**Appendix B**

**Title**: Design ideas and draft work

**Relevance**: Gives informal information on the ideas the team had when designing the project, as well as draft pieces of work and brainstorms when figuring out problems and issues

**Requirements**

**Functional**

* The user shall be able to input search terms as part of their queries in order to retrieve results of procedures that cover those search terms. At a minimum, relevant results shall be returned for a search by injury or body area
* The user shall be able to order results of queries by price, both in ascending and descending order
* The user shall be able to sort and filter results of queries by location, either by inputting their location or allowing their location to be retrieved from their IP address
* The system shall return results for search queries, each one containing a practice name, location, distance from user, price and offered procedure(s)
* Search results shall be given restrictions and limits on distance from user and price range
* The user shall consult a map of locations, with placeholders for price and practice name
* The system shall resolve specific queries regarding a particular illness or injury to an umbrella category of procedures that practices can be queried on
* The user shall specify conditions through which to filter data before and after searches are executed, in order to limit the amount of data displayed and ensure more relevant data is displayed as much as possible

**Non-functional**

* The system should give hospitals and practices a rank in the user’s search results in descending order. This rank may be based on, but not limited to, number of discharges by practice, cost of procedure by practice, distance between patient and practice, etc.
* The system may learn from the user’s past searches and queries based on cookie information in their computer and use this data to provide more relevant results on future searches
* The site may be more accessible to the end user, such as the provision of colour-blind and contrast options, scalability of the site (zooming, window resizing, etc.)
* The system may limit the amount of data that is returned to the user to prevent slowdown or unnecessary bandwidth usage

**User Stories**

* As a patient, I can search by my injury so that I can find practices that offer care catering to me and my injury
* As a patient, I can filter results of practices by location so that I can find care within a reasonable distance of me
* As a patient, I can order results of practices by price so that I can find the most affordable care for me
* As a patient, I can view a map of practices and prices to geographically consider the best choice of care for me
* As a patient, I can restrict results based on limits on price and distance to practice so that I can find care based on my financial and travel budgets
* As a patient, I can view care options available to me such that I can compare them specifically on price and location in order to find the best option available to me
* As a patient, I can browse practices local to me so as to gain an understanding of procedures available in my location
* As a patient, I can search by the exact procedure I want in order to know all the places in the United States where the procedure is offered and the respective prices of care
* As a system admin, I can add and remove information on practices and procedures offered so that the most up to date information is available to patients

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**Use Cases**

**USE CASE 1: Search by procedure**

**Actors**

The following actors are involved in this use case:

* Patient

**Brief Description**

Allow the patient to search the web frontend for a specific procedure to retrieve results of practices that offer that procedure. This queries the database for a DRG definition that covers that procedure. Results are displayed in a table, filtered based on the patient’s requirements

**Basic Flow of Events**

The use case begins when the patient inputs a procedure name into the search box and initiates a search

Patient : Inputs search parameter

System : Search for that string in the procedure tags of each DRG

definition

System : For each one, add it to the list of returned results

System : Displays results in table based on filters selected by patient

**USE CASE 2: Filtering results**

**Actors**

The following actors are involved in this use case:

* Patient

**Brief Description**

Allow the patient to filter received results of practices and procedures based on location and/or price

**Basic Flow of Events**

The use case begins when the patient uses the sliders next to the results table to place limits on what results are displayed

**By distance:**

Patient : Limiting distance to practice to within 500km

System : Web results table removes results of practices greater than

500km from patient

System : Displays above results in table

**By price:**

Patient : Limiting cost of procedure to within $10,000

System : Web results table removes results of procedures costing more

than $10,000

System : Displays above results in table

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**USE CASE 3: Search by injury/illness**

**Actors**

The following actors are involved in this use case:

* Patient

**Brief Description**

Allow the patient to search the web frontend for a specific injury or illness to retrieve results of practices that offer procedures to address that injury or illness. This queries the database for a DRG definition that covers that procedure by using the tags of that procedure. Results are displayed in a table, filtered based on the patient’s requirements

**Basic Flow of Events**

The use case begins when the patient inputs an injury or illness into the search box and initiates a search

Patient : Inputs search parameter

System : Search for that string in the injury/illness tags of each DRG

definition

System : For each one, add it to the list of returned results

System : Displays results in table based on filters selected by patient

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**USE CASE 4: Search by location**

**Actors**

The following actors are involved in this use case:

* Patient

**Brief Description**

Allow the patient to search the web frontend for a specific location, through which the nearest practices and the procedures they offer will be displayed to the user. This would allow for the patient to see local or nearby practices and gain an understanding of the healthcare nearby to them.

**Basic Flow of Events**

The use case begins when the patient inputs a location into the search box

Patient : Inputs location

System : Search for that string in the city locations of the results

System : For each one, add it to the list of returned results

System : Displays results in table in ascending order of distance from

patient

**USE CASE 5: Adding new information to records**

**Actors**

The following actors are involved in this use case:

* System admin

**Brief Description**

Allow the system admin to add new records to the dataset for new hospitals or practices or amend existing ones to add or remove procedures offered to patients. This allows for a patient to receive the most up to date information on what healthcare is available to them.

**Basic Flow of Events**

The use case begins when the admin logs in to the web portal.

Admin : Selects Insert/Update Data

Admin: Fills in form for adding figures for a procedure

System : Resolves the hospital and procedure definitions to their respective ID numbers

System : Inserts the data into the relevant table

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**User Personas**

**Joe**

Demographics: Employed; Age: 18-35; Single; Male

Location: Boston, USA

Job: Delivery driver

Family: lives with his cat

Background: Joe works a simple and modest job as he only needs to provide for himself. He has a passion for MMA combat and fights during his spare time.

Needs: Due to his hobby which preoccupies him most of his time, Joe often finds himself needing treatment for his injuries. He requires to find the closest and most cost-efficient hospital able to cover the price of his treatments/procedures. Joe isn’t insured due to his minimum wage job.

**Jaylen**

Demographics: Unemployed; Age: 18-23; Single; Male

Location: New York, USA

Job: unemployed

Family: lives with parents and younger brother

Background: Jaylen is a young basketball prospect who’s training daily to become an NBA star.

Needs: Jaylen realises that career-ending injuries are part of his journey into making it to the NBA. He looks to find a hospital able to treat any potential injuries that happen to him which his parents cannot cover.

**Sophia**

Demographics: Employed; Age: 25-40; Married; Female

Location: Philadelphia, USA

Job: BMX athlete

Family: lives with her newlywed

Background: Sohpia is one of the top BMX riders in the country who participates in many contests and races.

Needs: Due to the danger of the sport, Sohpia has broken several bones already. She has had to seek private medical treatment for her injuries which has delayed her honeymoon. Sophia requires a hospital that can treat her injuries at an affordable price and close distance.

**Design for Database**

