). If the webserver receives a request for a page with the .php extension, the request is forwarded to the PHP generator. This then processes everything which is in between <?php> tags. Next, all this combined and put in HTML format. It is then sent back to the browser (client).

Moreover, the browser (client0 will interact with the application on the webserver. In our case, we will be using Node.js. The webserver will then communicate with the database. The JS application is executed in the individual's browser. This then sends a request to Node.js through an XML HTTP request. Node.js will then confirm and contacts MongoDB for data required to fulfil request. Node.js, once received data from MongoDB database, will utilise it and create a response. Finally, this response is sent to the client (browser).

Project Scope

Our agreed project concept and brief was to design and build Service Request and Contractor Application(s). Initial team discussions were centred around the lack of jobs for contractors/freelancers, and how difficult it is to find individuals who have an expertise in a certain field. We carried out extensive market research, and overall, we found that there was a gap in the market for our application. We found that there were a lot of specific service providing companies/individuals. In addition, we did find alternative (seemingly less efficient) methods for attaining services. These included:

- Local business directories (e.g. Thompson Local)
- Word of mouth
- Family and Friends
- Websites (e.g. Gumtree)
- Applications (e.g. NextDoor)

However, out of all these methods, none had a system where the service requester would upload a request, and contractors apply to fulfil that job. Therefore, our team agreed to start planning and developing our concept.

Our scope was prototyped and built around the idea that it would be a fully functioning mobile application, in the app/play store. Scalability should be a big part of our application, as we aim to have many users at any one point. Also, it must be accessible, as we anticipate that our stakeholders (service requesters and contractors) will have a range of technical skills. Also, it must be secure when accessing, as we will be storing sensitive data (e.g. phone number, address etc). This must all be wrapped within an application, which has a friendly interface and allows requesting of services. Furthermore, we must ensure adherence of ethical principles for the service requesting process and data we store in our databases.

We can measure how successful our project is if we are able to at the end output an application, which enables different users to either request services, or apply to do them. This application must pass user testing as well as reflect our initial stated requirements and prototyping.

Project Glossary - Definition

We created a project glossary to give us the understanding what words and phrases meant. We wanted to give these meanings in the context of the project.

Term	Explanation
Service Requester	A user who uses the app to request for services they require.
Contractor	A user who works in a specific field of service. They will have access to the GPS map.
Request a Service	The service requester will post a request through their end and it will be posted on the GPS map which the contractor will pick up.
Accept the Job (Contractor)	The contractor will accept the job so that they can communicate with the service requester via the message system.
Confirm the Job (Service Requester)	The service requester will confirm the job so that the job is finalised and all information regarding the meeting time is confirmed.
Job	The contractor will undertake jobs at the service requester's house.
GPS map	The GPS map is only exclusive to the contractor where they can find customers on there once, they requested the job.
Cancel the request	The request from the service requester can be cancelled before their job gets accepted by the contractor.
Cancel the job	The job can be cancelled but only if both parties request to cancel the job.
Message System	A method of communicating between both stakeholders.
Labora's Database	The database will hold information about the service requesters actions and the contractor's actions. (E.g. request for service, confirming jobs and GPS map information).
Search	The service requester can search for services.
Category	The service requester will have a list of categories of services they can choose from.

Requirements

ID	DETAILS	TYPE	ACTIVITY	PRIORITY
FUNCTIONAL				
RQ1	Requesters of service to advertise their service need	Functional	General	Must Have
RQ2	Have different interfaces depending on who is using the app	Functional	User Setup	Should Have
RQ3	Incorporate GPS	Functional	General	Should Have
RQ4	Contractors access local jobs (even on national level)	Functional	General	Should Have
RQ5	Service requesters have full access to profile of contractor	Functional	Security	Must Have
RQ6	Area for contractors to upload work experience and qualifications	Functional	Login	Should have
RQ7	Transactions corrections, adjustments and cancellations	Functional	Payment	Should Have
RQ8	Reporting (Feedback)	Functional	Feedback	Must Have
RQ9	Legal/Regulatory	Functional	Legal	Must Have
RQ10	Authentication	Functional	Security	Should Have
NON-FUNCTIONAL				
RQ11	Service requester must have location hidden until agreement reached	Non-Functional	Security	Must have
RQ12	App must be easy to use (simple)	Non-Functional	User Setup	Must Have
RQ13	Host 1000's of users at a time	Non-Functional	General	Must Have
RQ14	Login area (email and password)	Non-Functional	Security	Must Have
RQ15	Ability to enlarge information for visually impaired users	Non-Functional	Accessibility	Should Have
RQ16	Tutorial when app downloaded	Non-Functional	User Setup	Could Have
RQ17	Performance (e.g. response time not exceed 2 seconds)	Non-Functional	General	Should Have
RQ18	Easily testability	Non-Functional	General	Must Have
RQ19	Service must be available 24/7	Non-Functional	General	Should Have
RQ20	Throughput of system is 100 search transactions per second	Non-Functional	Performance	Should Have

Use Case

A use case listing was created for both users which helped us to identify all the activities that will take place when the users use the application.

USE CASE ID	USE CASE NAME
UC1	LogInToSystem
UC2	SearchForService
UC3	ConfirmRequest
UC4	RequestSent
UC5	CancelRequest
UC6	FindCustomersGPS
UC7	ContractorHandlesRequest
UC8	AcceptContractor
UC9	Communication
UC10	JobConfirmed
UC11	EmailConfirmation
UC12	UpdatedToDatabase
UC13	JobExecuted
UC14	ReviewJob

Use Case Specifications

USE CASE	LogInToSystem
ID	UC1
BRIEF DESCRIPTION	The users attempt to log into the application
PRIMARY ACTORS	Service Requester, Contractor
SECONDARY ACTORS	None
MAIN FLOWS	<ol style="list-style-type: none">1) The user enters username and password2) The system checks the details if the information is correct3) The system validates if it's the contractor or the service requester log in details.4) The system matches and allows access to the application.5) The user will be introduced to the main menu
ALTERNATIVE FLOWS	InvalidLogin

USE CASE	LogInToSystem:InvalidLogin
ID	UC1.1
BRIEF DESCRIPTION	The system doesn't allow the user access as login details are not correct
PRIMARY ACTORS	System
SECONDARY ACTORS	Service Requester, Contractor
MAIN FLOWS	<ul style="list-style-type: none"> 1) The user enters username and password 2) The system checks the details if the information is correct 3) The system matches, and it is the incorrect information 4) The user will be allowed to retry 5) The system will only allow 5 tries before it locks the user out
ALTERNATIVE FLOWS	None

USE CASE	SearchForService
ID	UC2
BRIEF DESCRIPTION	The service requester searches for a service
PRIMARY ACTORS	Service Requester
SECONDARY ACTORS	None
MAIN FLOWS	<ul style="list-style-type: none"> 1) The user will go on the search bar and find potential services 2) The user will be directed to a list of services 3) They have to choose one service and its speciality the contractor undertakes.
ALTERNATIVE FLOWS	None

USE CASE	ConfirmRequest
ID	UC3
BRIEF DESCRIPTION	The service requester confirms the request
PRIMARY ACTORS	Service Requester

SECONDARY ACTORS	None
MAIN FLOWS	<ul style="list-style-type: none"> 1) The system will confirm to the user if the information is correct. 2) The service requester will go through the information and check. 3) The service requester will press the confirm button.
ALTERNATIVE FLOWS	None

USE CASE	RequestSent
ID	UC4
BRIEF DESCRIPTION	The system sends the request
PRIMARY ACTORS	System
SECONDARY ACTORS	Service Requester
MAIN FLOWS	<ul style="list-style-type: none"> 1) The service requester presses the confirm button 2) The system will send the request to the contractor and will appear on their GPS map
ALTERNATIVE FLOWS	None

USE CASE	CancelRequest
ID	UC5
BRIEF DESCRIPTION	The user cancels the request
PRIMARY ACTORS	Service Requester, System
SECONDARY ACTORS	Contractor
MAIN FLOWS	<ul style="list-style-type: none"> 1) The service requester cancels the request before the contractor has accepted the job 2) The system acknowledges this and cancels the request. It will be taken out of the GPS map
ALTERNATIVE FLOWS	None

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USE CASE	FindCustomersGPS
ID	UC6
BRIEF DESCRIPTION	The contractor finds the customer on the GPS
PRIMARY ACTORS	Contractor
SECONDARY ACTORS	Service Requester, System
MAIN FLOWS	<ul style="list-style-type: none"> 1) The contractor will use the GPS map on their main menu to find potential customers 2) They will press on the waypoint button where it will give details on the customer's information 3) Contractor will handle request from there
ALTERNATIVE FLOWS	None

USE CASE	ContractorHandlesRequest
ID	UC7
BRIEF DESCRIPTION	The contractor will handle the request by accepting or rejected
PRIMARY ACTORS	Service Requester, Contractor
SECONDARY ACTORS	System
MAIN FLOWS	<ul style="list-style-type: none"> 1) The service requester will be expected for a response from one of the contractors 2) The contractor will accept the job 3) The system will acknowledge this and allow access for the contractor to send messages. 4) The system notifies the service requester.
ALTERNATIVE FLOWS	CReject

USE CASE	ContractorHandlesRequest:CReject
ID	UC7.1
BRIEF DESCRIPTION	The contractor will reject the service requester's request.
PRIMARY ACTORS	Service Requester, Contractor

SECONDARY ACTORS	System
MAIN FLOWS	<ul style="list-style-type: none"> 1) The service requester will be expected for a response from one of the contractors 2) The contractor will reject the job 3) The system will acknowledge this and remove the pinpoint out of their own GPS map
ALTERNATIVE FLOWS	ContractorReject

USE CASE	AcceptContractor
ID	UC8
BRIEF DESCRIPTION	The service requester accepts the contractor's request to communicate with them
PRIMARY ACTORS	Service Requester
SECONDARY ACTORS	Contractor, System
MAIN FLOWS	<ul style="list-style-type: none"> 1) The service requester will get a notification that a contractor has accepted their request and would like to message them 2) The service requester will accept 3) The system acknowledges this and allows the contractor to talk to the user
ALTERNATIVE FLOWS	rejectContractor

USE CASE	AcceptContractor:rejectContractor
ID	UC8.1
BRIEF DESCRIPTION	The service requester rejects the contractor's request to communicate with them
PRIMARY ACTORS	Service Requester
SECONDARY ACTORS	Contractor, System
MAIN FLOWS	<ul style="list-style-type: none"> 1) The service requester will get a notification that a contractor has accepted their request and would like to message them 2) The service requester will reject

	<p>3) The system acknowledges this and won't allow the contractor to message the user.</p> <p>4) The system will notify the contractor.</p>
ALTERNATIVE FLOWS	None

USE CASE	Communication
ID	UC9
BRIEF DESCRIPTION	The service requester and the contractor will communicate through the messaging service the app has
PRIMARY ACTORS	Service Requester, Contractor
SECONDARY ACTORS	System
MAIN FLOWS	<p>1) If the service requester has accepted, they can communicate on the app to discuss the pricing information and when to start</p>
ALTERNATIVE FLOWS	None

USE CASE	JobConfirm
ID	UC10
BRIEF DESCRIPTION	The service requester confirms the job
PRIMARY ACTORS	Service Requester
SECONDARY ACTORS	System, Contractor
MAIN FLOWS	<p>1) The service requester will proceed to confirm whether they want the contractor to undertake the job or not.</p> <p>2) They confirm, and the contractor will have the job secured.</p> <p>3) The system will update this on the database that a job has been confirmed</p>
ALTERNATIVE FLOWS	JobReject

USE CASE	JobConfirm:JobReject
ID	UC10.1

BRIEF DESCRIPTION	The service requester rejects the job
PRIMARY ACTORS	Service Requester
SECONDARY ACTORS	System, Contractor
MAIN FLOWS	<ul style="list-style-type: none"> 1) The service requester will proceed to confirm whether they want the contractor to undertake the job or not. 2) They reject, and the contractor will be notified via the system that the service requester did not want to go further 3) Contractor has to find another customer
ALTERNATIVE FLOWS	None

USE CASE	EmailConfirmation
ID	UC11
BRIEF DESCRIPTION	The service requester and the contractor will get an email confirmation
PRIMARY ACTORS	System
SECONDARY ACTORS	Service Requester, Contractor
MAIN FLOWS	<ul style="list-style-type: none"> 1) The system will confirm the details by sending an email to both service requester and contractor.
ALTERNATIVE FLOWS	None

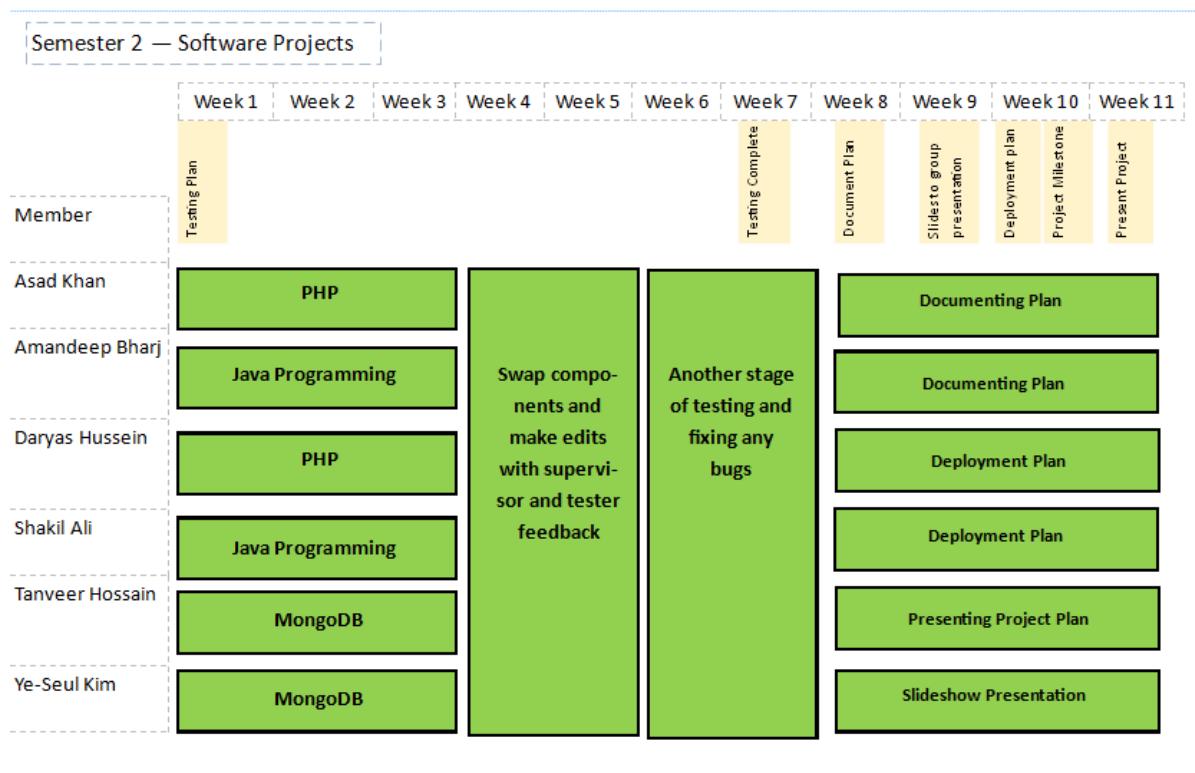
USE CASE	UpdatedToDatabase
ID	UC12
BRIEF DESCRIPTION	The information that has been confirmed will be updated to the database
PRIMARY ACTORS	System
SECONDARY ACTORS	Service Requester, Contractor
MAIN FLOWS	<ul style="list-style-type: none"> 1) The system will update the database regularly once both the service requester and contractor have confirmed the job

ALTERNATIVE FLOWS	None

USE CASE	JobExecuted
ID	UC13
BRIEF DESCRIPTION	The contractor will execute the job at the service requester's house
PRIMARY ACTORS	Service Requester, Contractor
SECONDARY ACTORS	None
MAIN FLOWS	<ul style="list-style-type: none"> 1) The contractor will start undertaking the job at the service requester's house 2) The contractor will be paid depending on how the service requester made the payment plan (e.g. weekly or daily) 3) The service requester's service is fulfilled
ALTERNATIVE FLOWS	None

USE CASE	ReviewJob
ID	UC14
BRIEF DESCRIPTION	Both contractor and service requester will review each other
PRIMARY ACTORS	Service Requester, Contractor
SECONDARY ACTORS	System
MAIN FLOWS	<ul style="list-style-type: none"> 1) Once the job has been executed, the service requester has to review the contractor's job. They will give a rating and comment on how they executed the job. They will also upload images. 2) The contractor can give a review to tell other contractors how they're as customers.
ALTERNATIVE FLOWS	None

Gantt Chart Plan for Next Term



Evaluation Plan Extra

For example, we can test the user interface by checking whether it is like our chosen prototype visually. We can then test the interactions by clicking on buttons/elements on the application page. We can do the same for the backend by doing Unit Testing which is individual code components will be tested to ensure it is working the way it is supposed to. We can use frameworks such as JUnit for Java, and for MongoDB and Node.js, we would use a module called mongo-unit.

For the PHP programmed login section, we can attempt to sign in, and see if we are successful. In addition, for the service requesting section (Java/Node.js), we will have to try and request a service, and see if the server is fully functioning. Lastly, for the MongoDB based database, we will need to ensure that it is dynamic and automatically adds new profiles/data. We are creating our MVP; therefore, we need to assurance that a user can login, request a service, and have a contractor apply to do the job. Once we are at the end stage of development we will need to assess if all aspects of the application can interact together whilst still operating autonomously. This will be approved by a series of test cases. Tests cases include signing up and not requesting a service, signing up and requesting a service, removing a request etc. On top of that, we will need to check if the information the user provided is recorded as a collection in our MongoDB database. If our application does not pass these preliminary tests, we will evaluate the specific areas and improve. We expect to test with real users in the end to during our final testing phase ensure everything works.