ROBERT GORDON UNIVERSITY

# CM4110 – Human Computer Interaction

## Coursework Part 1

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This document contains the introduction, user profiling and the conceptual design tasks of the coursework part 1 for the module called CM4110 Human Computer Interaction.

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# 1. Introduction

## 1.1 Market Research

The term "Market Research" refers to the process of gathering data about businesses or persons present on a specific market and then attempt to analyse and filter the data collected in order to have more knowledge about the needs of a specific group of people. The result of the Market Research process it is most commonly transformed in the form of a report containing a series of interpretations or conclusions related to the needs of the group of people investigated, this interpretations or conclusions will help companies' owners to make more informed decisions related to the company's actions, strategies and the customer base. The core or the value of the Market Research process is the fact that it helps understanding the changes related to the industry direction, customer preferences, customer changing needs and last but not the least current legal requirements. Beside the elements mentioned previously, the Market Research process can also shape the direction of the company as it will provide help in choosing a focus point for the use of resources and human efforts. The elements mentioned above will allow a company to run more efficiently and market way more effectively, but to perform a proper Market Research the separation of the data collected must be done in two categories of data which are called "Primary Market Research Data" and "Secondary Market Research Data".

### 1.1.1 Primary Market Research Data

The data resulted from the Primary Market Research refers to the information gathered first-handed by the designer or the person entitled to perform this task, most commonly as an interview and sometimes with the help of the market research company in cause, this giving complete control to the designer over the data collected.

Examples of Primary Market Research Approaches:

- Surveys – Gathering Data from customers by asking questions related to a product's features,
- One-on-One Interviews – Gathering Data from individuals by asking questions related to their preferences related to a specific product.

### 1.1.2 Secondary Market Research Data

The data resulted from the Secondary Market Research refers to the information gathered from pre-existing public sources such as data present in newspapers, industry reports, government reports, magazines and websites.

Examples of Secondary Market Research Sources:

- Informative Websites,
- Competitor Websites, Materials, Products and Services,

The COVID-19 application will be created using the Market Research technique by using the Secondary Market Research Data as this data can be gathered in a convenient manner due to the time-consuming sessions that could occur in Primary Market Research Data from the physical presence requirement. Then the Secondary Market Research Data will be followed by a PACT (People, Activities, Context, Technologies) Analysis to complement the data.

### 1.1.3 Informative Websites

Website Name: Science News (sciencenews.com)

Article Name: What will life be after the coronavirus pandemic ends?

In the post coronavirus pandemic world, a series of dramatic events could arise, these dramatic events could be a rise in the extra activities and collective gatherings post pandemic, some examples being the sports events and live music concerts (Nichols 2020). According to Nichols (2020) a Historian from the Oregon State University, during the year of 1920 it was noticed a significant increase in the extra activities and collective gatherings in multiple societies after the effects caused by the 1918 influenza and World War I events have started to fade away. Some precise examples of a sports that have expanded in Europe during that period of time would the professional soccer and the professional baseball in United States of America (Nichols 2020). This being said, after the analysis of a similar situation from the past related to a relevant pandemic, a potential feature for the application that would be created for the post pandemic world would be to have some relevant information related the upcoming live music concerts and upcoming sports like soccer as this sport may present more interest to the people in the United Kingdom.

The COVID-19 pandemic has shown that there is much potential for the education sector to be assisted by the online environment but not entirely as some parts of the education sector require physical contact for a smooth activity and good results, for this reason students and parents would most likely require some kind of information about the campus activity in a post pandemic world (Small 2020). It is safe to say that a potential feature for the application that will created for the post pandemic world or at least for United Kingdom would be to have a feature which will provide relevant information for students and parents about the campus activity and the online courses.

According to Hirschfeld (2020) a Medical Anthropologist from the University of Oklahoma even with the creation of the COVID-19 the social environment will still support new diseases outbreaks and for this reason there should be no assumptions or insinuations that there would be a world where no pandemics will ever emerge. It is safe to say that a potential feature for the application that will be created for a post pandemic world it should be an informative feature related to the latest medical problems that emerge.

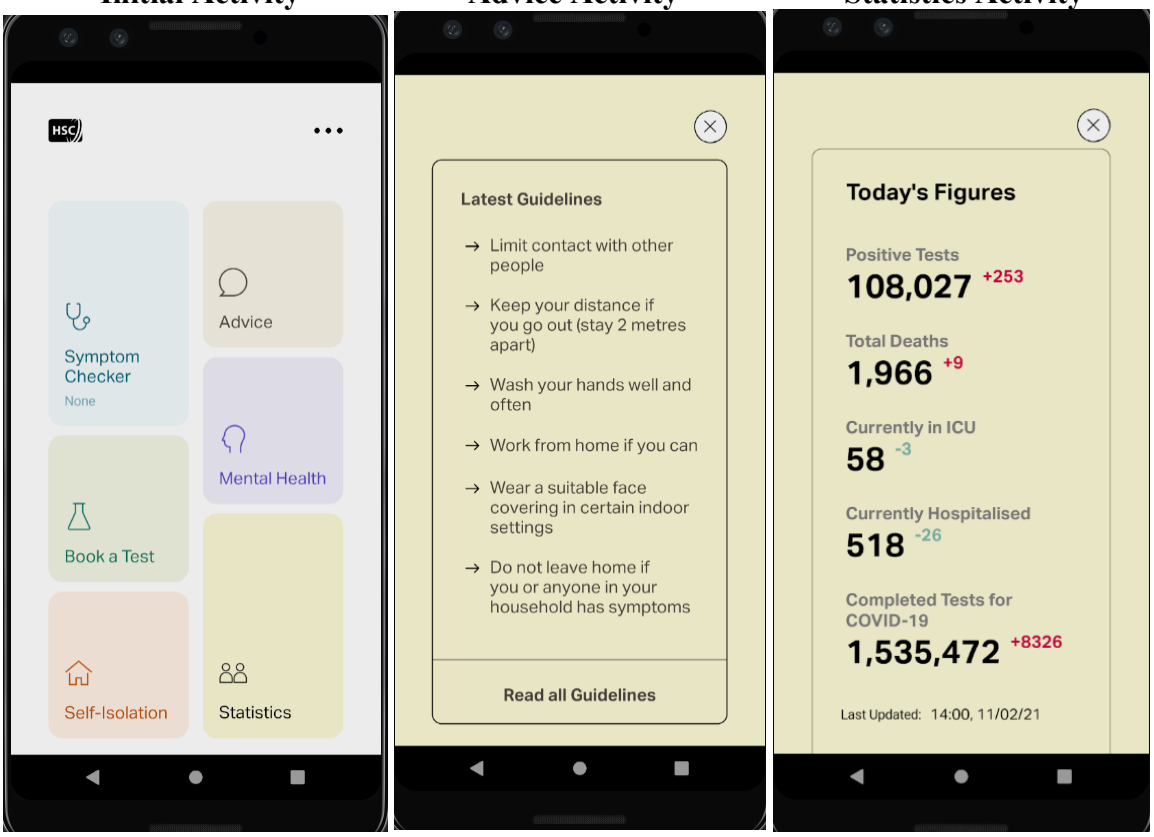
According to Mueller (2020) a Sociologist from Indiana University Bloomington, due to the COVID-19 pandemic a significant number of families have lost jobs and this event has led to an increase in young people who had to experience deprivation, traumatic stress and poverty. It safe to say that a potential feature for the application that will be created would be a mental health assistance feature.

According to Barry (2020) a Historian from Tulane University, if the COVID-19 vaccines will be very effective on contracting the pandemic and if the immunity created with the help of these vaccines will last a relevant period of time the obvious changes would be on elements such as more work from home. On the other hand, if the pandemic will not contract enough, there will be a significant effect on the way people live, work, on the commercial estate sector, the housing market and there will be an increase in the demand of automobiles, as cars will increase and the mass transit methods will decrease (Barry 2020). It is safe to say that the application that will be created for the post pandemic world should contain a feature that will inform when the mass transit will be safe in order to ensure a safe return to the normal way of working, this being going to the workplace and not working from home.

### 1.1.3 Similar Products

Competitor Name: HSC
Product: Mobile Application
Aim: Distribution of COVID-19 Information, Guidelines and Statistics in Northern Ireland

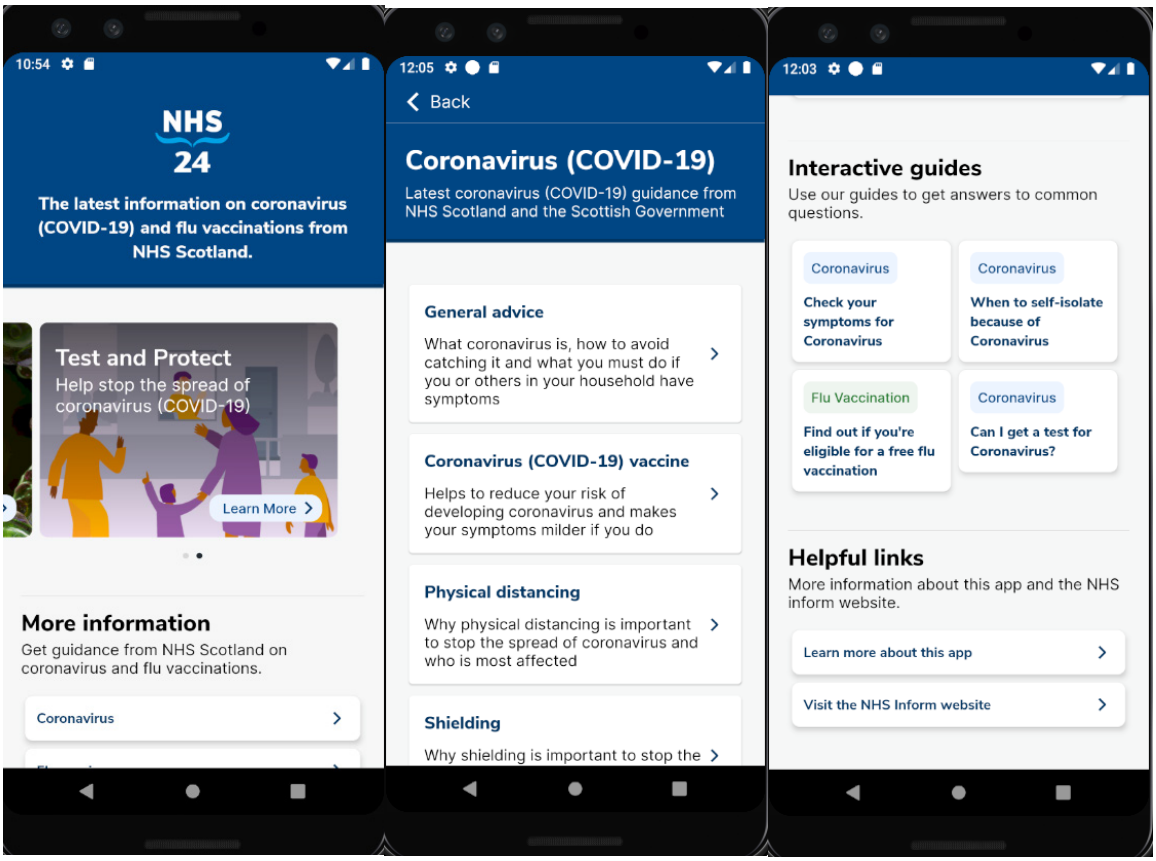
**Initial Activity** **Advice Activity** **Statistics Activity**




As it can be seen in the images above, the mentioned application has addressed a similar problem related to the COVID-19 pandemic by providing general medical information which concerns the Coronavirus problem, the latest government guidelines and the latest statistics related to the pandemic. This application requires the user to register in order to use the application by providing their personal information such as first name and last name associated with an email address and a password in order to complete the registration process. In the first image it can be observed that the application presents a variety of choices for the first activity of the mobile application, in the particular case of the application that must be created in order to help towards the "back to normal" transition only a few of these elements can be considered, these would be the "advice" element and the "statistics element". In the second image it can be observed that the application presents an activity that shows the latest guidelines provided by the government of the United Kingdom; this information must be present in the application that will be created for the "back to normal" transition as government guidelines will have to be respected if present. In the third image it can be observed that the application presents an activity that shows the current data related to the COVID-19 pandemic at a national level with the number of vaccinations absent in this case, this problem should be addressed as the number of people vaccinated it should be very important towards the "back to normal" transition, the vaccination being the only solution for the COVID-19 pandemic at this point in time.

These features must be considered for the Application that will be created in order to keep the users of the application informed with the latest developments of the pandemic in order to ensure the "back to normal" transition in a smooth manner.

Competitor Name: NHS 24
Product: Mobile Application
Aim: Distribution of COVID-19 Information and Guides




As it can be seen in the images above, the mentioned informative mobile application has addressed a similar problem related to the COVID-19 pandemic by providing general COVID-19 information and the development of the COVID-19 vaccines which concerns the "back to normal" transition in a single page application without any log in and registration requirement. In addition to the general COVID-19 information and the vaccine information, the mobile application also provides a series of medical guides which concern the COVID-19 pandemic and flu vaccination. In the first image it can be observed that the application presents a variety of choices for the main activity of the mobile application, in the particular case of the application that must be created in order to help towards the "back to normal" transition only a few of these elements can be considered, these would be the "More information related to the Coronavirus" element and the "interactive guides" element. In the second image it can be observed that the application presents a variety of choices for the second activity of the mobile application which was accessed from the initial activity by making use of the "Coronavirus" button, most of these elements can be considered, these would be the "Coronavirus general advice" element and the "Coronavirus vaccine information" element. In the third image it can be observed that the application presents an activity that shows some guides related to the COVID-19 pandemic and other contact information of the app creators, for this activity only the vaccine information can be considered and the contact information, as the "flu vaccination" section may not present interest in the "back to normal" transition application which will be created.

These features must be present for the Application that will be created, an exception being the flu vaccine information, as the users must be informed of the "back to normal" and be in touch with Guides that could help towards the "back to normal" transition.

## 1.2 PACT Analysis

The “PACT” acronym refers to four fundamental elements, these elements are called People, Activities, Contexts and Technologies. The PACT Analysis it is a useful and efficient complementation of the requirements gathering techniques when approaching the human centred design aspect of a software system as this technique will allow the creation of a scenario related to how an application idea will be considered for all four elements which will eventually lead to a summary of intentions. In order to perform a PACT Analysis for the COVID-19 application which must be created for a wide range of audiences, a series of tasks were performed to allow this technique to bring value to the application creation process, one core requirement for the PACT Analysis technique is to have some sort of Market Research data before proceeding with this technique.

### People

The target market of this application would be towards the regular student and worker who wishes to keep track of the latest development of the post pandemic world, this includes from the latest developments of the pandemic, if any, to government guidelines, mass transit changes, extra activities and collective gatherings events such as musical festivals, fashion and sports events that are happening in the near zone and future. The ideal user profile for this application would be people with ages that range from 20 to 45 with a sociable behaviour and an interest towards the collective gatherings and trends. In addition to the user profile mentioned, the application aims more towards colour-blind, healthy, young, English fluent people with a good technology knowledge.

### Activities

The application that will be created it will be used at an individual level for a short period of time but it could also be used more often depending on the level of interest that the user will present for the informative data offered that is related to medical information, government guidelines, mental health, mass transit and collective gatherings. Minimal user input will be required in order to get the information requested.

### Context

The application that will be created should be used at any given time and at any location in the United Kingdom, the application it should be used either at home, at work or on the go in order to check the relevant information offered as this application must be designed for a mobile device and it should concern the needs of the people at a national level. This being said, the mobile device will need to connect to the internet, either by Wi-Fi or using mobile data technologies such as 3G or 4G. The mobile application will require the user to create an account by making use of their personal details such as first name, last name and an email address, this information will then be associated with a password. Any personal activities that the user would perform would be done in a secure manner, for example operations like adding friends to a friends list in order to invite them to specific collective gathering events or just to communicate with them over a build-in messenger.

### Technologies

The mobile application that will be created it will be accessed via a mobile phone; this specific mobile application will be aimed at the Android type of Mobile Operating System. This being said, the application should be reliable in terms of the information offered to the user if the mobile device would have internet connection.

## 1.3 Application Aim

The Market Research and the PACT Analysis sections have shown the importance of the application that will be created in order to help towards the "back to normal" transition from the COVID-19 pandemic by providing a series of potential features associated with a summary of intentions. These intentions will be put together in a mobile application designed to satisfy the needs in cause.

The Aim of the Mobile Application will be to provide relevant information to the user related to the latest development of the "back to normal" transition. This information will include the latest development of the COVID-19 pandemic, the current government guidelines, mass transit information, mental health information and information related to music concerts, music festivals and last but not the least sports events with a focus on the soccer type of sport as this sport may present more interest in the United Kingdom.

## 1.4 Application Main Functionality

The Mobile Application should:

- Provide relevant information related to the latest developments of the COVID-19 pandemic with minimal input from the user,
- Provide relevant information related to the latest developments of the COVID-19 pandemic using statistics,
- Provide relevant information to other medical problems that are emerging in the world,
- Provide relevant information related to mental health problems,
- Provide relevant information related to the latest government guidelines with minimal input from the user,
- Provide relevant information related to mass transit transport such as bus or train transport routes near the user's location with minimal input from the user,
- Provide relevant information related to the upcoming music concerts and festivals near the user's location,
- Provide relevant information related to the upcoming fashion events near the user's location,
- Provide relevant information related to the upcoming sports events near the user's location with a priority on the soccer type of sport,
- Provide relevant information related to the hospitality locals near the user's location.

## 1.5 Application Additional Functionalities

The Mobile Application should complement the main functionality with:

- The ability to visualise the vaccination progress for multiple groups of age at a national level, as it was seen in the similar products that were researched, this feature was missing for both applications that were investigated,
- The ability to add friends to a friends list in order to invite them to possible collective gathering events,
- The ability to search for friends by using their email address,
- The ability to communicate with friends over a chat system,
- The ability to remove friends from a friends list.

## Oliver Jones

## I believe this Idea could work; I need the latest University On-Campus Info.

AGE: 22
RESIDENCE: UNITED KINGDOM
EDUCATION: HIGH SCHOOL
OCCUPATION: STUDENT
MARITAL STATUS: SINGLE | NO CHILDREN

ABOUT:
WHEN IT COMES TO TECHNOLOGIES, OLIVER IS A FAST LEARNER AND HE LIKE CHALLEGENGES AND COMPLICATED THINGS. HE HAS USED MULTIPLE COVID-19 MOBILE APPLICATIONS WITH DIFFERENT FEATURES, SOME OF THEM HAVING A PRETTY CONFUSING AND DIFFICULT USER INTERFACE, BUT NEVERTHELESS, HE WAS ABLE TO GET THE MOST OF THEM. HE NEEDS THE LATEST GOVERNMENT GUIDELINES RELATED TO THE UNIVERSITY ON-CAMPUS ACTIVITY.

## Core Needs

- COVID19 GENERAL INFORMATION,
- UNIVERSITY ON-CAMPUS ACTIVITY INFORMATION,
- MENTAL HEALTH ADVICE,
- MASS TRANSIT INFORMATION,
- MUSIC EVENTS,
- SOCCER EVENTS.

## Goals

- SAVE TIME,
- KEEP IN TOUCH WITH FRIENDS,
- CHOOSE THE RIGHT PRODUCT,
- INCREASE PRODUCTIVITY.

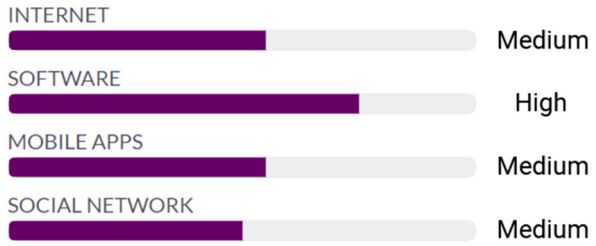
## Motivations

- EASY TO USE,
- COLOUR-BLIND OPTION,
- ORGANISED SECTIONS.

## Pain Points

- CONFUSING INTERFACE,
- TO MUCH INFORMATION OFFERED,
- ALL FEATURES IN ONE PLACE.

## Technology Abilities



## Jacob Davies

## I love this idea; I can't wait to test it with my customers.

AGE: 30
RESIDENCE: UNITED KINGDOM
EDUCATION: BACHELOS DEGREE (BA)
OCCUPATION: BUSINESS OWNER
MARITAL STATUS: SINGLE | NO CHILDREN

ABOUT:
JACOB IS AN OWNER OF A SMALL BUSINESS WITH EIGHT EMPLOYEES, HE IS VERY CONFORTABLE WITH SOFTWARE APPLICATIONS AND WITH TECHNOLOGY IN GENERAL, HOWEVER HE IS NOT AN EXPERT IN MEDICAL PROBLEMS AND HE NEEDS ASSISTANCE. JACOB'S DECISIONS ARE DATA DRIVEN; HE NEEDS METRICS IN ORDER TO EVALUATE A SITUATION.

## Core Needs

- COVID19 GENERAL INFORMATION,
- GOVERNMENT GUIDELINES INFORMATION,
- MENTAL HEALTH ADVICE,
- MUSIC EVENTS.

## Goals

- SAVE TIME ONLINE,
- KEEP IN TOUCH WITH FRIENDS,
- CHOOSE THE RIGHT PRODUCT,
- INCREASE PRODUCTIVITY.
- INCREASE SALES,

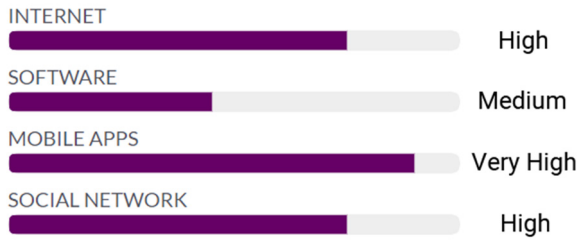
## Motivations

- MODERN INTERFACE,
- DATA DRIVEN,
- RELIABILITY.

## Pain Points

- CONFUSING INTERFACE,
- WASTING TIME,
- TO MUCH INFORMATION OFFERED,
- ALL FEATURES IN ONE PLACE.

## Technology Abilities



## Sophie Roberts

## I love this idea; I want to get the most of the upcoming events.

AGE: 35
RESIDENCE: UNITED KINGDOM
EDUCATION: BACHELOS DEGREE (BA)
OCCUPATION: DESIGNER
MARITAL STATUS: SINGLE | NO CHILDREN

ABOUT:
SOPHIE GOES TO A FEW EVENTS, BUT SHE PREFERS TO PLAN THEM IN ADVANCE, SHE PREFERS TO TRAVEL AT A NATIONAL LEVEL AND AT A REGIONAL LEVEL IN ORDER TO HAVE FUN AND MEET NEW PEOPLE. WHEN AN EVENT IS ANNOUNCED SHE WILL BUY IN ADVANCE AN ATTENDANCE TICKET IN ASSOCIATION WITH A MASS TRANSIT TICKET FOR A BUS OR A TRAIN, SHE ALSO PREFERS TO TRAVEL WITH A SOCIAL GROUP.

## Core Needs

- COVID19 GENERAL INFORMATION,
- GOVERNMENT GUIDELINES INFORMATION,
- MENTAL HEALTH ADVICE,
- MUSIC EVENTS,
- FASHION EVENTS.
- MASS TRANSIT INFORMATION

## Goals

- SAVE TIME ONLINE,
- SAVE MONEY,
- KEEP IN TOUCH WITH FRIENDS,
- CHOOSE THE RIGHT EVENT,
- GETTING THE RIGHT INFORMATION.

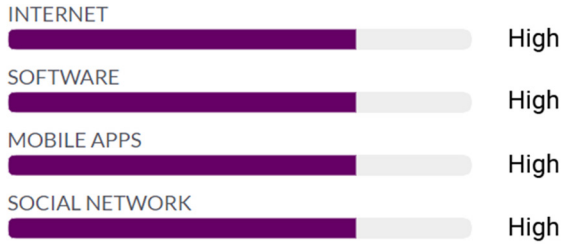
## Motivations

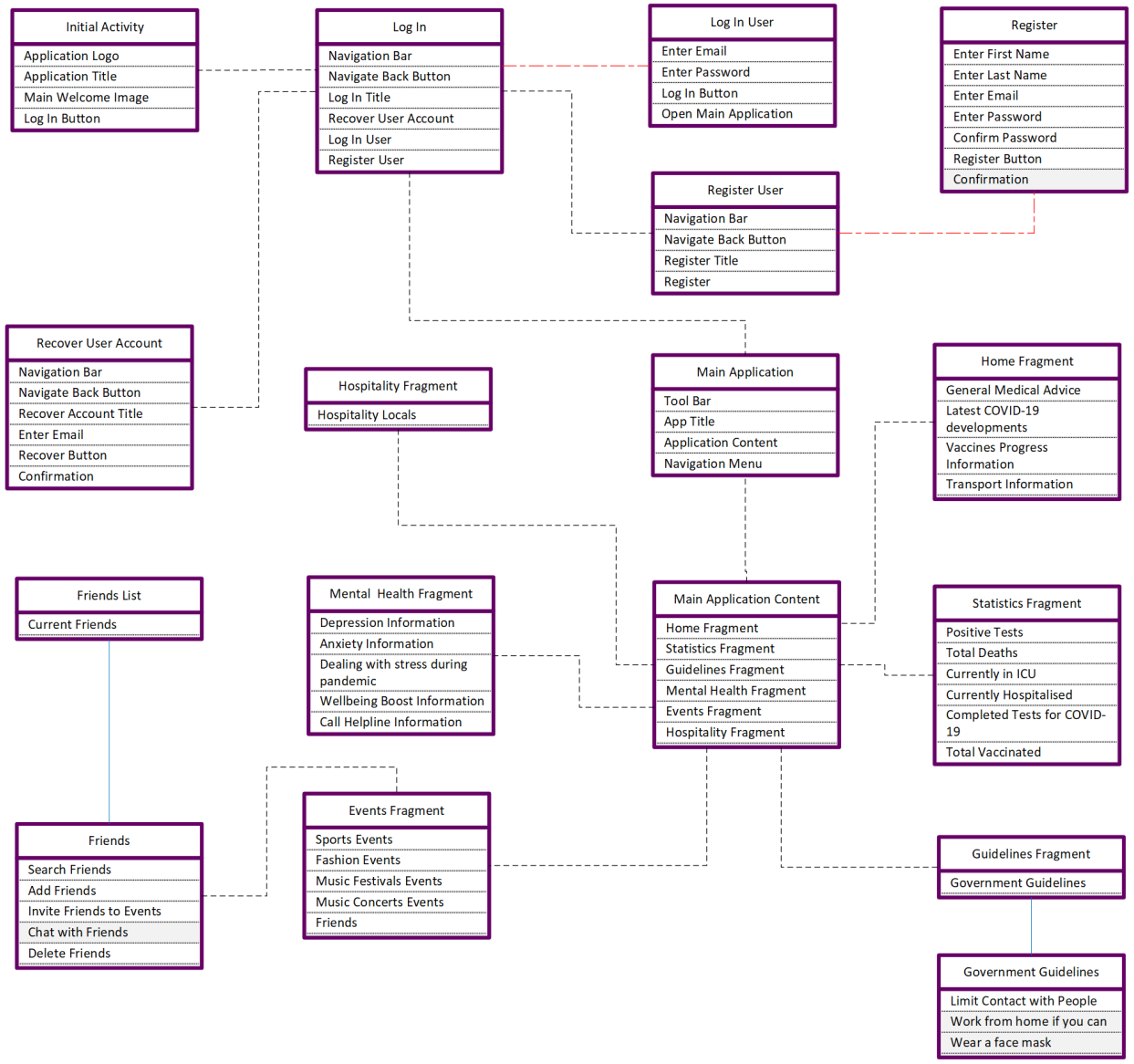
- SIMPLE INTERFACE,
- FACTS DRIVEN,
- RELIABILITY.

## Pain Points

- CONFUSING INTERFACE,
- WASTING TIME,
- TO MUCH INFORMATION OFFERED,

## Technology Abilities






## Operations

### Input:

Register
Log In
Recover Password
Friends

### Output:

General Medical Advice
Latest COVID-19 Data,
Vaccines Progress Data,
Transport Information,
Sports Events Information,
Music Concerts Information,
Fashion Events Information,
Hospitality Locals Information.

### Actions:

Register: Users can register using their personal information.
Log In: Users can log in using their email address and a password.
Recover Password: Users can recover their account by using the email address used for the account creation,
Home Fragment: Users can visualise information related to the COVID-19 pandemic, vaccine progress information and Bus routes near the User's Location information.
Statistics: Users can visualise data related to the developments of the COVID-19 Pandemic,
Guidelines Fragment: Users can visualise the latest government guidelines in the form of an advice.
Events Fragment: Users can visualise upcoming musical events and sports events near the user's location.
Friends: Users can add, delete and invite friends to upcoming musical events and sports events near the user's location.
Mental Health Fragment: Users can visualise some advice related to mental health problems.
Hospitality Fragment: Users can visualise, Hospitality Locals near the User's location.

Key

Links to
Retrieves Data From
Links and Retrieves Data From

## References


1. Moreno-Garcia, C., 2020, *CM4110 Week 3: Week 3: PACT, HTA and Conceptual Designs* [online lecture], CM4110 Human Computer Interaction, The Robert Gordon University, School of Computing, Teaching Online, 05 February 2021, Available from: http://campusmoodle.rgu.ac.uk/mod/resource/view.php?id=3836718, [Accessed 07 February 2021],
2. Moreno-Garcia, C., 2020, *CM4110 Week 4: Week 4: Requirements Capture & User Profiling* [online lecture], CM4110 Human Computer Interaction, The Robert Gordon University, School of Computing, Teaching Online, 05 February 2021, Available from: http://campusmoodle.rgu.ac.uk/mod/resource/view.php?id=3832388, [Accessed 07 February 2021],
3. Shopify, 2021. *Market Research* [Online]. No Place of Publication: Shopify Available from: https://www.shopify.com/encyclopedia/market-research [Accessed: 09 February 2021]
4. Bower, B., 2020. *What will life be like after the coronavirus pandemics ends?* [Online]. Washington: Science News. Available from: https://www.sciencenews.org/article/covid-19-coronavirus-life-after-pandemic-ends-predictions [Accessed: 09 February 2021]