O.I.S

ONSLAUGHT INFORMATION SOLUTION

Documentation

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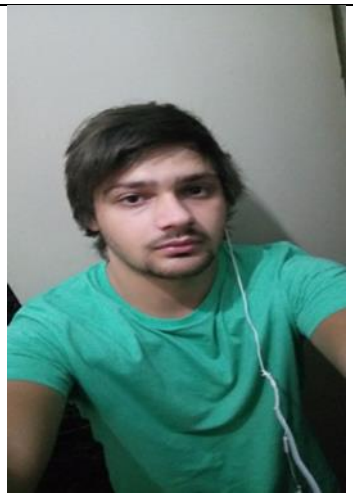
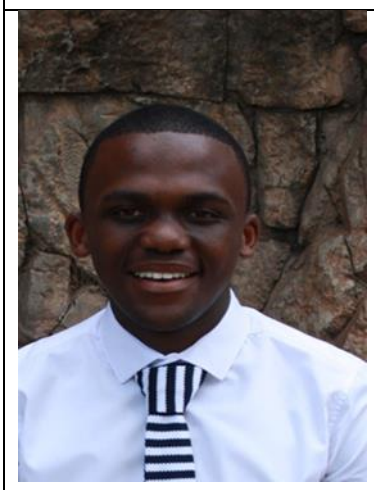
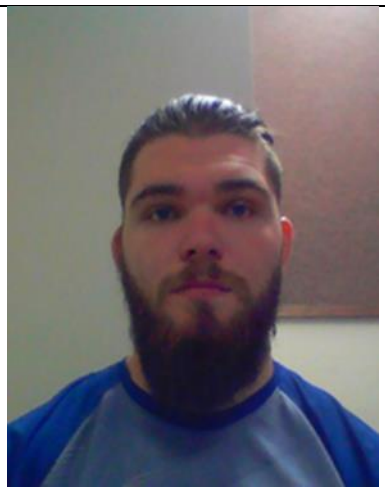
Team Members (Stakeholders)

	Title		
	Werth M. [Project Manager]		Buys A.J. [System Analyst]
	Ackerman W. [Graphic Designer]		Van Zyl J. [System Builder]
	Mpheqeke M. [System Designer]		Haasbroek C. [System Builder/ Programmer]

Overview

The Aim of the project

A cable company has a team that consists of field workers, admin workers and managers, directing them where to go, what the jobs consists of and what equipment they need. The software system will be directed towards this type of setup, utilizing mobile technologies in such a way that a job can be updated in the field, real time, info about the job can be updated and be detailed as per the customers' original request and logistical support can be requested without the hassle of calling the supervisor and communicating the problem verbally. This system improves the communication between mangers and field workers. It also improves the technological aspect of the company using the application.

This is a system designed to make information more freely with in a company using mobile and cloud technologies. Using a cloud server to store the data and a web Application Programing Interface (API) to handle all the information, users can use a website or a mobile app to receive and send logistical information concerning themselves and assets that they utilize.

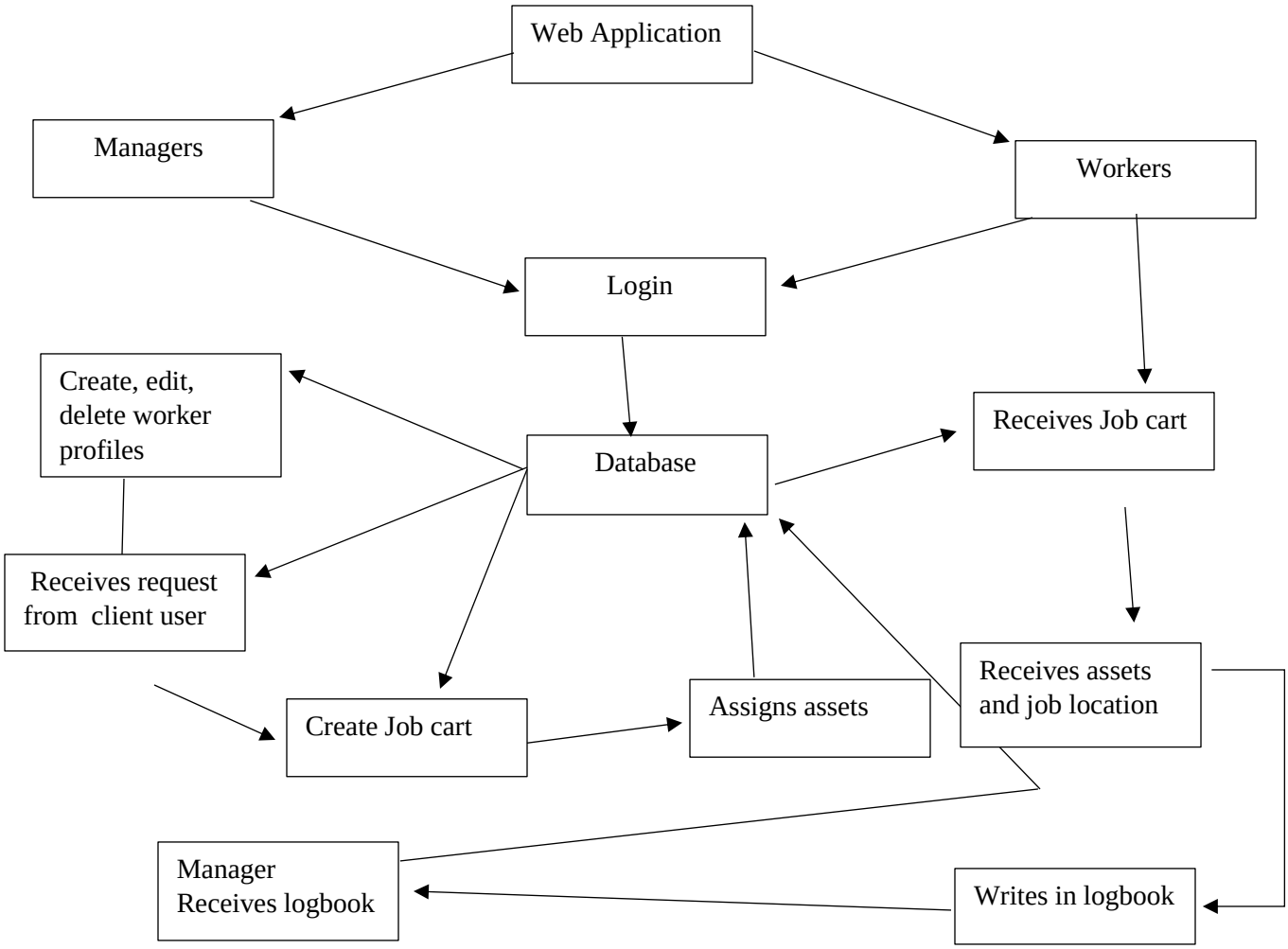
The Specifications

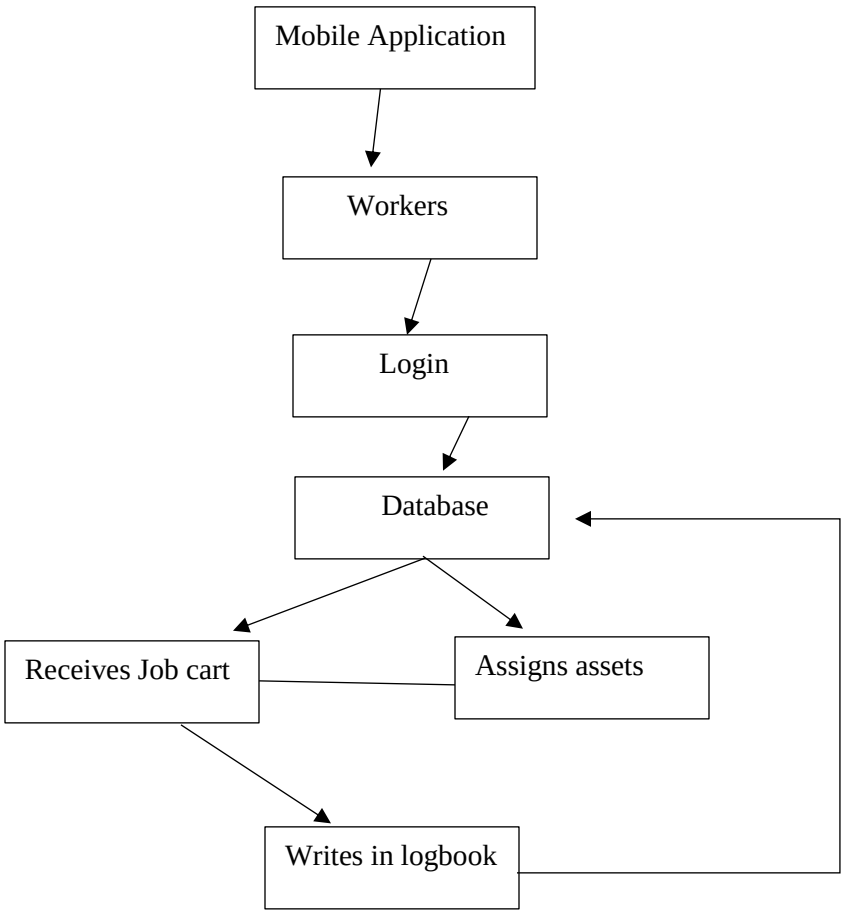
- The service will make use of two main systems. Personnel and assets. Personnel (system users) who will have their critical information stored online for easy access.
- You will be able to modify, add or remove personnel files.
- Easy access to database
- You won't be able to access a workers' personal information, but only work or mission critical information.
- Every user / stake holder has his or her permissions.
- You will be able to modify add or remove assets information.
- Separate functions and processes for system users and system admins.
- The UI must be logical and be able to convey all necessary information quickly and accurately.
- The service will handle no financial information.
- Jobs or tasks must be updatable in real-time.
- Must store information for offline use.
- A SQL-, Cloud database and textfiles will be used as storing mediums.
- The worker will receive a pined address on google maps with every job cart.

Boundaries of the project

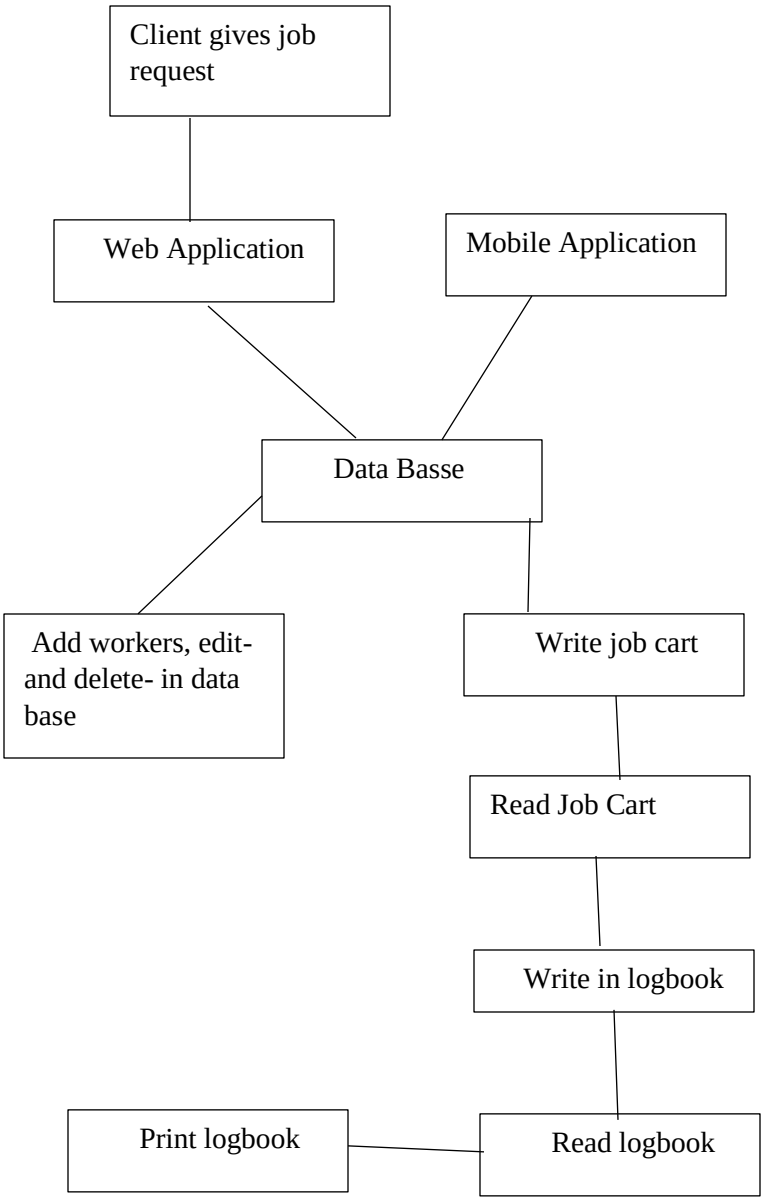
- The service is aimed at small businesses and won't be viable for enterprise solutions due to a limited delegate system managed by one or two people (one manager that delegates tasks to workers and not a system of managers that delegates tasks individually).
- Training for the managers must be extensive to know how to use all the features correctly.
- The service is an online system, which means it's an advantage and a disadvantage.

The Basic Flow of the System's Events




Mobile Application
Workers
Login
Database
Receives Job cart
Assigns assets
Writes in logbook

Basic Context Diagram



Project Management

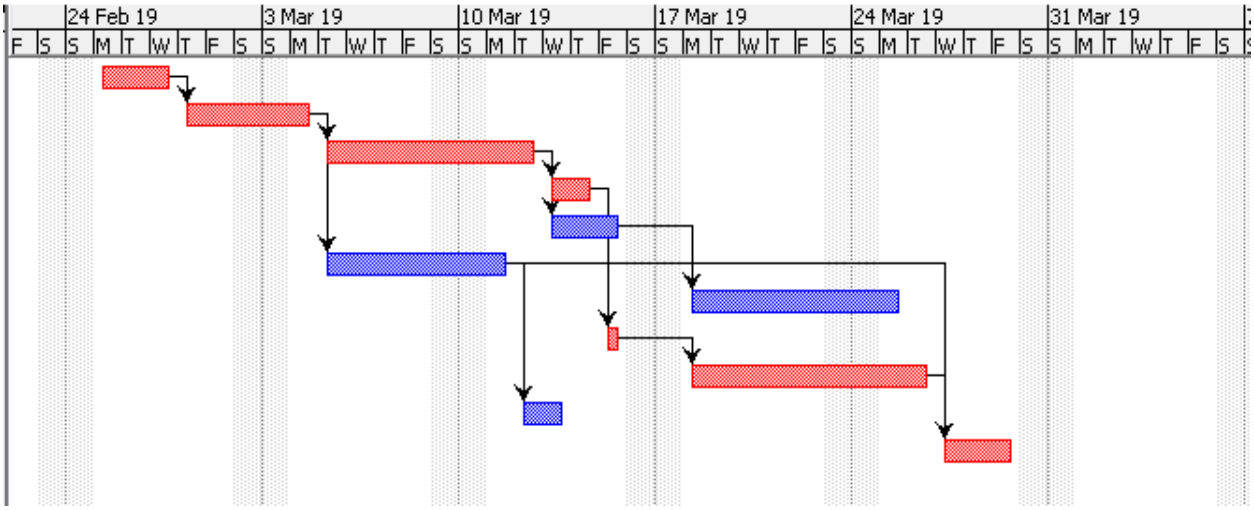
Task Scheduling

	Task name	Duration	Start	Finish	Predecessors
1	Meeting with client	1 day	19/02/19	19/02/19	
2	Planning System	2 days	19/02/20	19/02/21	1
3	Appoint responsibilities to group members	1 day	19/02/22	19/02/22	2
4	Acquire resources for documentation	4 days	19/02/23	19/02/28	3
5	Setup documentation	9 days	19/03/01	19/03/13	4
6	Meeting with client	1 day	19/03/14	19/03/14	5
7	Update documentation	2 days	19/03/15	19/03/15	6
8	Design database	3 days	19/03/19	19/03/21	7
9	Complete database data	3 days	19/03/22	19/03/26	8
10	Design GUI	3 days	19/03/19	19/03/21	7
11	Programming prototype	11 days	19/03/22	19/04/05	10
12	Test prototype	1 day	19/04/09	19/04/09	9,11
13	Improvements and optimization	3 days	19/04/10	19/04/12	12
14	Finalize documentation	1 days	19/04/15	19/04/15	13

Onslaught Meeting Schedule

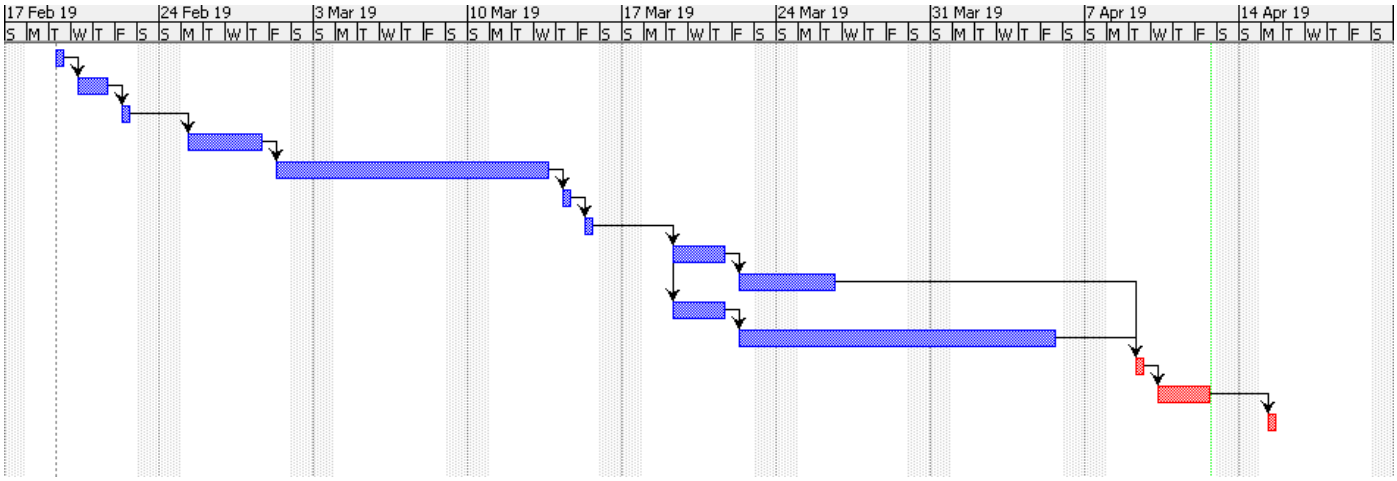
Monday **09:30 Books n beans**	**Tuesday** **09:30 Books n beans**	**Wednesday** **09:30 Books n beans**
18/02/2019 First Group Meeting getting to know each other	**19/02/2019** Suggestions for systems made	**20/02/2019** No Meeting
25/02/2019 System chosen and brainstorm begins	**26/02/2019** Brainstorm ideas of system and purpose there of	**27/02/2019** Research tasks given and roles assigned
04/03/2019 Progress Report and research given & discussed	**05/03/2019** Rough UI Design begins on paper, ideas given	**06/03/2019** UI design on paper edited and design begins
11/03/2019 Database design begins	**12/03/2019** Database specifications given	**13/03/2019** Database specification's and access controls given on paper
18/03/2019 Progress report to group given by sub group designers	**19/03/2019** System coding skeleton designed	**20/03/2019** UI coding begins
25/03/2019 Recess: no meeting	**26/03/2019** Recess: Meeting Ass 08 A &B Helps in scheduling time and recourses	**27/03/2019** Recess: Meeting Progress report and Prototype UI test
01/04/2019 NO Meeting	**02/04/2019** Progress and documentation Meeting	**03/04/2019** System coding to link databases discussed
08/04/2019 Databases populated and handed over to system coder. Documentation finalized	**09/04/2019** Prototype mobile app shown & progress report	**10/04/2019** Preparation for Consultation

Group Meetings' Gantt-Chart



Critical Path: Indicated by red

Gantt-Chart

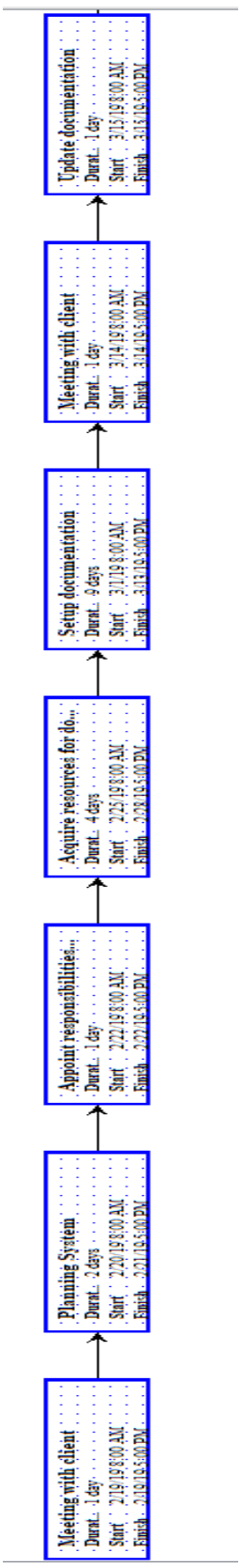


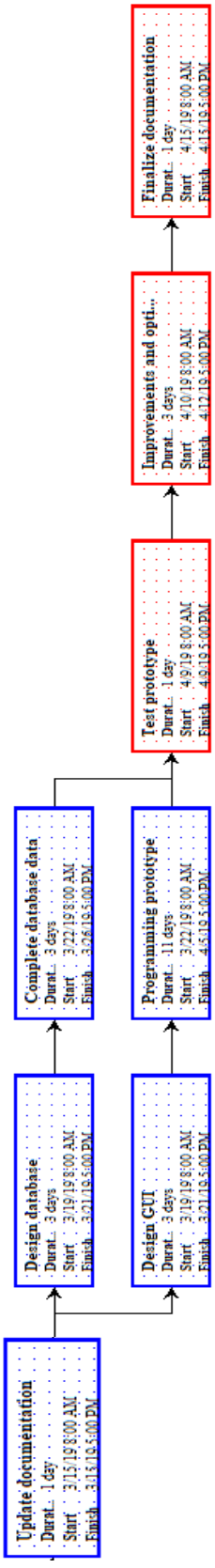
Critical Path: Indicated by red

Days of slack: 8

Gantt- and Activity on arrow charts made on ProjectLibre

Activity on Arrow





Requirements

Hardware

The various users will need various devices to gain access to the system.

For the web application the user would require a computer with all the components such as the keyboard and mouse for the input and the screen for the output.

For the mobile app the device itself would be used for both the input and output.

Both devices require enough memory space to operate effectively with access to the software.

Software

For the Web application, Windows 7 to 10 is required on the computer.

For the mobile app Android versions will be supported.

System Input

- New client information
- Updating client information
- Job description
- Asset to be used
- Tools to be used
- Client Location

The System Process

1. Create a new client profile or verify existing client information.
2. Create a new job.
3. Determine the asset required for the job and any specific tools to be used.
4. Check the availability of the assets and tools required.
5. Calculate the cost to the client.
6. Finalize the job and start the distribution or collection.

- During the job, management will be able to update any necessary information regarding either the client or the job or cancel it.
- The driver will receive an alert if any changes are made to his or her schedule or current job.
- The mobile app will synchronize on an hourly basis in case the driver is out of range of any wireless services.
- The customer will have to sign a computer-generated delivery note on delivery that is automatically sent back to the head office for record purposes.

GUI Requirements

1. MOBILE APP:

Profile page:

On this tab the user will be able to see all the client's information and any relevant information such as the asset to be used.

Job page:

This tab lists all the jobs to be completed or that are in progress. To view all the information of a job the user must click on a specific job, and it will be displayed onscreen.

Assets page:

On this tab the user will be able to request a specific asset or vehicle for the job and or report the asset if need be. If the assets need to be reported the asset code needs to be entered along with the reason for reporting the asset. This is similar to tool requests; a list of tools will be displayed for selection and a reason must accompany the request. On the list of either tools, assets or vehicles it will be indicated whether that item is available or not in order to avoid any mix ups and job delays.

Test page:

This is just to show how the information would be entered by management.

2. WEB APP:

Tabs will be at the top each page in order to directly access all other pages.

Login screen:

This screen will limit access to any part of the system with sensitive and private information to only those with the necessary clearance. The fields must contain valid entries in order to continue to the next page. An error report will be given if any of the field are incorrect.

Home screen:

From this page the user selects where to navigate to.

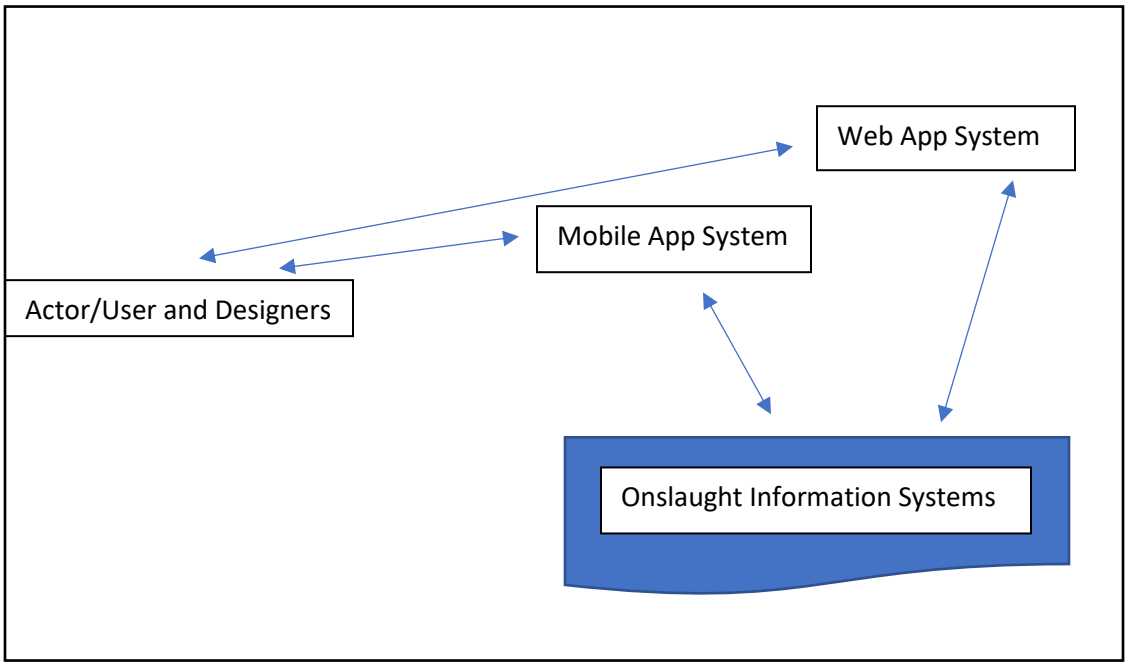
Add project:

From this page the manager adds the job description, they select the asset to be used, they select the tools and they select the worker that will carry out the task. The manager will also be able to edit a job and delete it should it be cancelled by the client. All the fields must be selected or filled in before the job can be created and uploaded to the list of jobs.

Assets screen:

From this page the manager can add assets if new ones have been purchased or remove old ones that were sold or have become redundant or for any other reason. They can also search for a specific asset to see if it is available or in use. The manager will also be able to edit a assets name and delete it. All the fields must be selected or filled in before the new asset can be recorded or the old one removed.

Data Architecture Diagram



Problem Analysis:

Problem statement:

Project: Logistical management system	**Project manager**: Mark Werth
Created by: Onslaught Information System	**Last updated by**: AJ Buys
Date Created: 10 April 2019	**Date last updated**: 13 April 2019

Summary of problem	Urgency	Visibility	Priority of Rank	Yielded solutions
1. **Workers got lost on the way to a job.**	12 month	Low	4	Google maps were implemented in the jobcard to redirect them to the location.
2. Assets used by workers are sometimes missing.	3 Months	Medium	2	A log book systems was implemented to keep track of who had which assets
3. Client information can be lost when written on paper.	ASAP	High	1	A webpage was made to enter a client's info.
4. Managers delete the wrong jobcard when a job is completed.	1 Months	Medium	2	The ability to add and delete a jobcard was assigned to a select few.
5. Users forget their passwords	3 Months	Low	3	A password generator system was implemented to assign a password

Fact finding:

Sampling:

We took sampled data to businesses to show them how the system worked. If the business agreed to try the system one job was implemented in with our system. When the job was completed the results were discussed and whether the business approved of the system

Research:

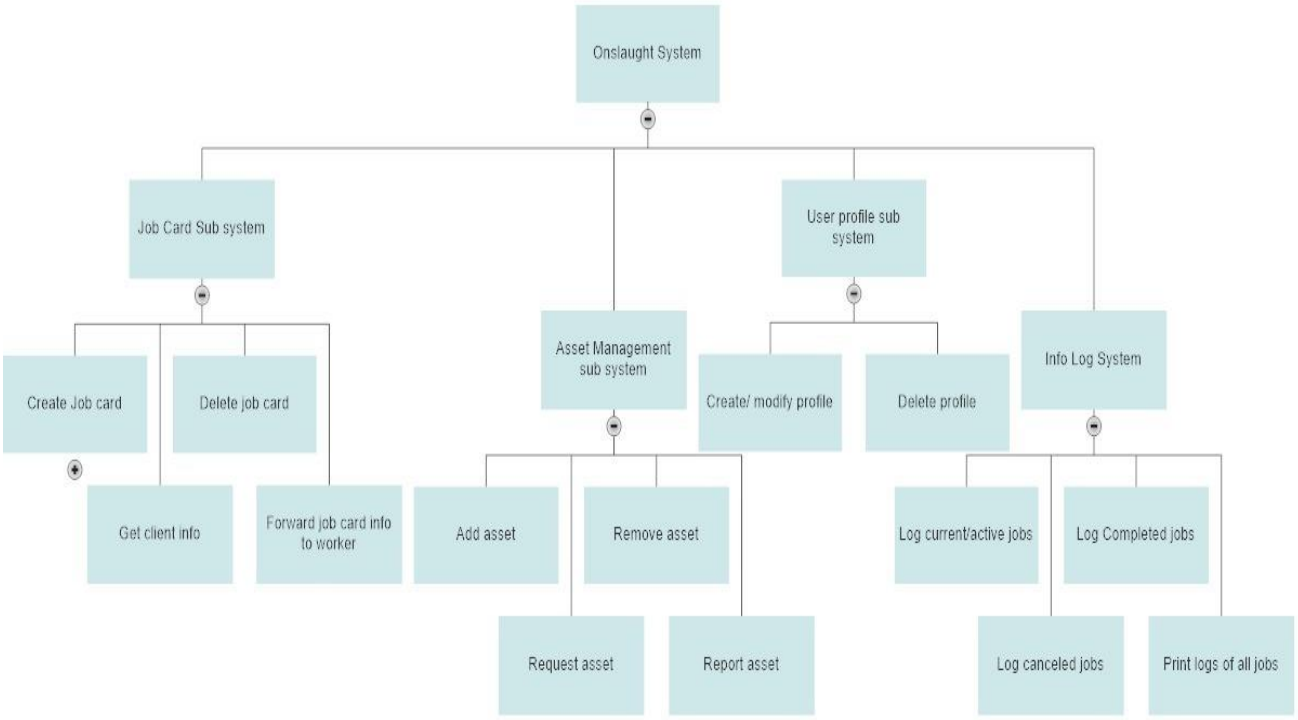
The website and mobile app were updated at a regular rate and a help function made it easier to understand the site. The workers had to attend monthly meetings to show any new additions or problems that had been fixed. The meetings also included the workers to introduce any new problem that had been observed and had to be fixed.

Observations:

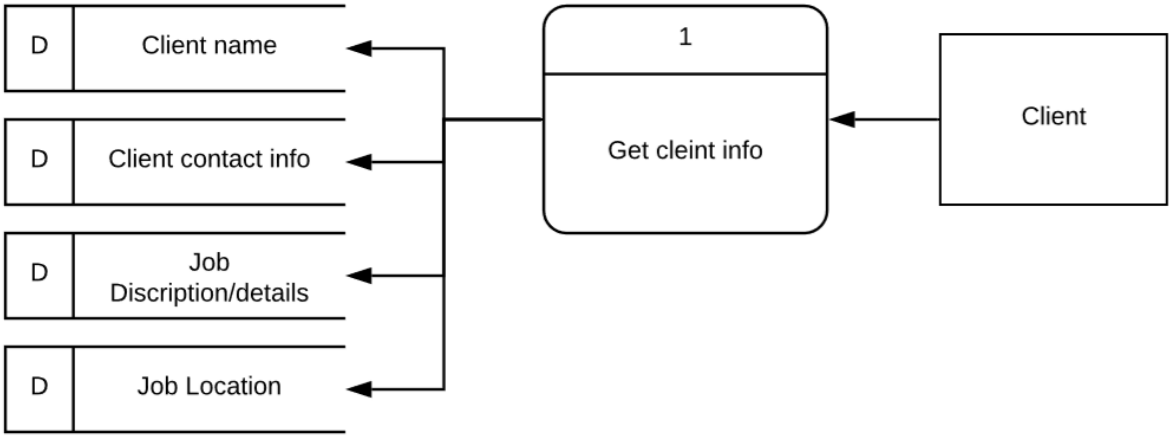
The appointed person was sent to the allocated branches where problems had been observed and then logged what happened that caused said problem and reported back to the main branch to state problems with the system. A training course was also assigned to newly appointed workers, to get them at the preferred state of understanding.

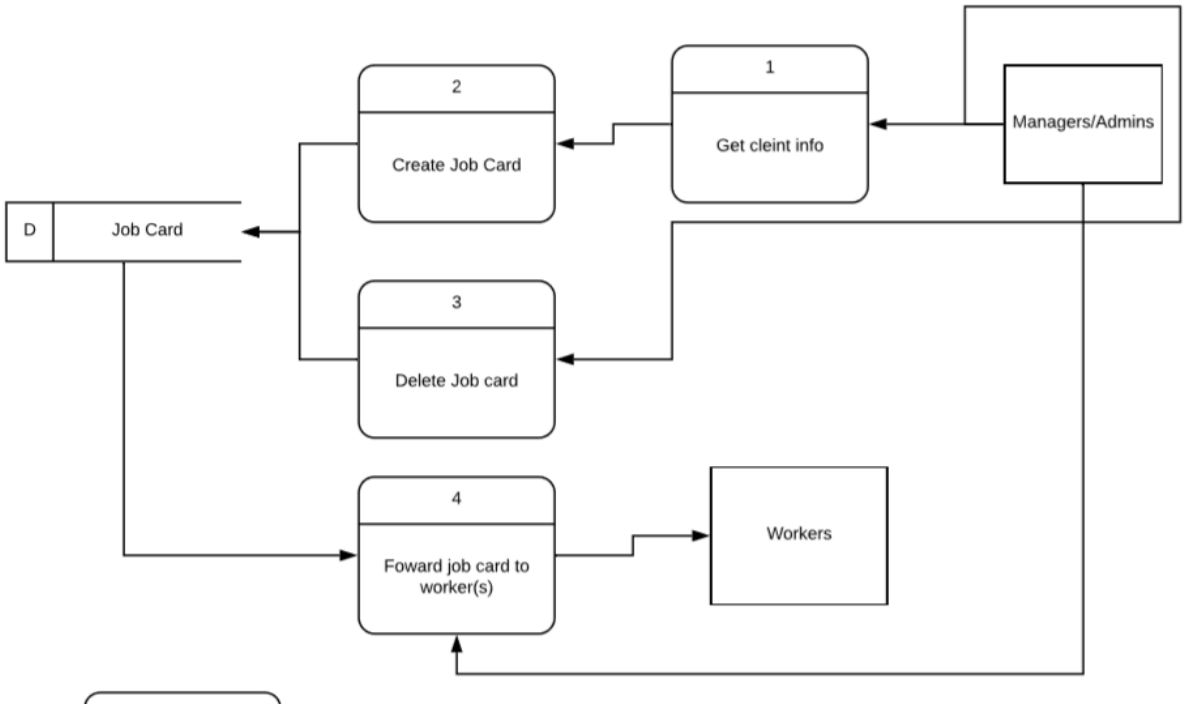
Process Modeling

Decomposition Diagram

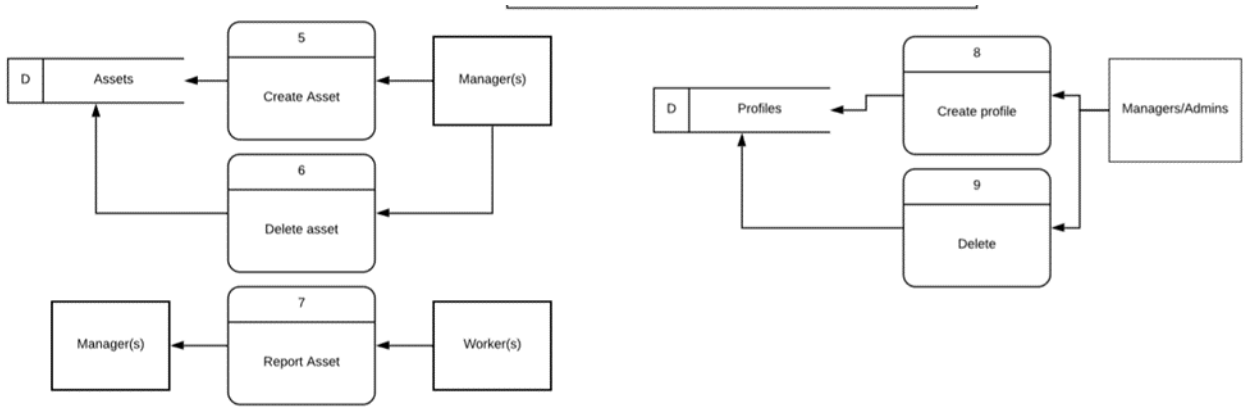


Physical Data Flow Diagram

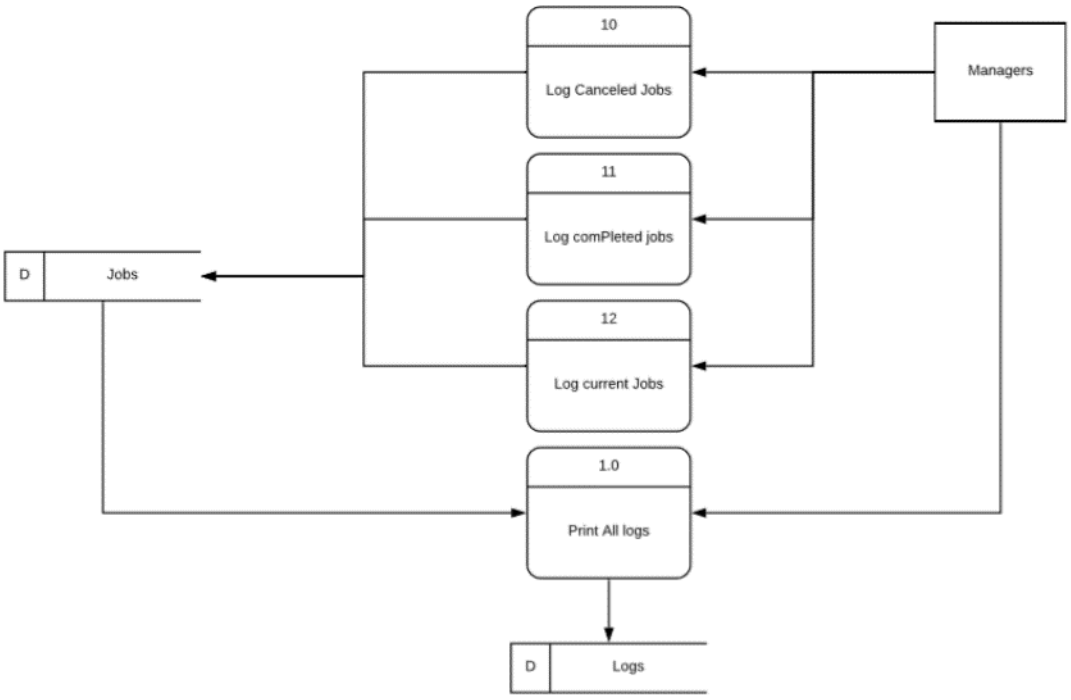




Physical Data Flow Diagram (Cont.)



Primitive Data Flow Diagram

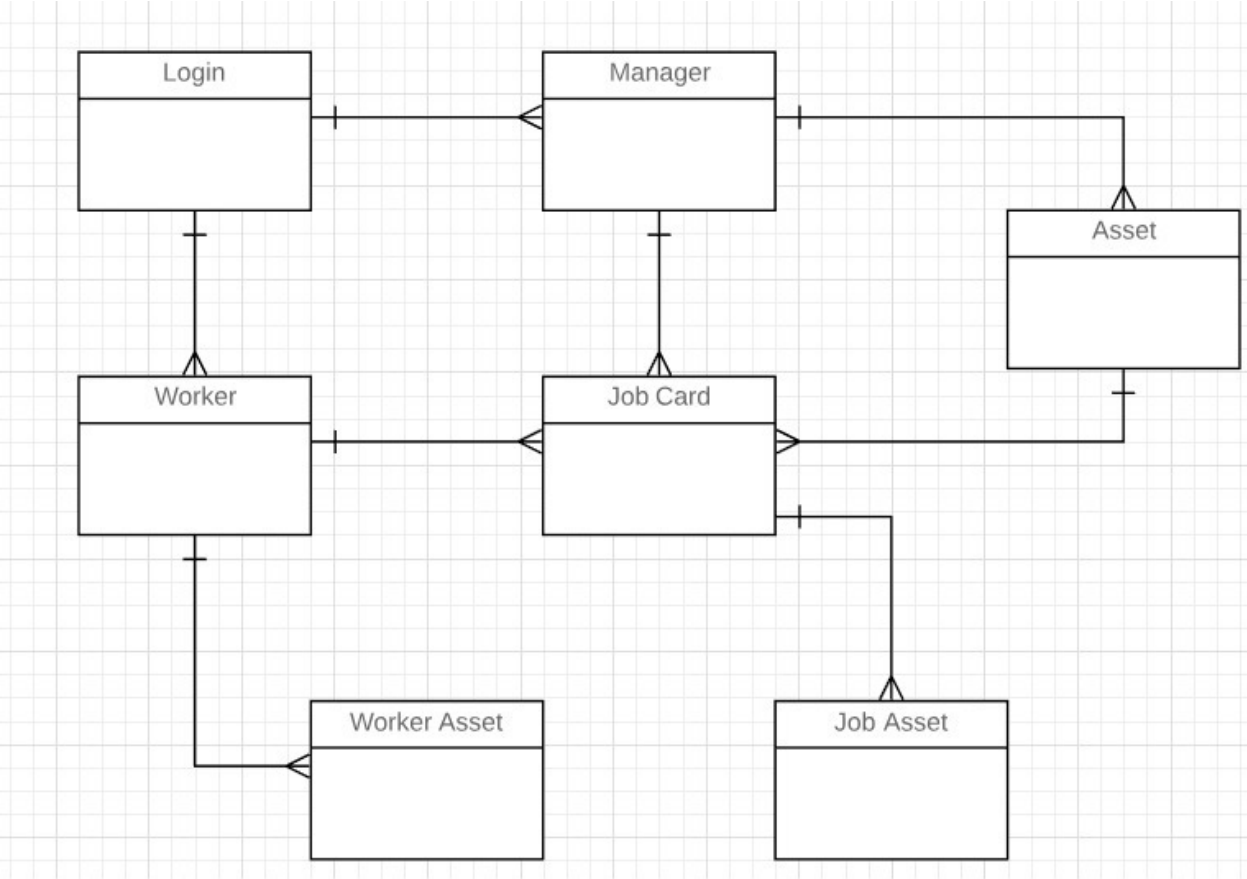


Data Flow Decision Table

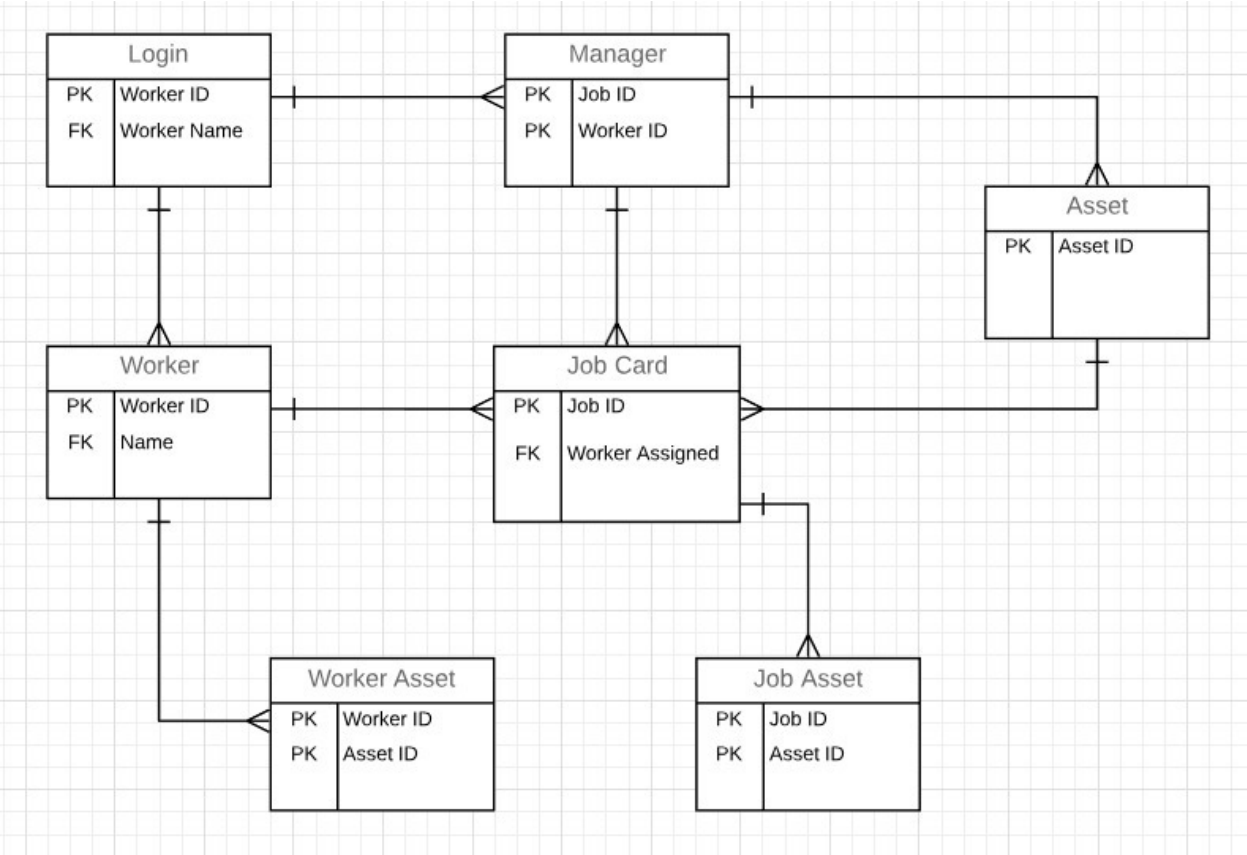
Inpun question	1	2	3	4
1:does The client Need help	n	y	y	y
2:Can the client solve the problem with only a phone call	n	n	y	y
3:Does the Worker have the info	n	n	n	y
OutPut				
Create job card	n	n	y	y

Data Modeling

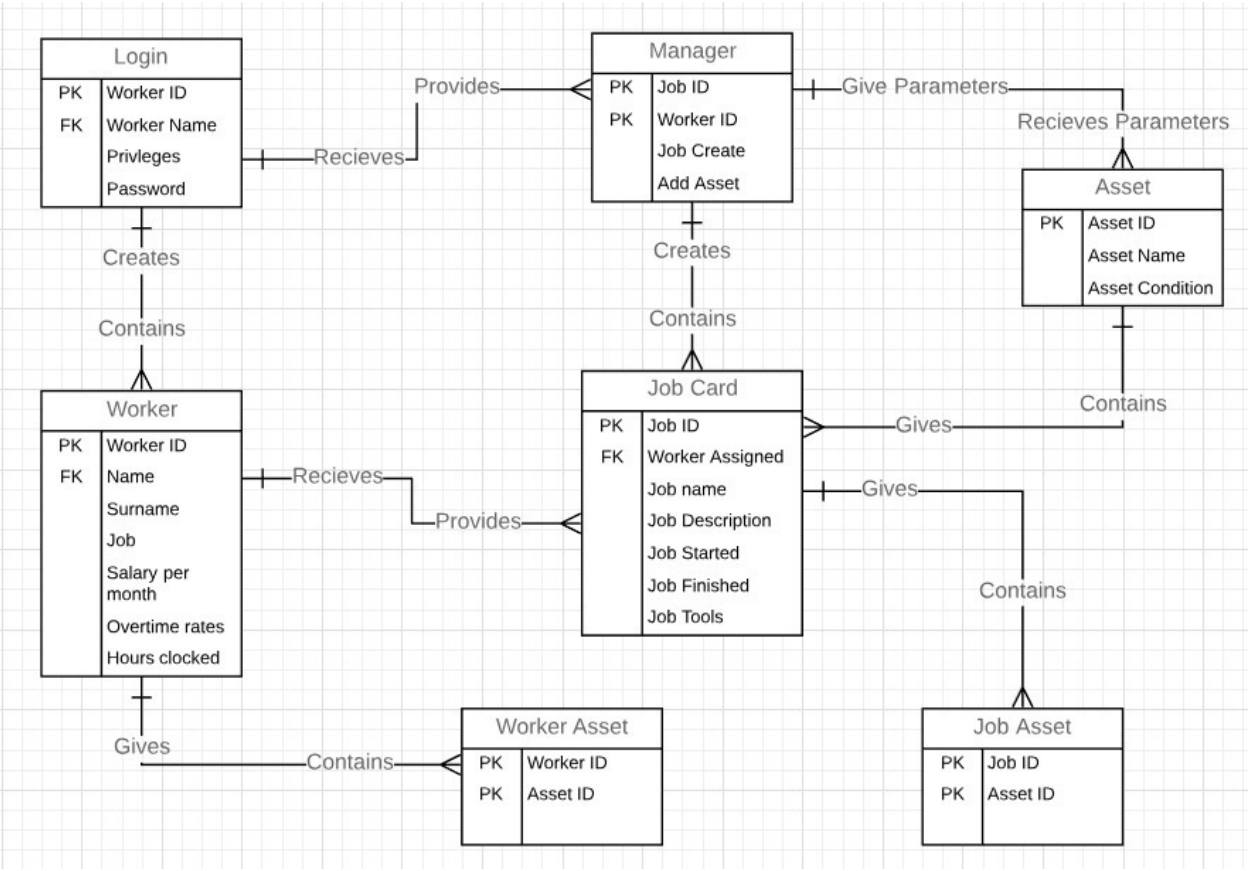
Contextual - Entity Relationship Diagram



Key Based Entity Relationship Diagram



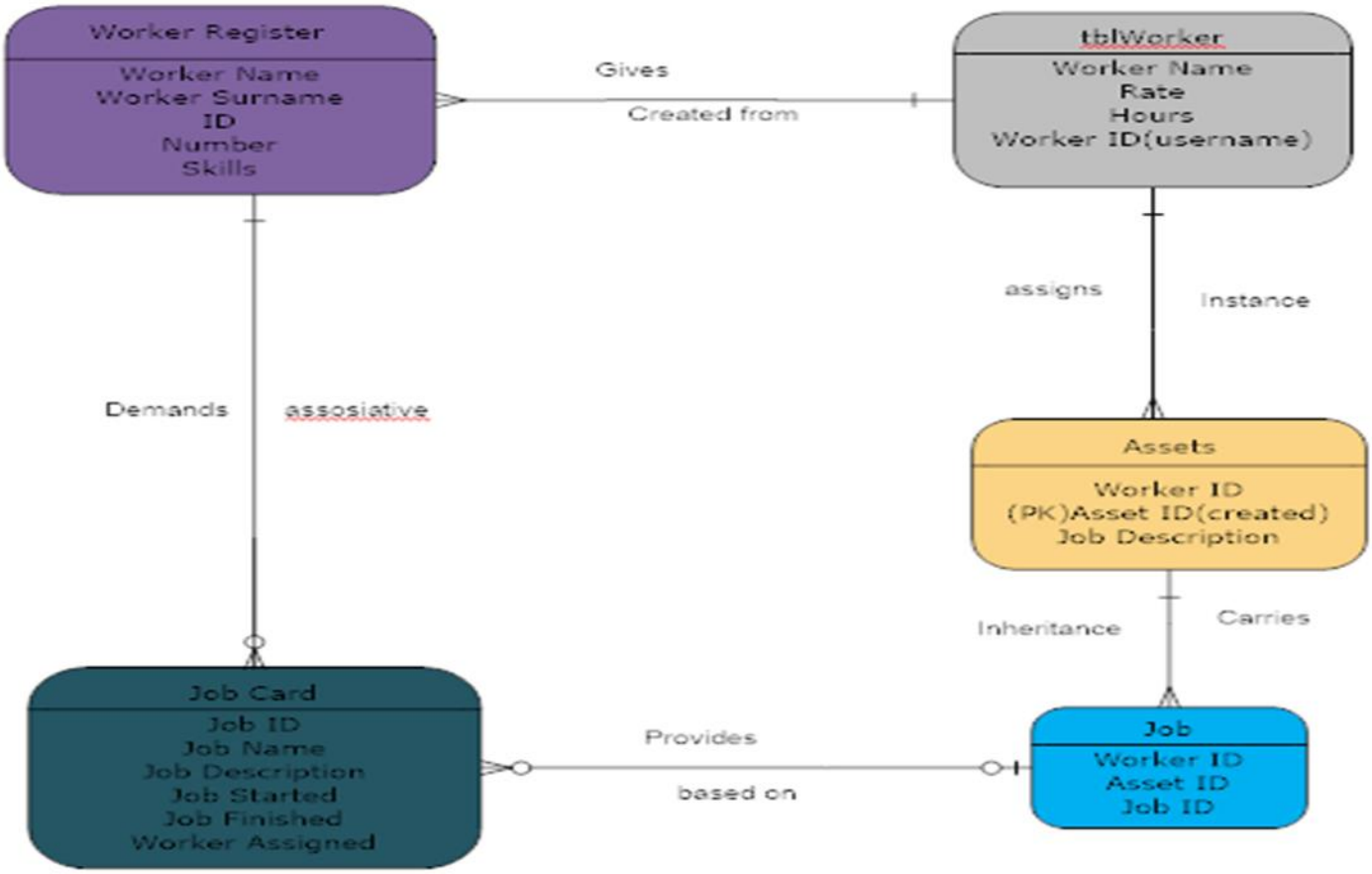
Fully Attributed Entity Relationship Diagram

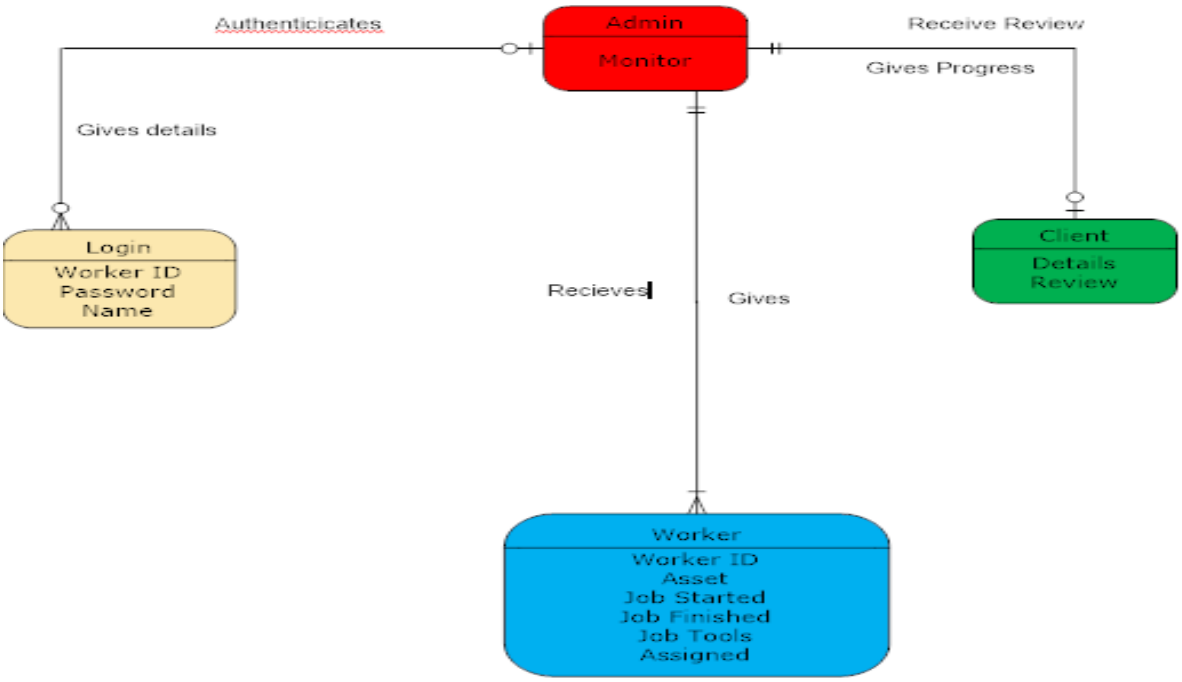


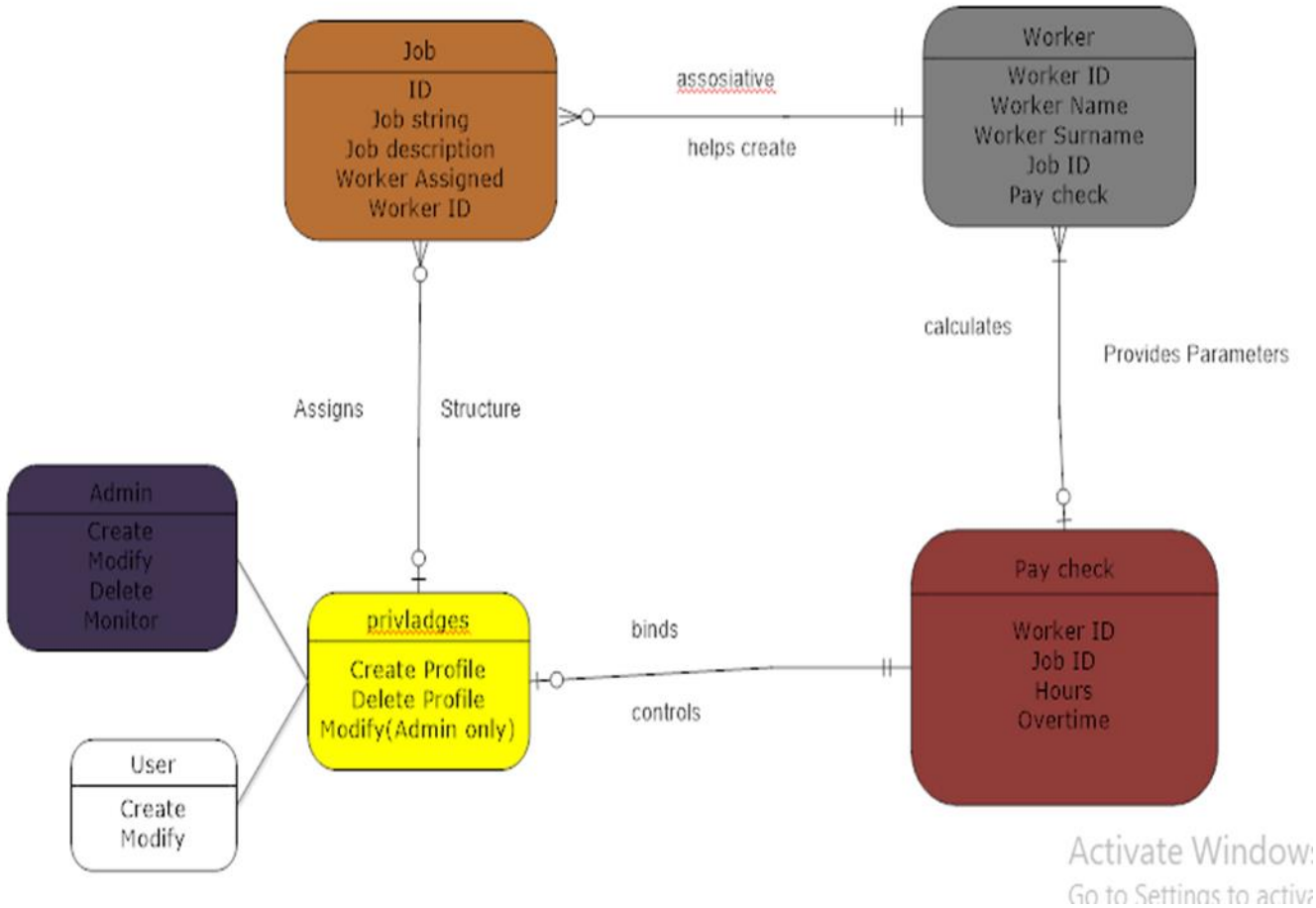
CRUD Matrix

	Admins	Managers	Staff	Clients
Worker ID				
Name	All	RUD	R	X
Surname				
ID Number				
Address				
Job				
Salary				
Overtime				
Privileges				
Passwords				
Assets				
Name/ID	All	RUD	R	X
Availability				
Jobs				
Description/ID	All	RUD	R	X
Tool				
Progress				R
	C	Create		
	R	Read		
	U	Update		
	D	Delete		
	X	No Access		
	All	All Access		

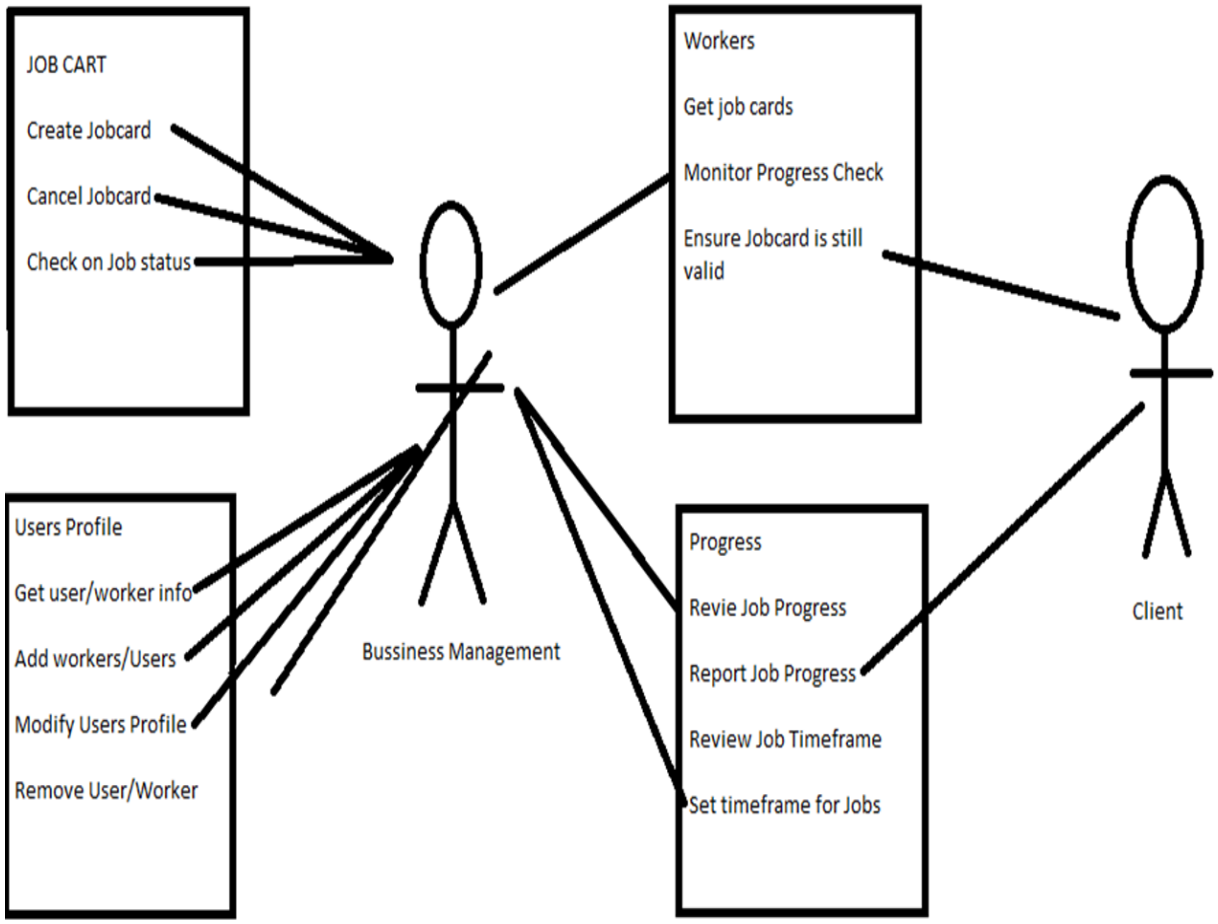
Use-Case Modeling







System Skeleton

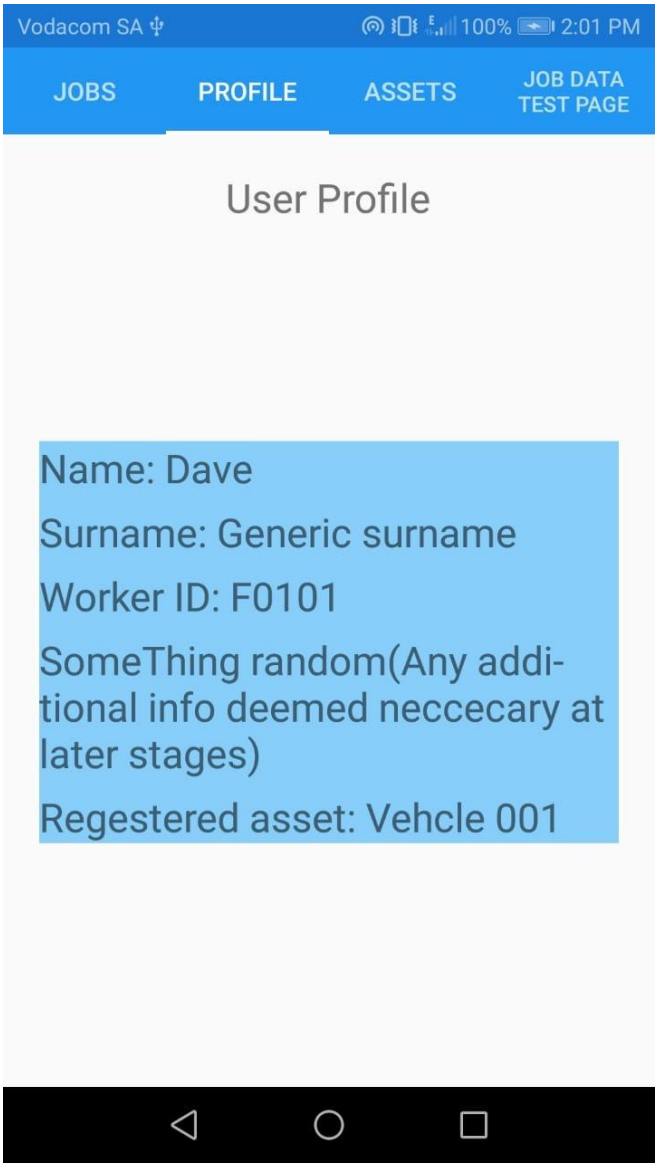


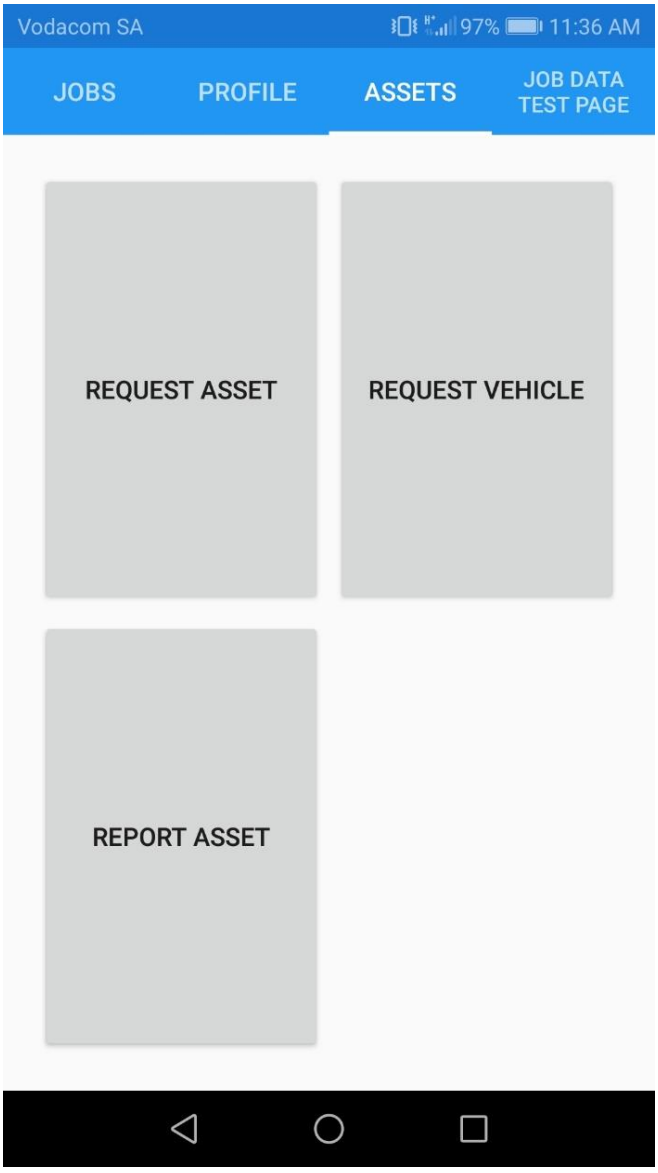
	1	2	3	4	Total Score	Building Cycle	Priority	
Create Client Profile	4	3	2	3	12	3	Medium	
Modify Client Profile	4	3	2	3	12	3	Medium	
Monitor Job	5	4	4	4	15	4	High	
Worker: Gives Job Progress	3	4	3	3	13	4	High	
Manager: Assign Job	1	4	1	3	9	3	High	
Worker: Book asset	1	2	3	3	9	2	Medium	
Worker Create Profile	0	1	2	2	5	2	Medium	
Worker Modify Profile	0	1	2	1	4	2	Low	
Worker Job Feedback	4	4	3	3	14	3	High	
Worker Receive Job	2	3	3	2	10	4	High	

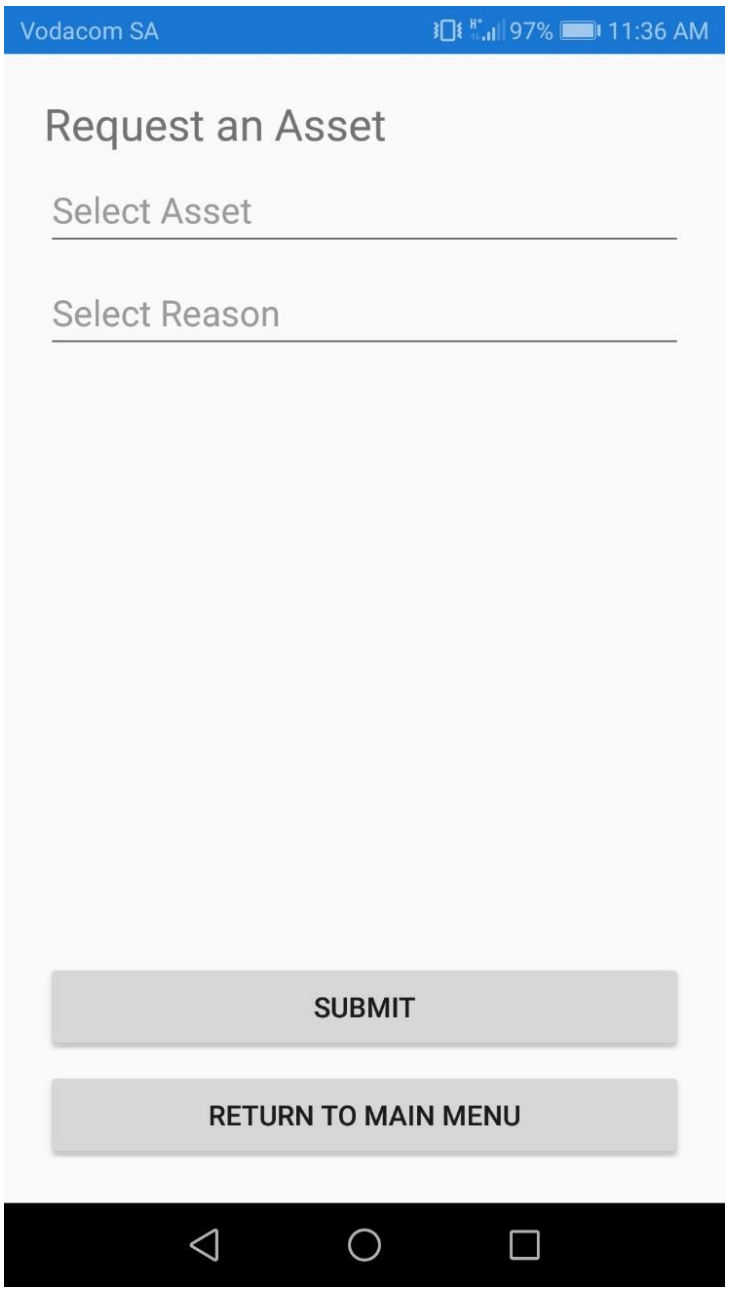
Ranking:

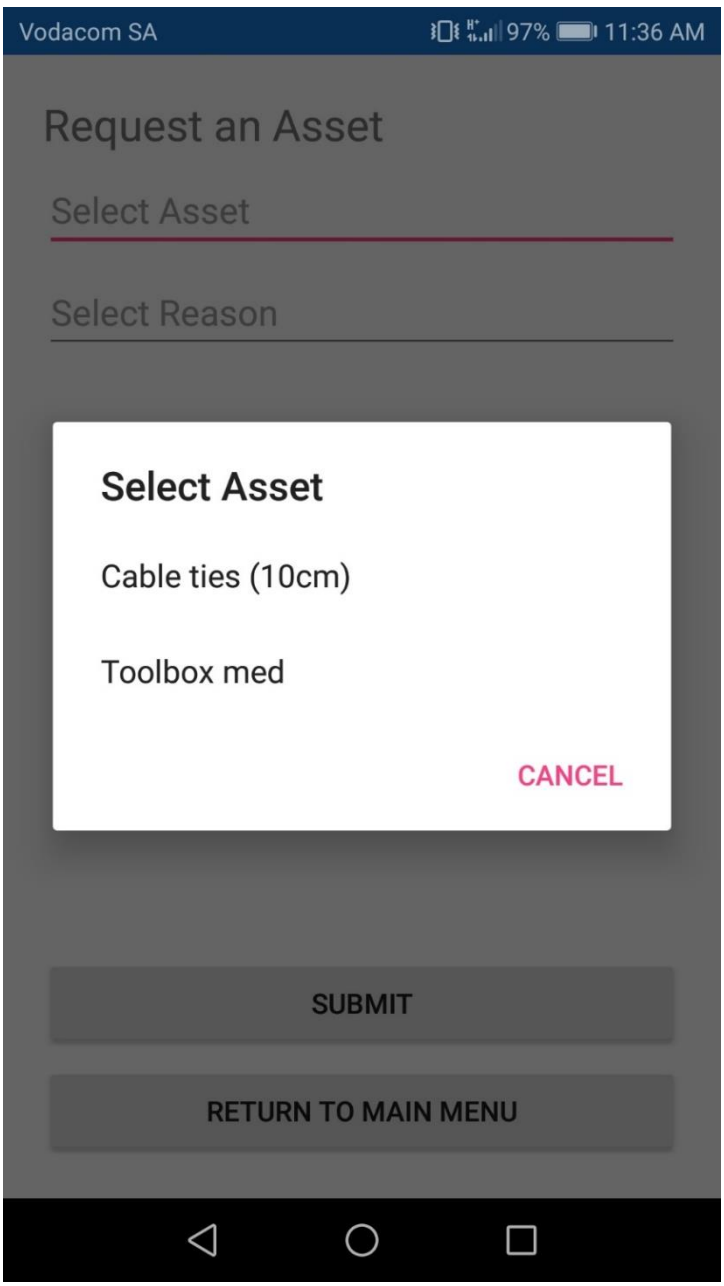
1. **Value To client**
2. **Value To Managers**
3. **Implementation Difficulty**
4. **Design Effectively**

User Interface Design: Mobile Application






Vodacom SA
97%
11:36 AM
Request an Asset
Select Asset
Select Reason
SUBMIT
RETURN TO MAIN MENU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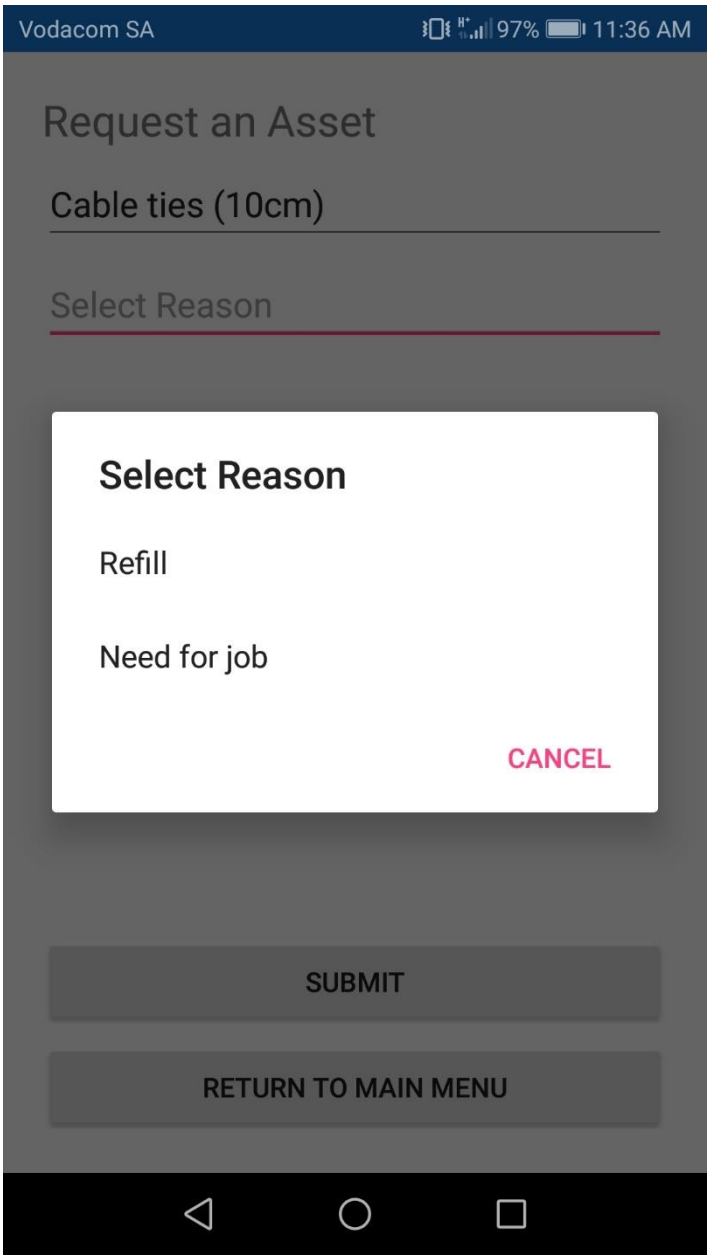
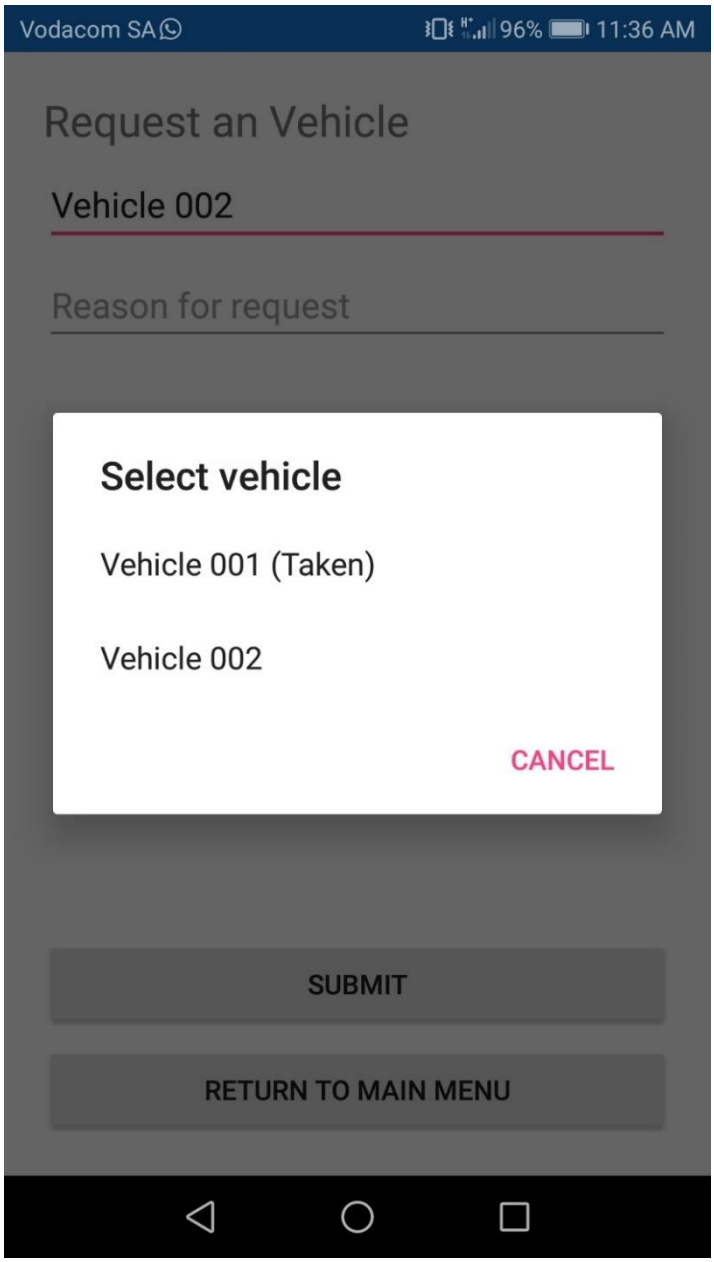
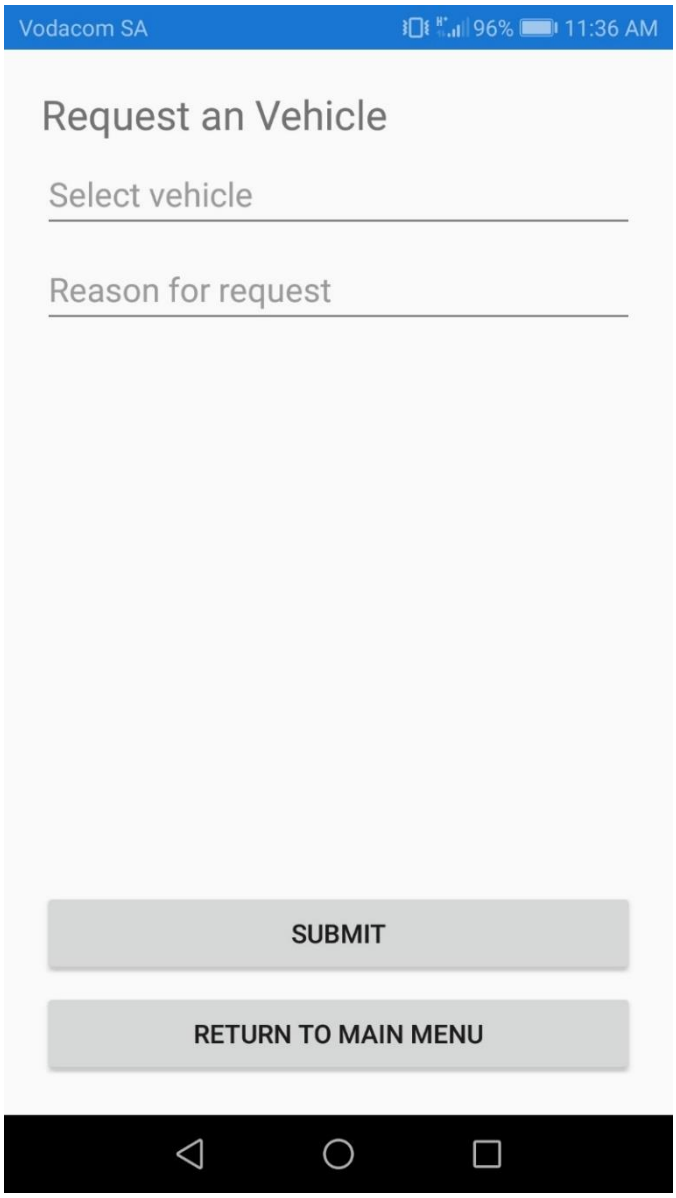
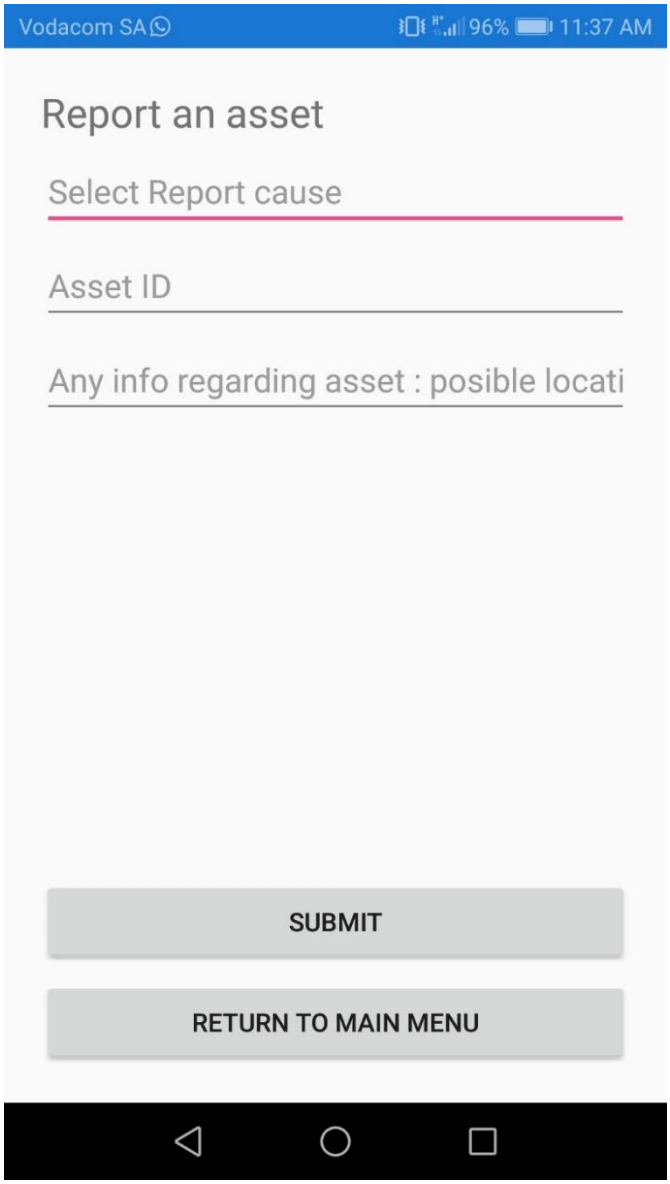
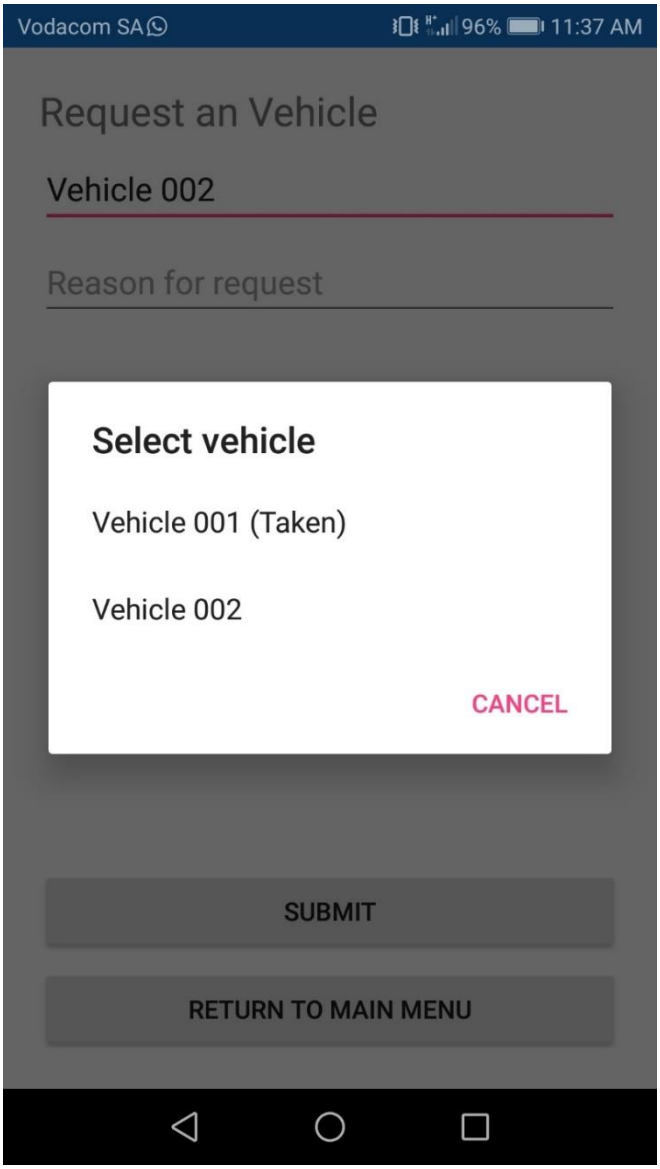
Request an Asset
Select Asset
Select Reason
Select Asset
Cable ties (10cm)
Toolbox med
CANCEL
SUBMIT
RETURN TO MAIN MENU

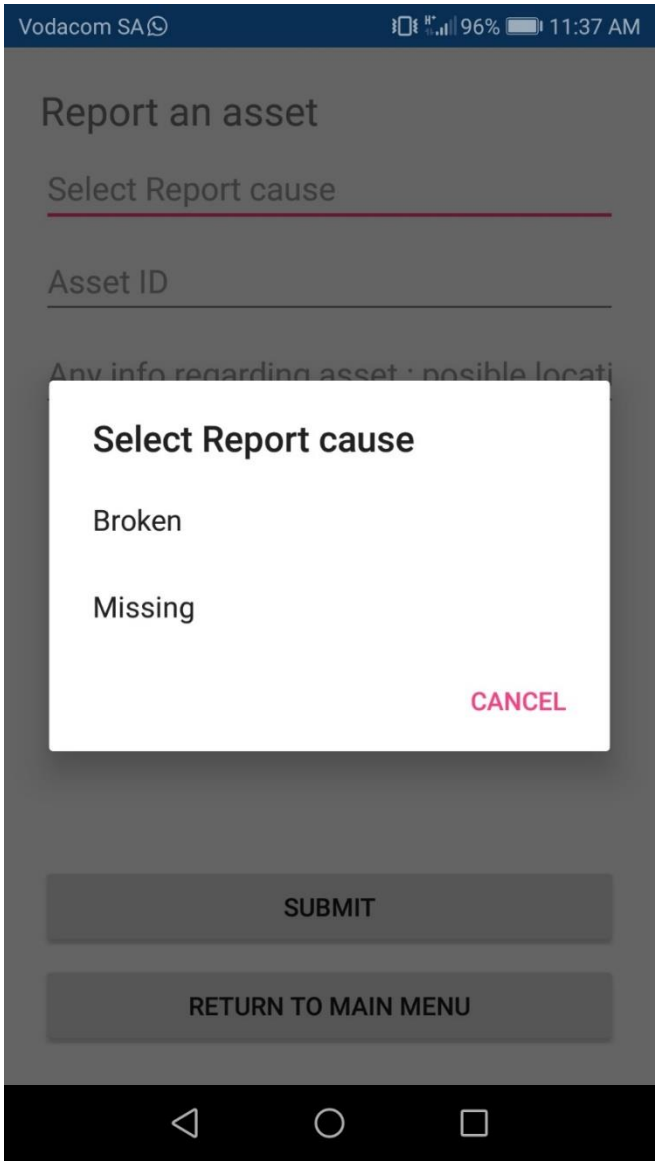

Vodacom SA
97%
11:36 AM
Request an Asset
Cable ties (10cm)
Select Reason
Select Reason
Refill
Need for job
CANCEL
SUBMIT
RETURN TO MAIN MENU

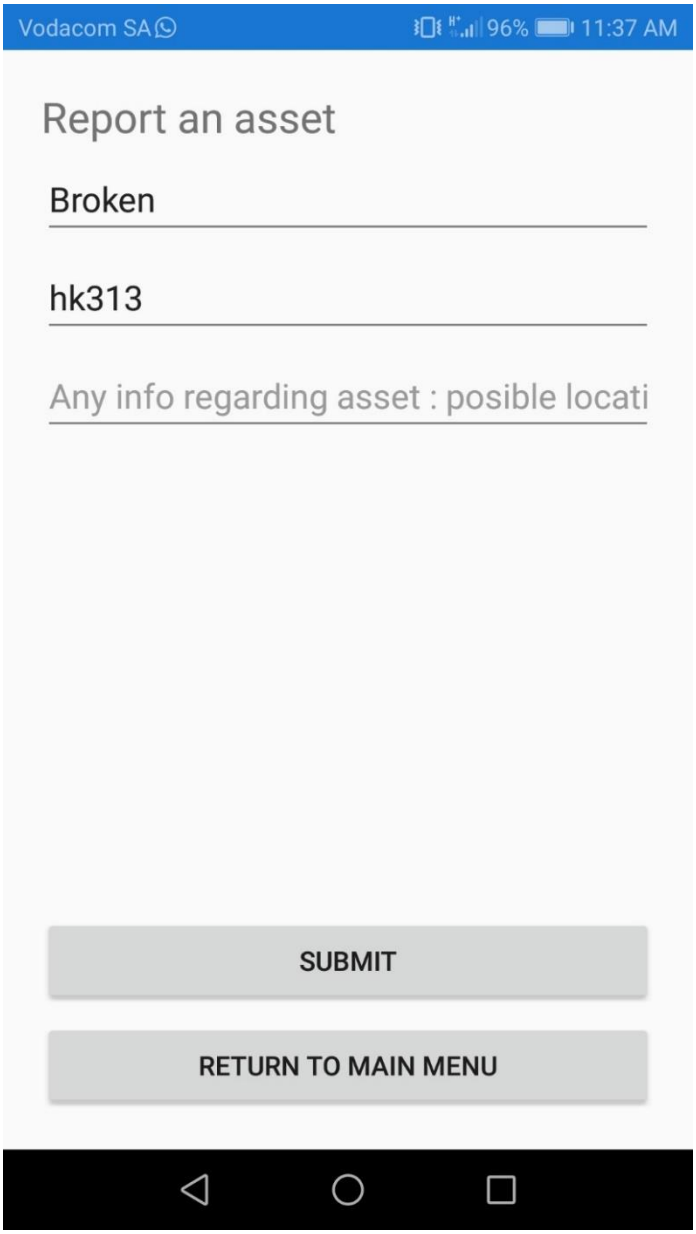

Vodacom SA
96%
11:36 AM
Request an Vehicle
Vehicle 002
Reason for request
Select vehicle
Vehicle 001 (Taken)
Vehicle 002
CANCEL
SUBMIT
RETURN TO MAIN MENU

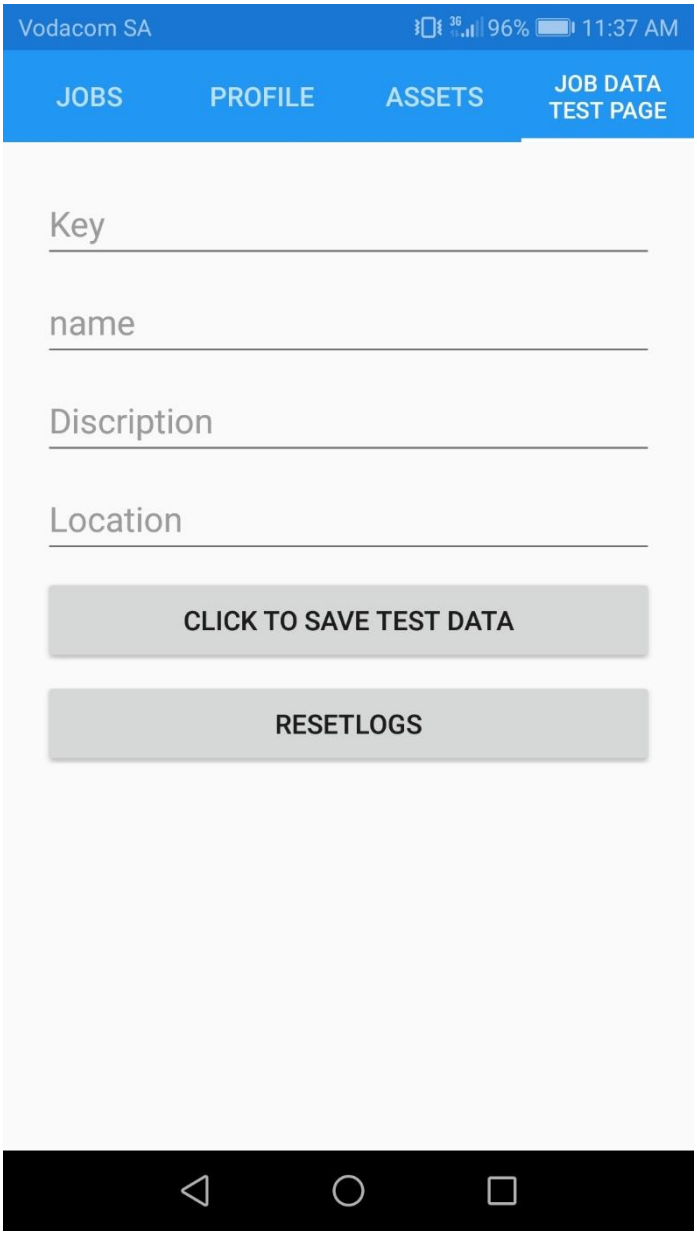

Vodacom SA
96%
11:36 AM
Request an Vehicle
Select vehicle
Reason for request
SUBMIT
RETURN TO MAIN MENU

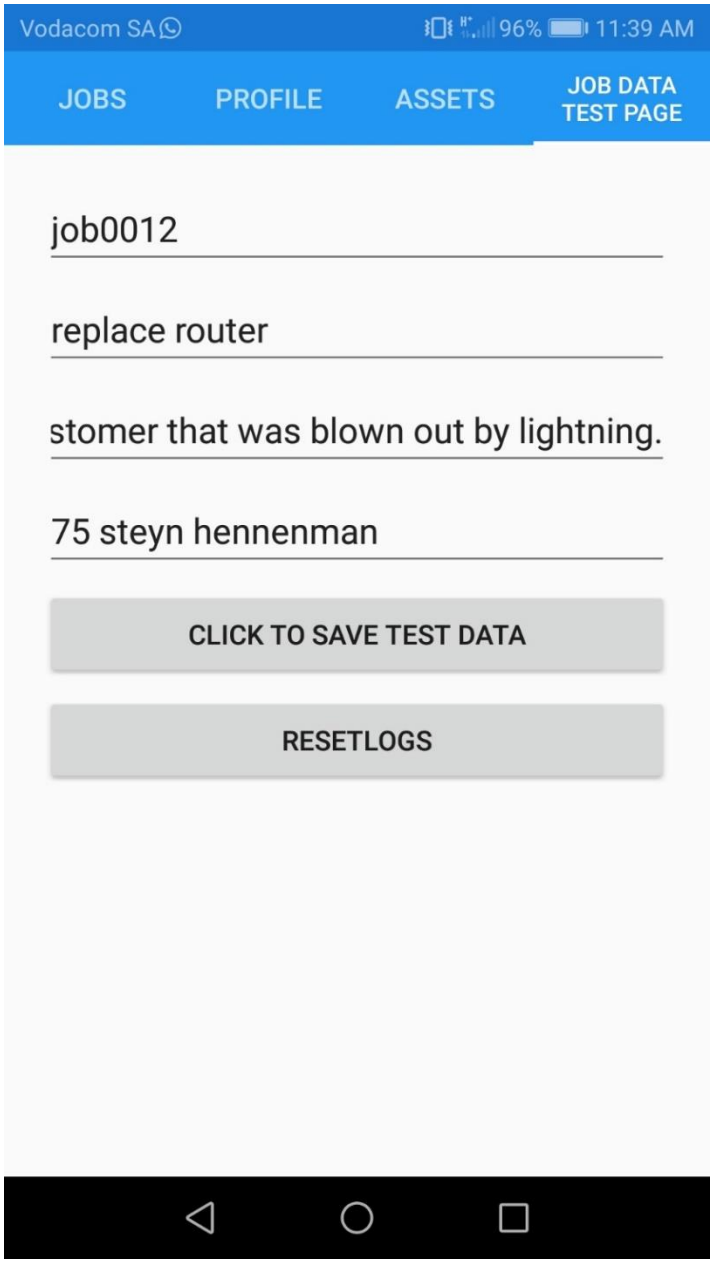

Vodacom SA
96%
11:37 AM
Report an asset
Select Report cause
Asset ID
Any info regarding asset : posible locati
SUBMIT
RETURN TO MAIN MENU

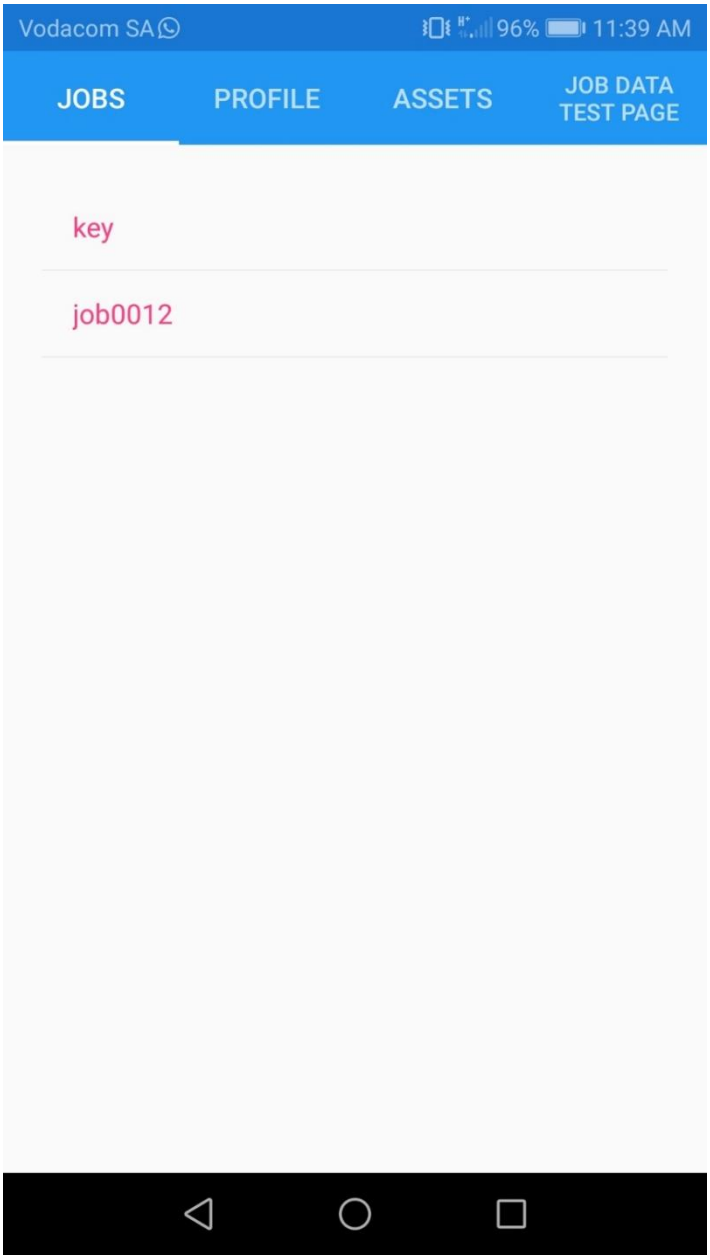

Vodacom SA
96%
11:37 AM
Request an Vehicle
Vehicle 002
Reason for request
Select vehicle
Vehicle 001 (Taken)
Vehicle 002
CANCEL
SUBMIT
RETURN TO MAIN MENU

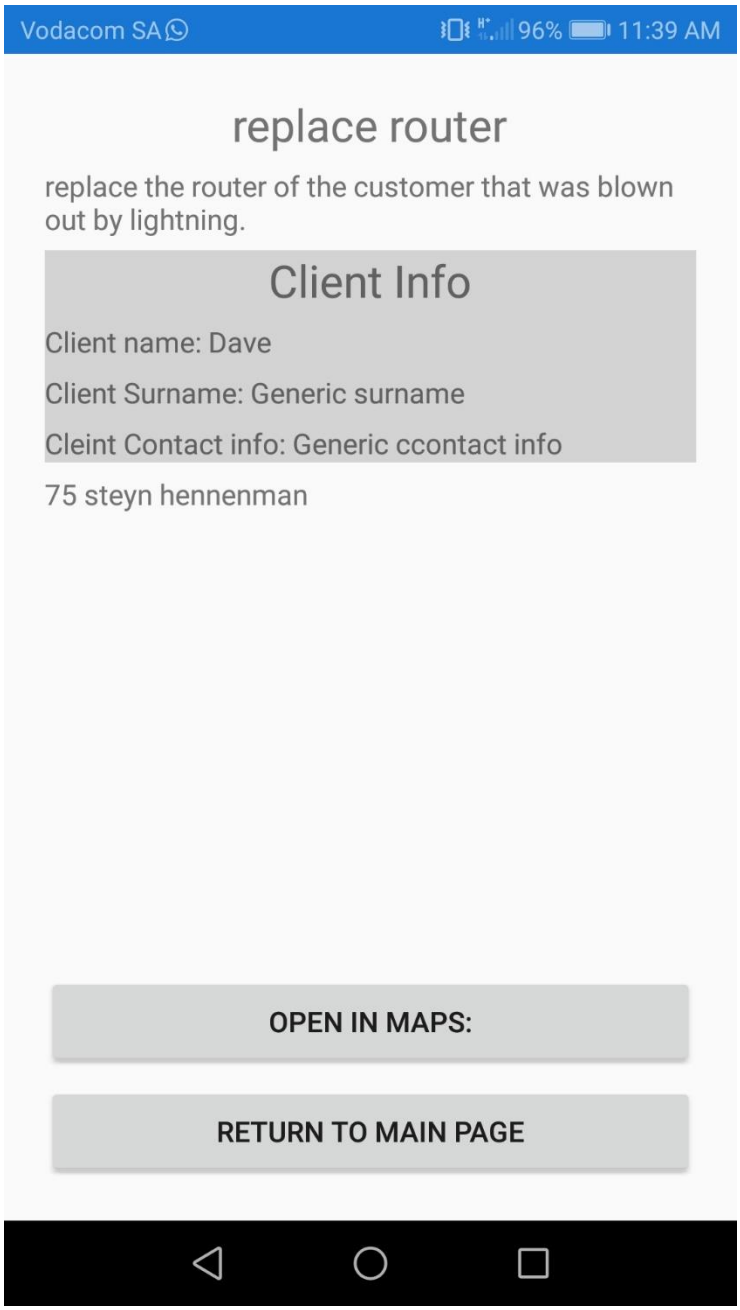

Vodacom SA
96%
11:37 AM
Report an asset
Select Report cause
Asset ID
Select Report cause
Broken
Missing
CANCEL
SUBMIT
RETURN TO MAIN MENU

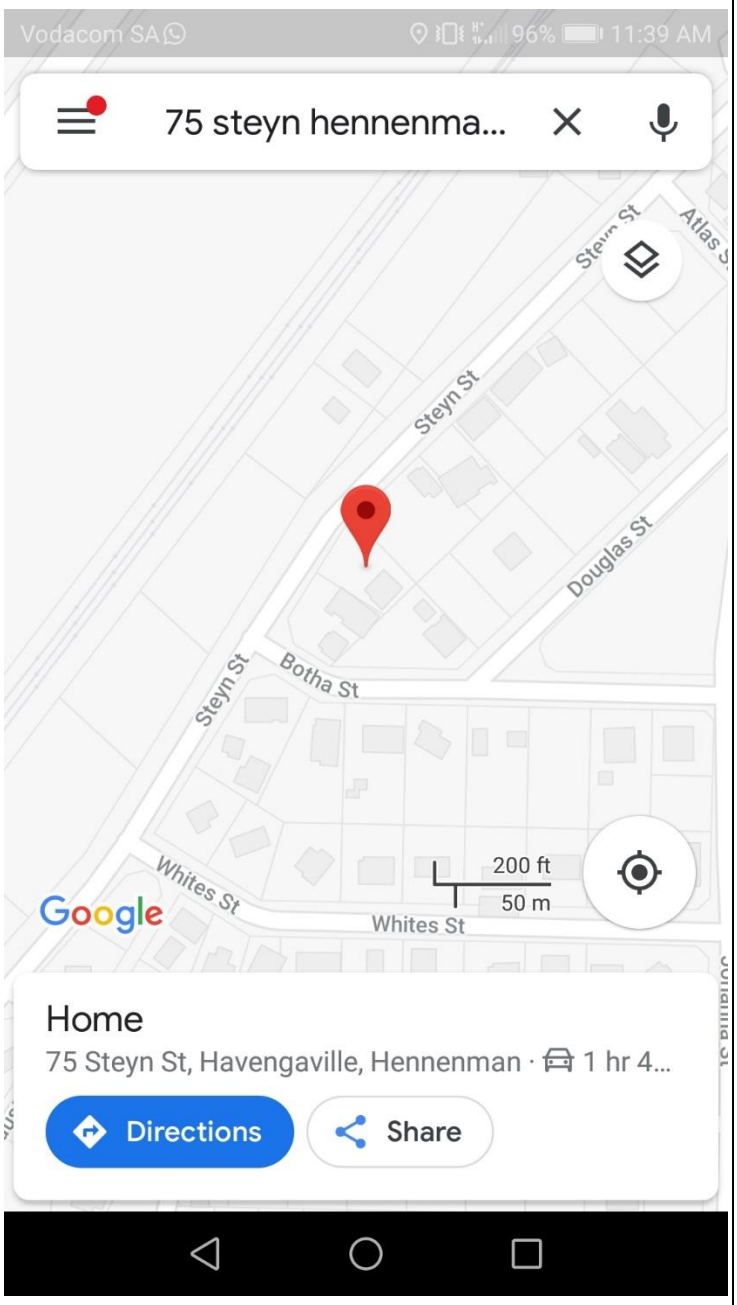

Vodacom SA
96%
11:37 AM
Report an asset
Broken
hk313
Any info regarding asset : posible locati
SUBMIT
RETURN TO MAIN MENU


Vodacom SA
96%
11:37 AM
JOBS
PROFILE
ASSETS
JOB DATA TEST PAGE
Key
name
Discription
Location
CLICK TO SAVE TEST DATA
RESETLOGS

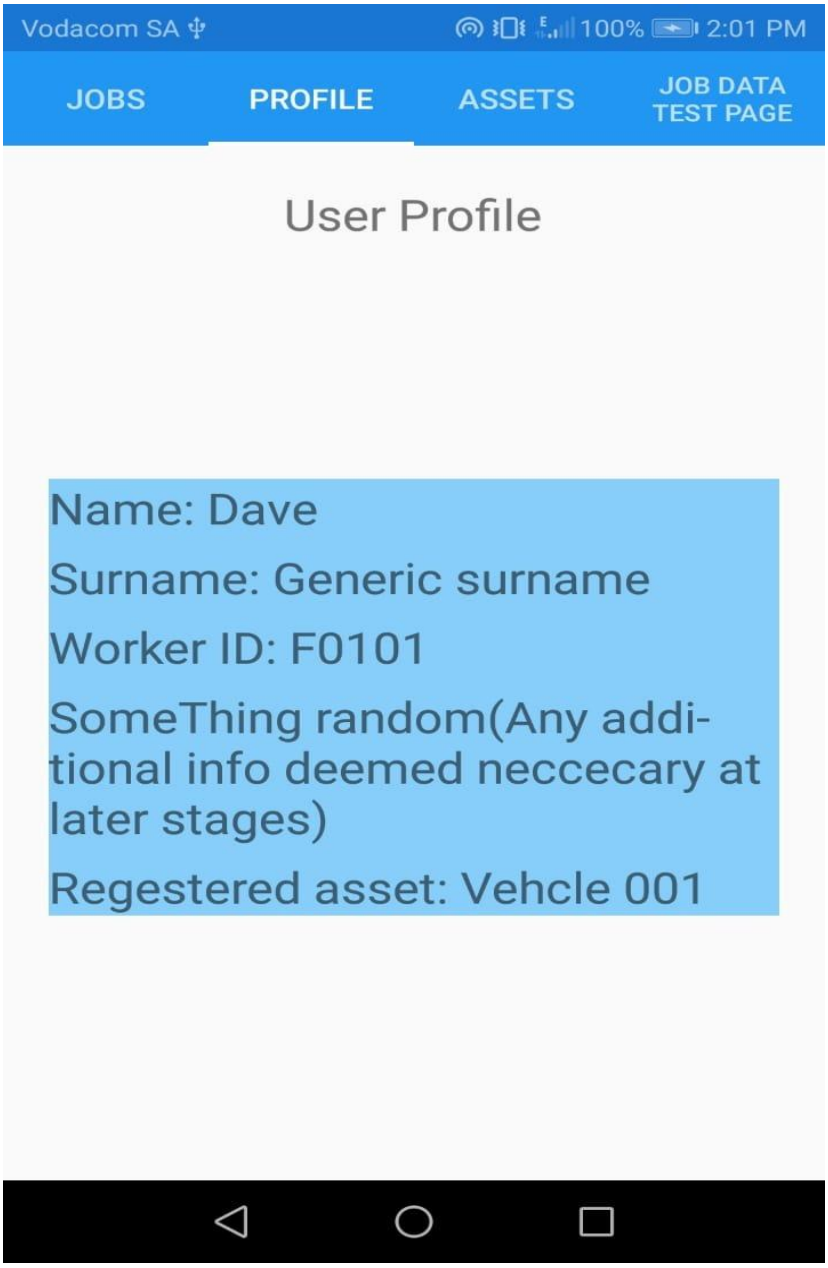

Vodacom SA
96%
11:39 AM
JOBS
PROFILE
ASSETS
JOB DATA TEST PAGE
job0012
replace router
stomer that was blown out by lightning.
75 steyn hennenman
CLICK TO SAVE TEST DATA
RESETLOGS


Vodacom SA
96%
11:39 AM
JOBS
PROFILE
ASSETS
JOB DATA TEST PAGE
key
job0012


Vodacom SA
96%
11:39 AM
replace router
replace the router of the customer that was blown out by lightning.
Client Info
Client name: Dave
Client Surname: Generic surname
Cleint Contact info: Generic ccontact info
75 steyn hennenman
OPEN IN MAPS:
RETURN TO MAIN PAGE

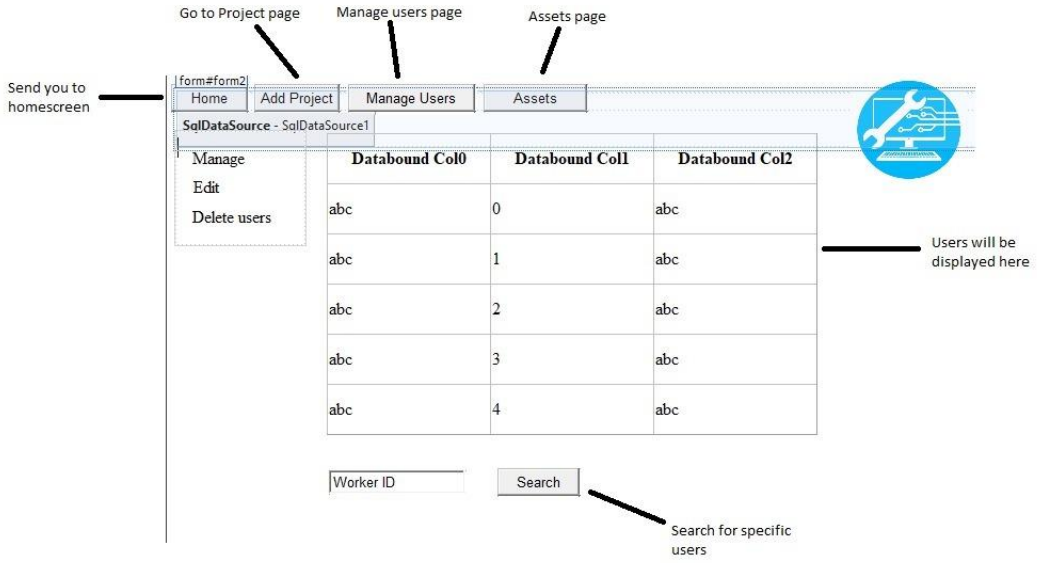

Vodacom SA
96%
11:39 AM
75 steyn hennenma...
Steyn St
Steyn St
Douglas St
Botha St
Steyn St
Whites St
Whites St
200 ft
50 m
Google
Home
75 Steyn St, Havengaville, Hennenman · 1 hr 4...
Directions
Share

Example of job cart:

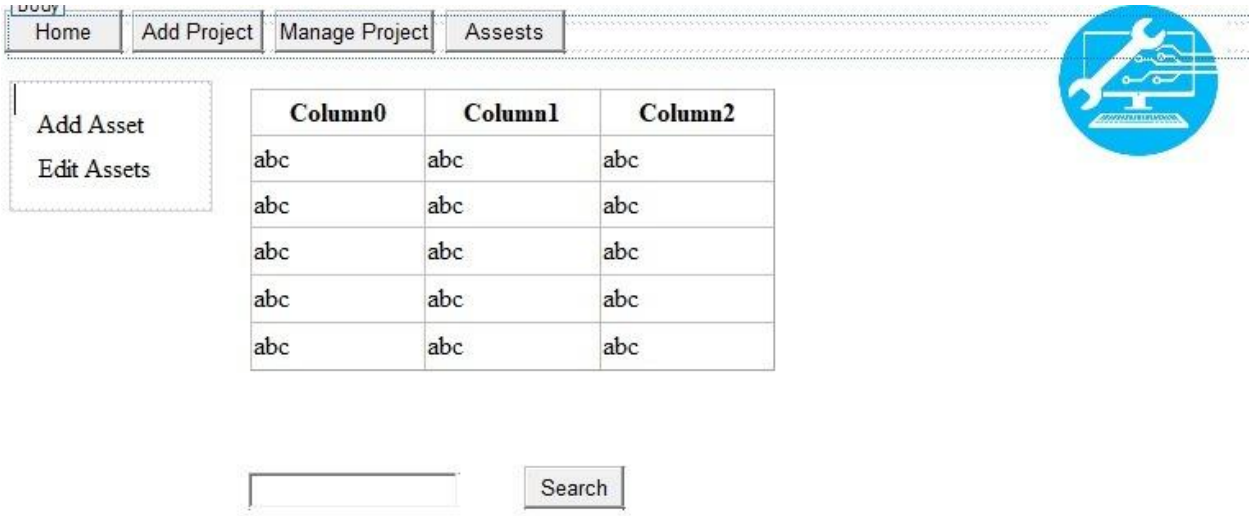


User Interface Design: Web Application

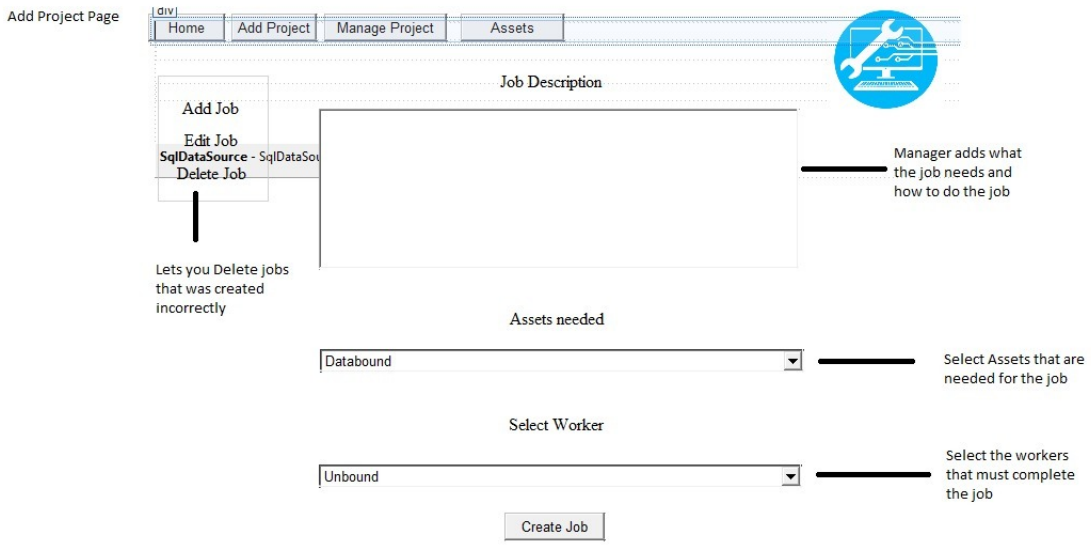
Main Page:



Assets page:



Project page:



Who did what:

Werth M : Overview, Project management and Overall documentation.

Ackerman W : Requirements.

Buys AJ : Problem Analysis and Fact Finding.

Haasbroek CJ : GUI (mobile application) and Process Modeling.

Van Zyl j : GUI (Web Application) and Data Modeling.

Mpheqeke K : Use-Case modeling and help with overall documentation.