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Systems Planning

Problem Statement

Royal Construction Services is a web application that provides small construction companies and individual people who want to build or renovate their houses with the ability to purchase building materials online and have those materials delivered to their door step. The issue concerning this type of business is that, the customers may not always buy all the required amount of materials needed to complete construction, hence we found an opportunity to provide them with an ease of purchase system with delivery.

Making use of web services, Royal Construction Services aims to solve this problem by providing a variety of building materials right on at their fingertips so to speak, and at the buyer's convenience.

The project will consist of a web application that will serve both the customers and administrators with different functionalities according to which type of user they are, namely customer or administrator. The web application will be built to work very well on Desktop and Mobile devices to enable customers to view the product catalogues and to place orders for the products and will also enable administrators to add, update, and remove products in the database. The database will be located on a server and the server will facilitate data processing and transfer to and from the web application. The application will also allow the users to suggest some building products that we can offer them for further purchases.

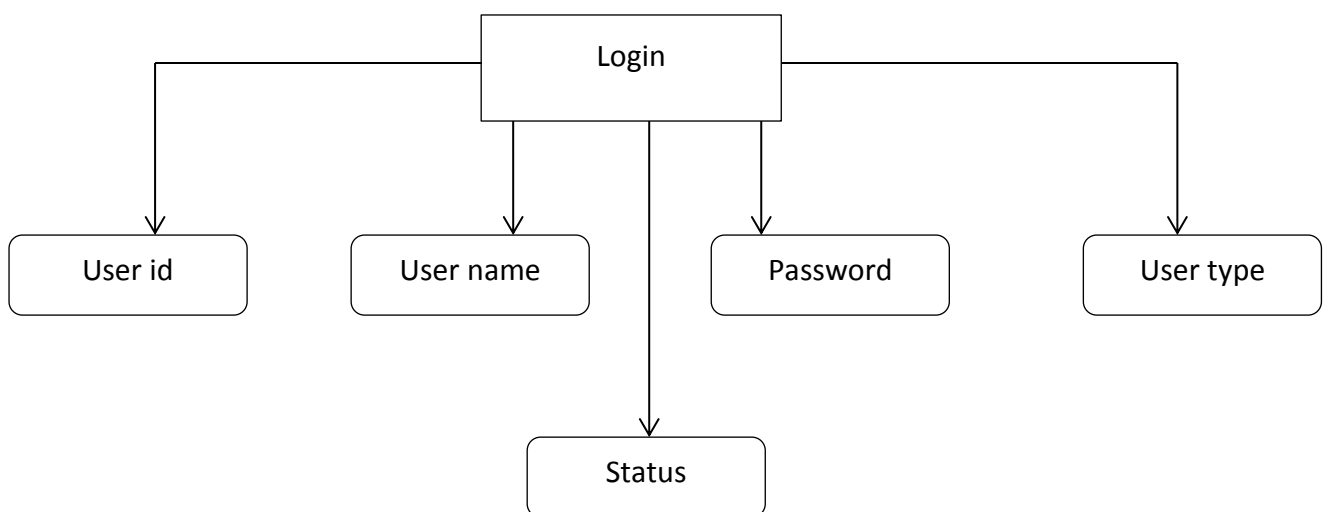
Concept influencing the Solution

The business of construction companies and house building and renovations is growing at a fast pace. Thus this is the concept behind the solution that we are bringing to our consumers. This is a great opportunity for both Royal Constructions Services and the stakeholders involved in the project because we will be practising the skill that we acquire as Software Developers. This solution will benefit everyone involved in the project as it will provide ground for a different approach in buying materials.

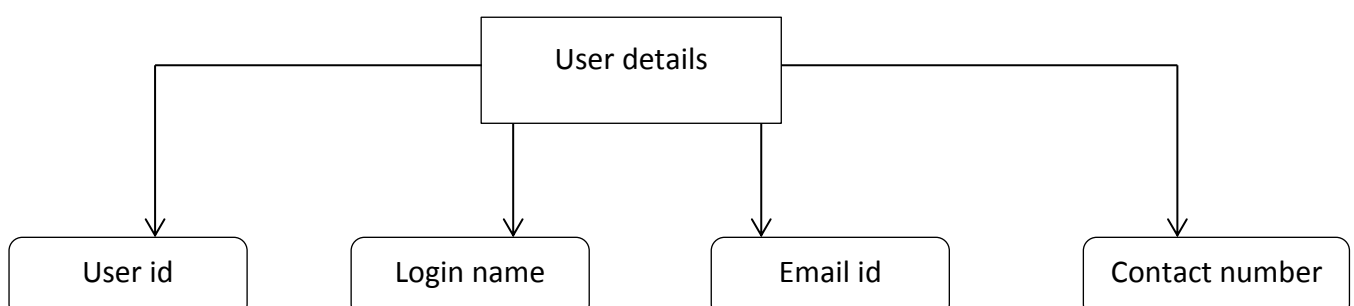
Business Rules

- Only registered users can use the website for buying and ordering purposes
- Other users will have limited options on the application such as viewing
- Only the system administrator can add, update or delete the products on the system/ database
- Users will be allowed to update all the aspects of their profile
- Only the system/website administrator has access to everything on the system, such as database
- Only the available content can appear on the website for purchases
- Unavailable content will be automatically marked as sold out
- Users can then request for a product that they need but that is currently sold out by requesting it via the web application form
- Users cannot add unavailable items to their cart but can instead request it
- Users can only suggest the products to be put on sale but cannot add them on the dataset
- Users have to supply their credit card number before they can check out their cart
- Only registered users can add items to the cart and create a quotation
- Only Admin has access to the server

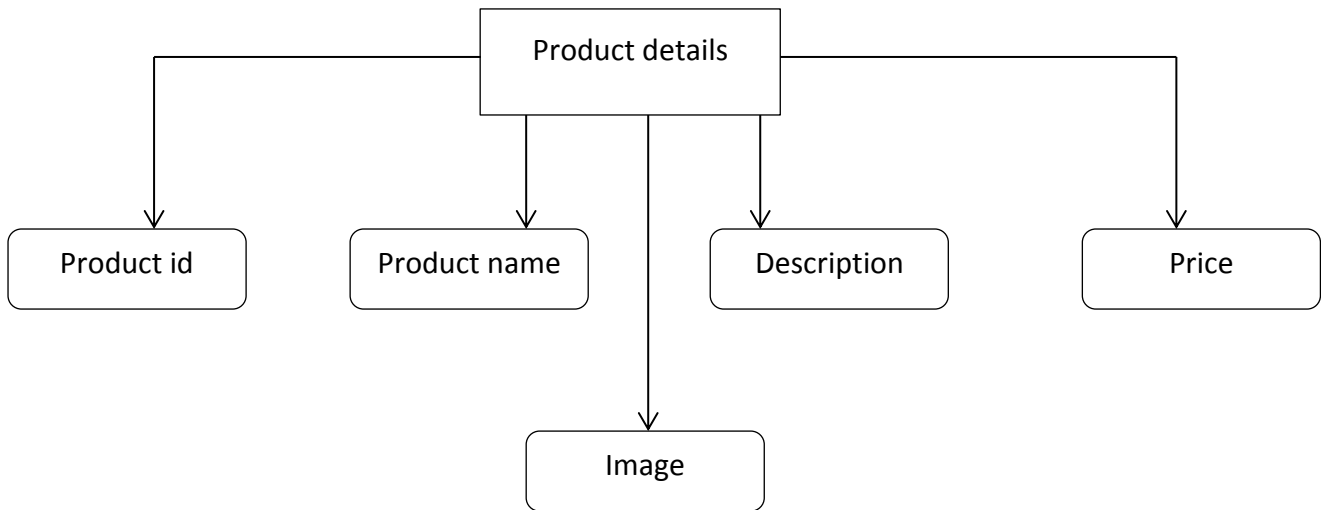
Entity Relation Login



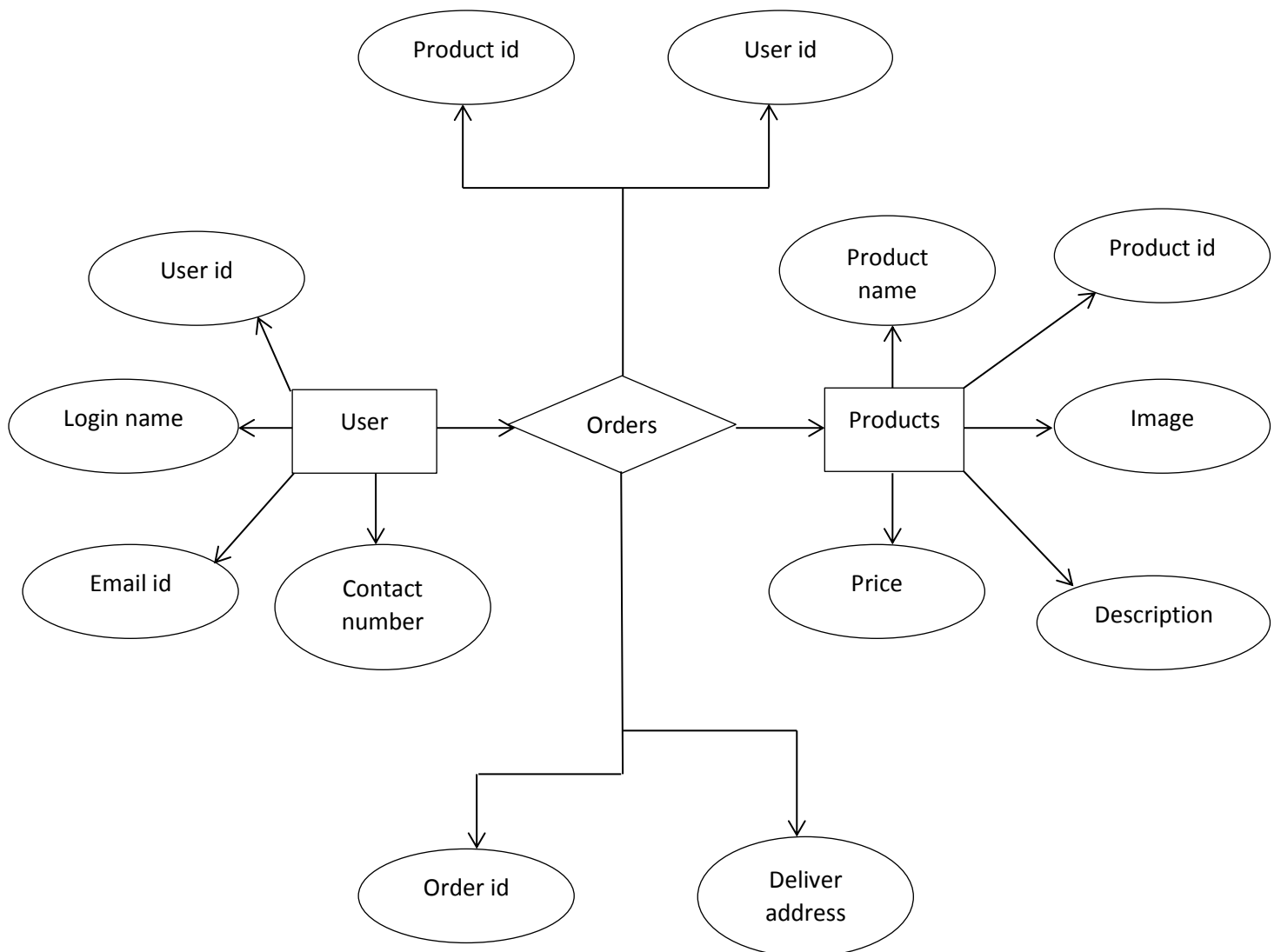
Entity Relation User details



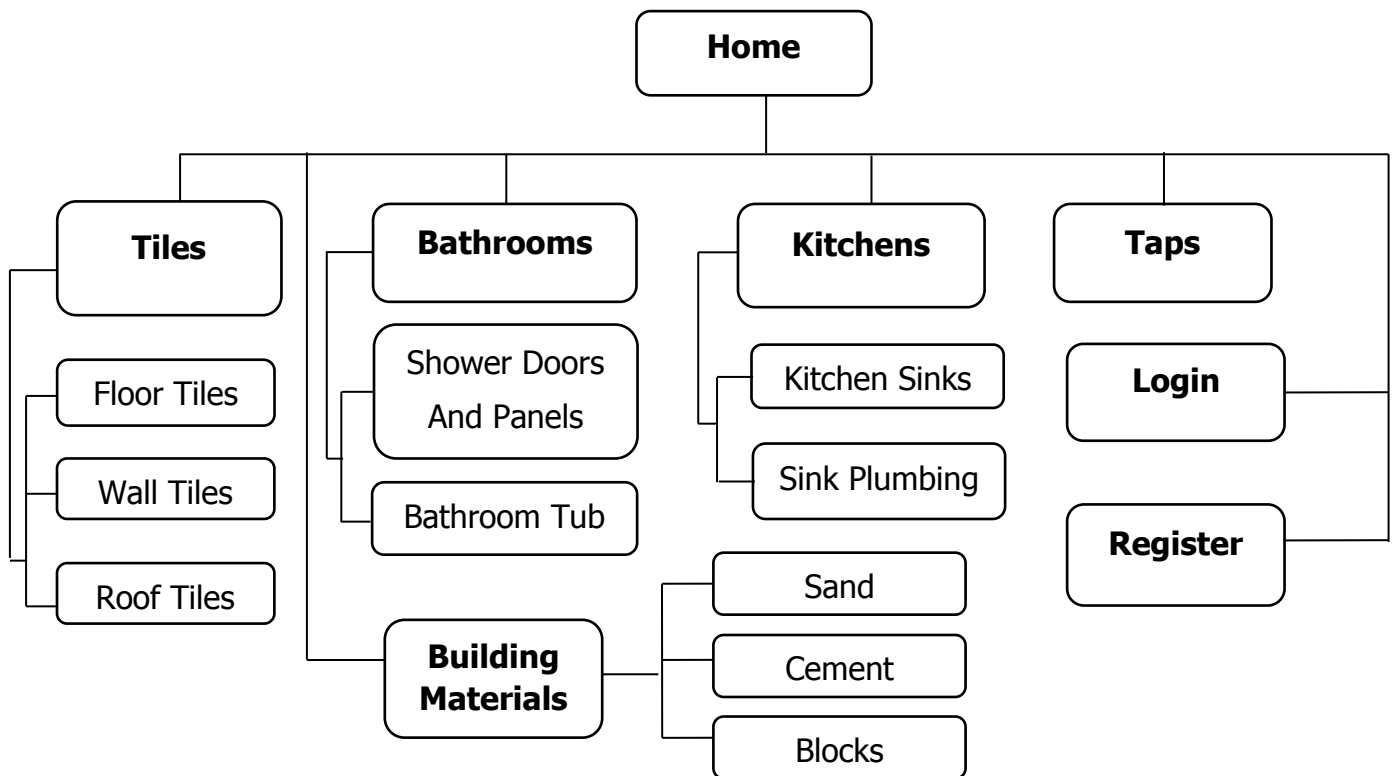
Entity Relation Product Details



Entity Relation Complete Diagram



The over view of the project



Requirements and Data Modelling

Scope of the Website

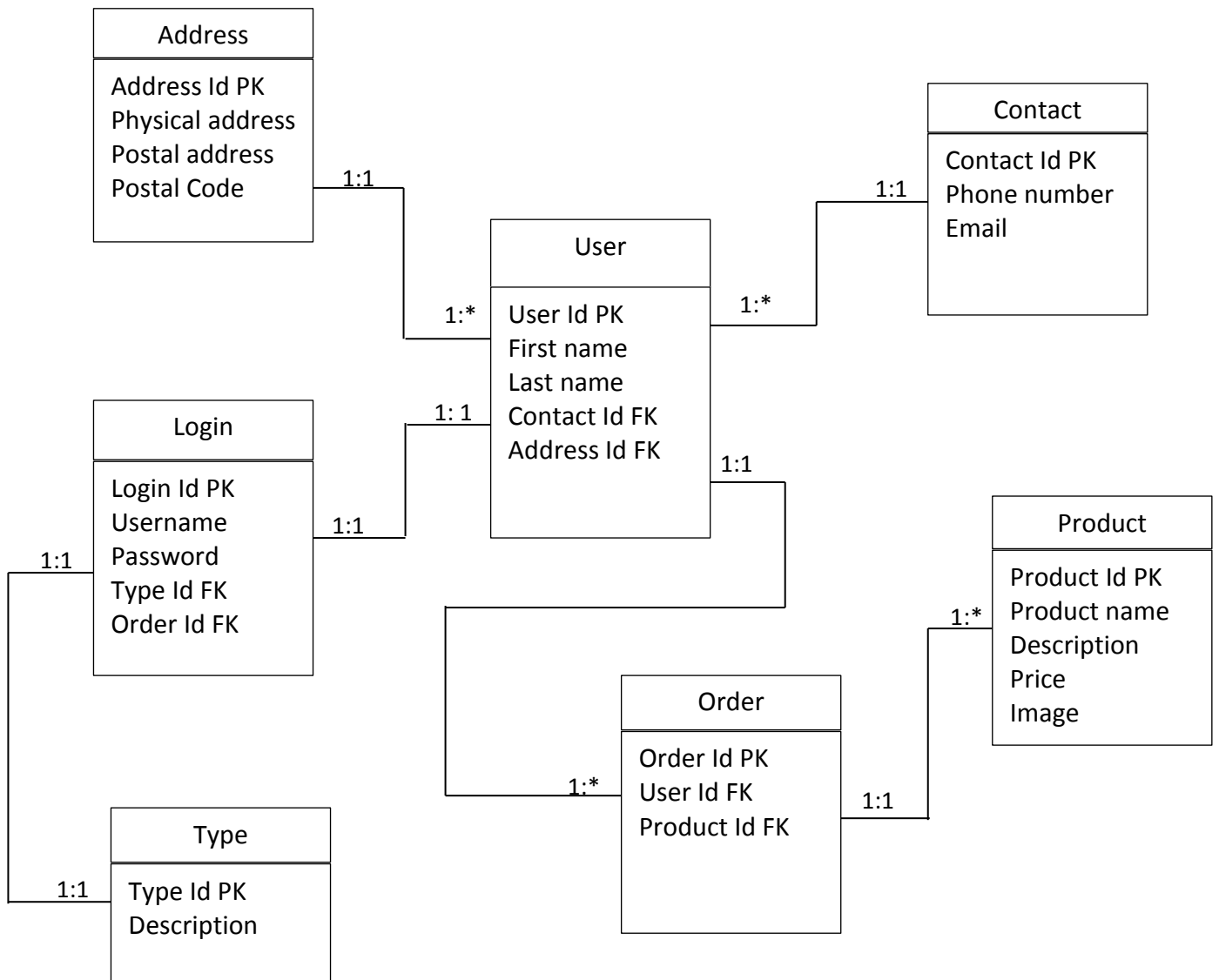
The customers will register with their details and get a confirmation of their registration via e-mail; thereafter they will be able to login in order to use the system.

The website will provide the following facilities to the customers

- Facilitation of easy shopping online.
- Customers will be provided with up-to-date information on the products available via the website and also via newsletters.
- It will give customers the opportunity to register for a monthly newsletter via e-mail to keep them up-to-date and also as a marketing tool.
- The website will enable customers to view product catalogues by category where each product will have an image and an area describing its specifications/product information.
- Will allow customers the opportunity to suggest products they would like to see added to the product base.

The website is allocated a database in order to store all aspects of data including the images. As well as allowing the administrator access to edit content in the database in case any change is required.

ERD Diagram



Storyboard

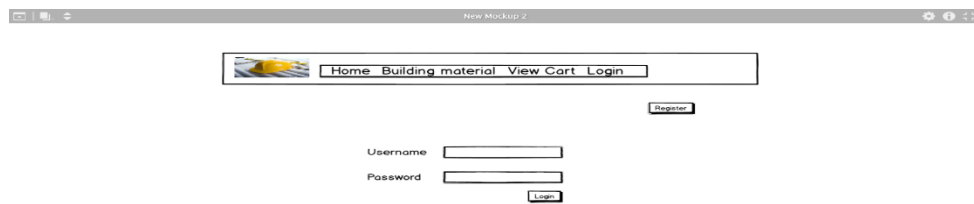


Figure 2 shows the Login page. It features a navigation bar with a logo and links: Home, Building material, View Cart, and Login. Below the navigation bar is a Register button. The main form contains fields for Username and Password, with a Login button at the bottom.

Figure 2 Login page, the first screen that a user first access if the user does not have an account the can click on register to direct them to a register page

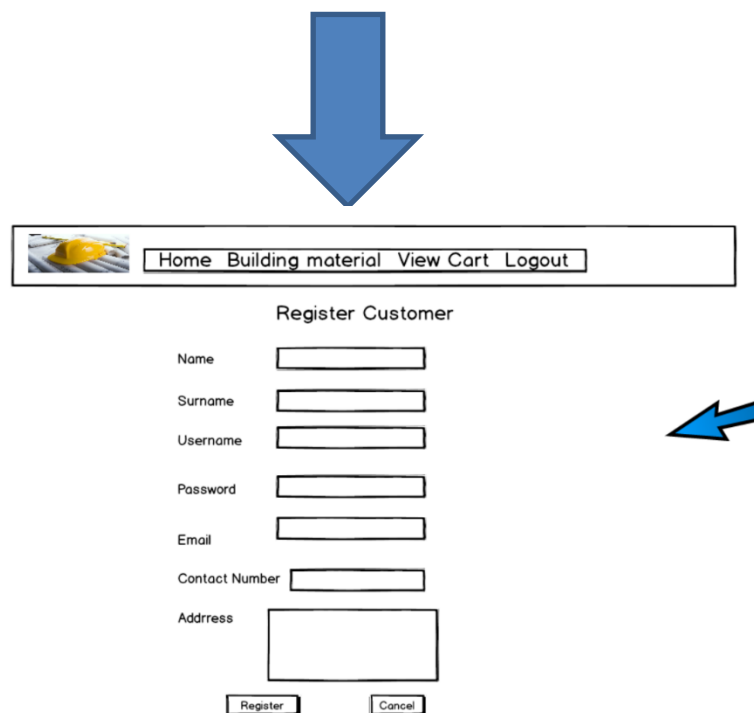


Figure 3 shows the Register Customer page. It features a navigation bar with a logo and links: Home, Building material, View Cart, and Logout. Below the navigation bar is the title "Register Customer". The main form contains fields for Name, Surname, Username, Password, Email, Contact Number, and Address. At the bottom are Register and Cancel buttons. A blue arrow points to the Register button.

Figure 2 User must enter details to be recognized by the system and also their personal details so send their requested building material.

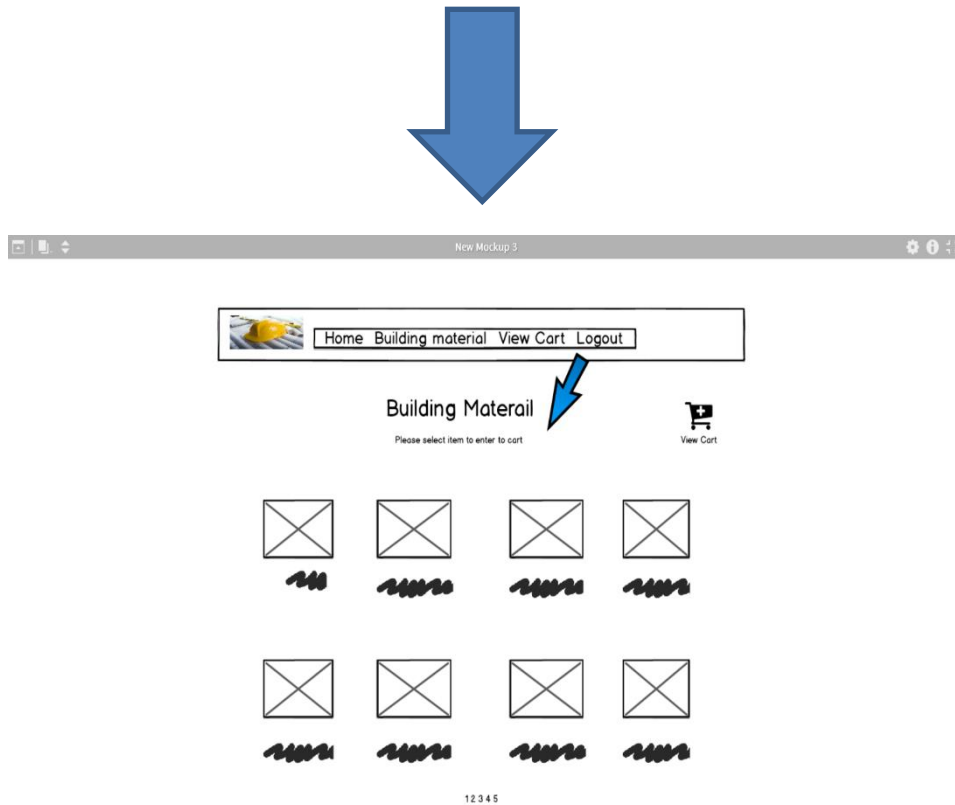


Figure 4: After the user is logged in, there will be available products on display of with a logged in user can add to their cart, a user can select more that one item, Users that are not logged in they can only view the products and cannot purchase

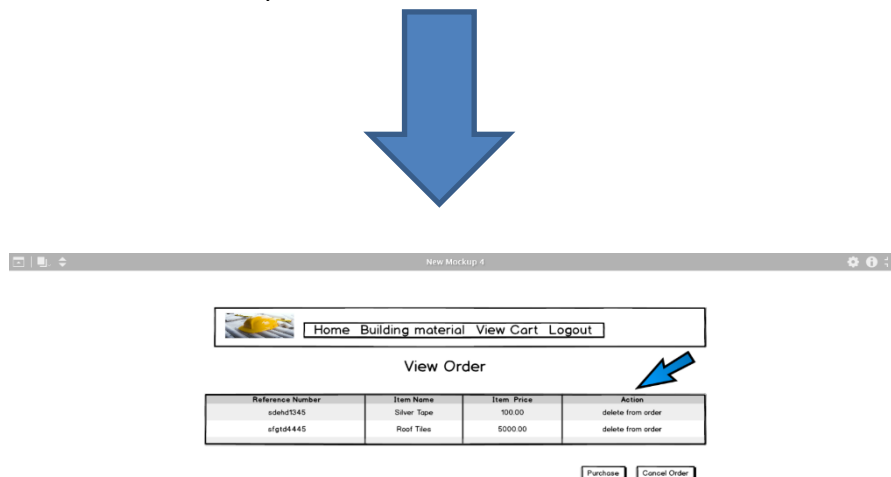


Figure 4: After a user is done selecting the products they need they will be able to see their order with all the selected items, and they either choose or deleted some items on the list, if the user clicks purchase the order is then sent to the address

Development language

The programming language chosen are the Java programming language and the PHP scripting language.

We have chosen these particular languages on the following criteria;

- Familiarity: All the developers involved in the project are familiar and proficient Java and PHP programmers and so this will lessen development time.
- Tools and frameworks: Java has many helpful tools at the developer's disposal such as IDEs and frameworks such as JSP (Java Server Pages) for the development of the actual website and Hibernate or JPA (Java Persistence API) for database persistence that will assist dearly during the development of the project.
- Java is an Object Oriented programming language and so will make it easier to model real life entities within the system and thus will make development easier.
- Java is widely supported by the majority of existing systems and so we will not have to worry about compatibility issues.
- PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages.
- PHP is a good language for front-end development operations such as data validation before the data is sent to the server to be processed by the Java system and so that is where it is going to be used in the system.

System Architecture

