CLARINFO: A PROJECT BASED ON PROVIDING PRODUCT'S ORIGINAL INFORMATION TO THE CONSUMER.

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This project titled **"Clarinfo: A project based on providing product's original information to the consumer",** submitted by **Hasibur Rahaman Talukder, Id:143-15-4399,Mainul Islam, Id:143-15-4531, Md. Samir Khan Bipul, Id:143-15-4349**. To the Department of Science & Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirement of the degree of B.Sc. in **Computer Science & engineering** and approval as to its style and contains. The presentation has been held on 10th December, 2018.

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DECLARATION

We hereby declare that this project has been done by us under the supervision of **Nusrat Jahan, Lecturer**, **and Department of CSE Daffodil International University**. We also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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ABSTRACT

People are always trying to make their life easy and they discover many smart solutions. For this reason, our world is now the modern world for the gift of science and technology. Life becomes easy to easier with the help of modern technology. To cope with this area we also want to participate to make our word better to live with purity. To live a better life we have to use a different type of product every day and most of them we have to buy. Many different companies produce those goods and sell them to the consumer in order to make the profit. The consumer doesn't have the proper knowledge of those goods often. How pure are that product and their side effects? However, branded companies are giving clear information about their product to carry their business reputation well. Some non-branded companies hide their product information and consumers suffer from money or health. Some unknown dishonest producer produces the copy of the branded goods and sells them. The consumer often is the victim of those bad products while purchasing them. They cannot make the difference between the original and the duplicate one. It can be very harmful to the consumer while they use it.

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Introduction

1.1 Introduction

From the ancient era, people are improving their life doing much technical thinking to overcome their obstacle. People are always trying to make their life easy and they discover many smart solutions. For this reason, our world is now a modern world for science and technology. Life becomes easy to easier with the help of modern technology. To cope with this era we also want to participate to make our word better to live with purity.

To leave the better life we have to use a different type of product every day and most of them we have to buy. Many different companies produce those goods and sell them to the consumer in order to make the profit. A consumer doesn't have the proper knowledge of those goods often. How pure are that product and their side effects? However, branded companies are giving clear information about their product to carry their business reputation well. Some non-branded companies hide their product information and consumers suffer from money or health. Some unknown dishonest producer produces the copy of the branded goods and sells them. The consumer often is the victim of those bad products while purchasing them. They cannot make the difference between the original and the duplicate one. It can be very harmful to the consumer while they use it.

Our motivation came from those consumers who are betrayed by purchasing the duplicate product. We want to give the facility to choose the original product and to purchase with accurate product rate. The can be able to find out the duplicate one. Reputed companies are also able to keep clear to the consumer by updating their product information so that consumer can get clear about that product. They also able to isolate duplicate product and can bring those dishonest companies under the law. The question appears why the companies update their product detail? Different companies make the

same goods and they have a competition for the consumer. To earn consumer's trust in their product they always try to keep clear information.

1.2 Motivation

The consumer often betrayed while they consume any goods and that is duplicate. They lose money and even fall in risk. Besides the original company lose their business reputation. Sometimes the shopkeeper takes an unfair price of a product from the customer. Even they hide or put fake expire date on a product in order to sell the date expire product. This unfair purchase can bring harm to our human life.

Our world is very dynamic by virtue of modern science and technology. To get safety people to improve and use smart technology. To cope with the dynamic and modern world people build smart system to enhanced safety. We want to give this world a gift that provides the optimum solution to get rid of consuming a duplicate product.

Now a day people are keener to keep them safe from a bad quality product. Modern civilization has wanted of a system that can ensure their safety. In this situation, we thought about a system that can be our final year project.

We believe our project can be able to those people who always get the victim of fraud. People will satisfy while they purchase any goods.

1.3 Objective

In order to allow the consumer while the consumer any goods, they can get accurate knowledge about the product. This system is allowing them to get the products at the original price as well as the product's original brand. Besides, the company will be able to earn a better reputation and business class from the consumer by showing their product's true information in front of them. So the purpose of our project is for both consumer and company perspective.

Consumer perspective
- To give facility to the consumer whether the product has proper information.

- Product name

- Product current prize.

- Expire Date

- Manufacture date

- Product origin

- Product weight Etc.
- Allowing the consumer to know the product identity.

    - Brand

    - Non-brand.
- Allowing the consumer to judge the Product quality

    - Original

    - Duplicate

Company perspective
- To keep a better reputation in front of the customer.
- To ensure customer the product information is trueandto keep
their business clearance.

1.4 Expected Outcome

Turning a Smartphone into a barcode scanner isn't useful unless you know how to efficiently use barcodes to cut costs and increase efficiency. Barcodes are essentially patterns that represent encoded information. Consumers are most likely familiar with 1D or traditional barcodes (the classic lines and spaces first put into retail use back in the 1970s) as well as 2D or QR codes. In recent years, QR codes have become more popular because they pack more information: Traditional barcodes usually contain a serial number that corresponds to more information residing in a central database, including price and remaining on-site inventory, but 2D codes are complex enough to tell you all that and more right away (such as providing photos for reference).

- Mobility: we cannot think about to go anywhere without the mobile phone and now a day a large number of people uses smartphones. A consumer can easily use their Smartphone to scan a barcode.

- Easy to use: smartphones are very easy to use. Because it has an easy user interface. In recent people are used to make smartphones more usable.

- Easy internet access: Smartphone's feature has internet access.

- Can use a camera as a scanner device: The camera of a smartphone is very useful to capture an image of the barcode. By image processing algorithms the bar code can be extracted.

Benefit for companies:

The information stream generated by the clarinfo users can be of great value for brand owners in the CPG industry. The core benefits for brand owners are the following:

- Costs for market research are reduced: According to marketing experts, in traditional market research a consumer survey costs about $10 per person. The application can provide one consumer's opinion at an estimated $0.5 resulting in a cost reduction of 95%.

- Tracking of brand recognition and consumer trends, sentiment analysis, and conversational marketing are enabled at low costs.

- The brand is present in mobile and social media with a tangible added value for the business.

- Cross-selling mobile advertising and coupons within one brand are possible: During a scanning process at the point of sale advertising for a related product can be displayed on the phone, e.g., if a consumer scans cereals she gets an advertising message for yogurt on her phone. This could also be combined with digital coupons, which can be redeemed directly at the check-out or through existing customer loyalty programs.

- Large retailers can use the application to supplement existing loyalty schemes, e.g., customer loyalty cards or collecting points for shopping.

- Consumer behavior and feedback can be monitored in real-time and can be location based, providing valuable input for strategic decisions in product development and marketing.
- Consumers authenticate themselves using existing social network accounts to personalize their comments and publish them on their streams and profiles. Given that users grant access to their profile information, precise consumer profiling for market research and marketing is possible. Also, comments can be published using these social network links, which helps to spread the word about the product and has a high viral marketing potential.

1.5 Report Layout

In this report, there are nine chapters which are shown below:

Chapter 1: Introduction, Motivation, Objective, Expected outcome, Report layout.

Chapter 2: Introduction, Related works, Comparative studies, Scope of the problem, Challenges

Chapter 3: Business process modeling, Requirement collection analysis, Use case model and description, Design requirement.

Chapter 4: Front end design, Back end design, Interaction and UX, Implementation and Requirement.

Chapter 5: Implementation and Database, Dataflow Diagram, Database Design and implementation, ER Diagram, Database table and Design.

Chapter 6: Conclusion, Implication for further study.

CHAPTER 2

Background

2.1 Introduction

This project is an android and web-based tool. Android allows us to use the camera and scan the product barcode, send it to the server. If the valid product barcode is available in the server when a message is sent to the user via an android device with proper product information. Otherwise, send a message that the product doesn't have any information or duplicate product. This is a great platform where the company can build trust from the consumer. And the consumer can be benefited by using the system because they can get the product detail.

2.2 Related Works

Basic design and implementation constraints are given
below the project has a web interface.

- The project has an Android interface.
- Both Android and web interface is designed in the English language.
- Both systems are working for a single server.
- Sender
- Receiver
- We have no maintainability or backup so availability will get affected.
- Project is designed for single user system

2.3 Comparative Studies

- Operating System:

  1. Windows XP/vista/7 or later version

  2. Linux,

  3. Ubuntu.

  4. ANDROID version 4.0

- Development platform

    1. Sublime text editor / Bracket / Notepad++

    2. Photoshop and illustrator

    3. Apache

    4. MySQL

    5. Android studio

2.4 Scope of the Problem

Our project is a real-life problem-solving tool that extends a horizon where the original identity product can be recognized. It is a web and Android-based project. It includes a database where all the data from companies will be available for the authentic user request. A company will be able to earn a better reputation and business class from the consumer by showing their product's true information in front of them. So the scope of our project is for both consumer and company perspective. A consumer can be benefited by purchasing goods if they can verify the product identity as well.

2.5 Challenges

The clarinfo project is an android and web-based project. Clarinfo is the name of our project which provides clear information. In our project, we include a database where the company can upload their product information and the original barcode. They also can delete, update their product from the database. To do this company has to use our web portal (www.clareinfo.com). The consumer can use smartphone having an Android operating system, by which they can scan a product barcode and can get the product information or send feedback,

Since our project is both Android and web platform, so we have two branches of project functions. One is for android platform and another is for the web.

Web Platform

Before we indicate that our project has a web platform. We build a web portal named (www.clareinfo.com). This website can be used by both company and consumer.

Consume can only use the view product feature which allows them to see the products details. A company can use the most of all features of the portal. Following tables will be able to describe the functions of the web platform.

Company User: While the company uses our website, the can get access to the following features given on the table.

Table 2.5.1: Web features for company user

Feature	Details
Manage user	This feature provides sign up and log in. Sing up manage the new user registration. Login provides the user to get access to the portal by an authentic verification.
View product	This feature allows the user to view the product and its detail. But here product cannot be modified.
Manage product	Manage product provide two sub-feature such upload product and update product. This two feature need user signup and login. Upload product allows the user to upload their product information and the updated product allows the user to edit and delete the products.
About and contacts	In this two feature user can contact with the admin panel and able to know about this portal, its features, terms, and conditions.

Consumer: While the consumer uses our website, they can get access to the following all the feature that the company uses except the mange product. Because manage products only for company users.

Table 2.5.2: Web feature for consumer

Challenges	Details
Manage user	This feature provides sign up and log in. Sing up manage the new user registration. Login provides the user to get access to the portal by an authentic verification.
View product	This feature allows the user to view the product and its detail. But here product cannot be modified.
About and contacts	In this two feature user can contact with the admin panel and able to know about this portal, its features, terms, and conditions.

Android Platform

This platform gives the most amazing features. An Android platform gives user internet access, camera access. We build an android application for the consumer. Our application allows the user to scan a product barcode using its camera. The scanned code is sent to the web server to check the product identity. If the code is available in the web page then three options will appear. The options are view detail, Visit portal, comments. If the code is not available on the portal it sends the user a message "product not available on the server or the product is duplicated. This platform is both company and consumer while they both are considered as the consumer. The following table will show the functions of android platform and their descriptions.

Table 2.5.3: android feature for the company

Challenges	Details
Scan product barcode	By this feature, a user can scan a product barcode using its camera. A camera will automatically start while the user presses the scan button

View product detail	This feature allows the user to view the product and its detail according to the scanned barcode. But here product cannot be modified.
Visit portal	The user can visit the portal while the use the app. The app will connect another web application by which they can browse the web portal and see the other products.
Comments	The user can post a comment about the service or products.

Users and Activities

The project allows two classes one is a regular user and another is an admin. This is the Regular users have two classes one is a consumer and another is a company. The admin panel manages the regular user and their activity. The following table shows the user and their activity.

Table 2.5.4: User and activity

User	Activity
Company	• View product detail • Upload product • Edit product • Delete product • Contact with admin
Consumer	• Scan product barcode • View product detail • Visit portal • Post comments

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

The business process modeling (BPM) in systems engineering is the activity of representing processes of an enterprise, so that the current process may be analyzed or improved. BPM is typically performed by business analysts, who provide expertise in the modeling discipline; by subject matter experts, who have specialized knowledgeoftheprocessesbeingmodeled;ormorecommonlybyateamcomprisingboth. Alternatively, the process model can be derived directly from events' logs using process mining tools.
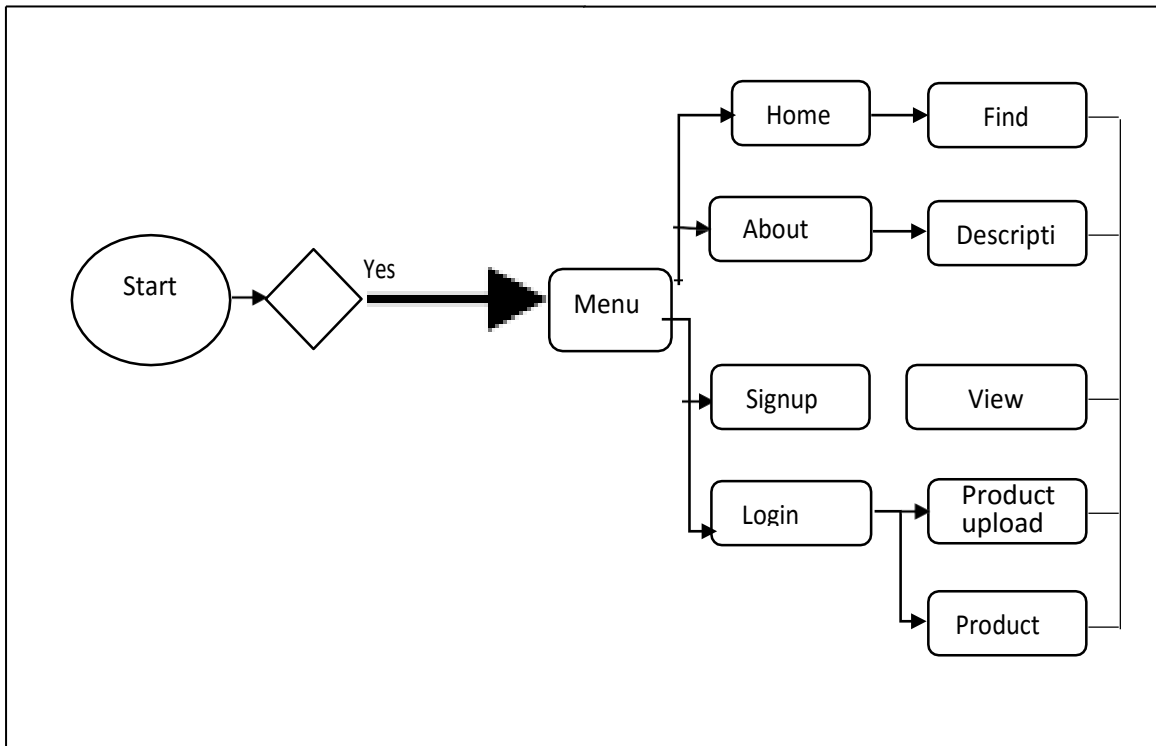

Figure 3.1.1: Business Process Modeling for "Clarinfo" Website.

3.2 Requirement Collection and Analysis

General system requirement deals with both minimum amounts of hardware and software to run the optimal function of our system. To run our Clarinfo application we need android device and our web portal (www.clearinfo.com) also need the following specification

Table 3.2.1: General System requirement

Platforms	Requirement specification
web	• Windows XP or higher • PHP • MYSQL • Browser (Firefox, Chrome etc.) • Pentium – 4 processor or above • 512MB RAM or above • Hard Disk Space (50MB) or above • Keyboard
android	• Android operating system • Android version 4.2 or above • Camera resolution 1.5 megapixel or above • RAM: 512 MB or above • Hard Disk: 1GB or above

3.3 Use Case Modeling and Description

The Use Case Model describes the proposed functionality of our system. A Use Case shows a discrete unit of interaction between a user and the system. A Use Case is a single unit of meaningful work; for login system, signup with the system and create order are all Use Cases. Each Use Case has a description which describes the functionality that will be built in our proposed system.

A Use Case may 'include' another Use Case's functionality or 'extend' another Use Case with the behavior of itself.

There are several ways to model a system, each of which may serve a different purpose. However, the most important motive of a use-case model is to communicate the system's behavior to the customer or user. Consequently, the model must be easy to understand.

The users and the other system that may interact with the system are the actors. Because they represent system users, actors help determine the system and give a clearer picture of what it is supposed to do. Use cases are developed based on the actors' needs. This ensures that the system will turn to be what the users expected.
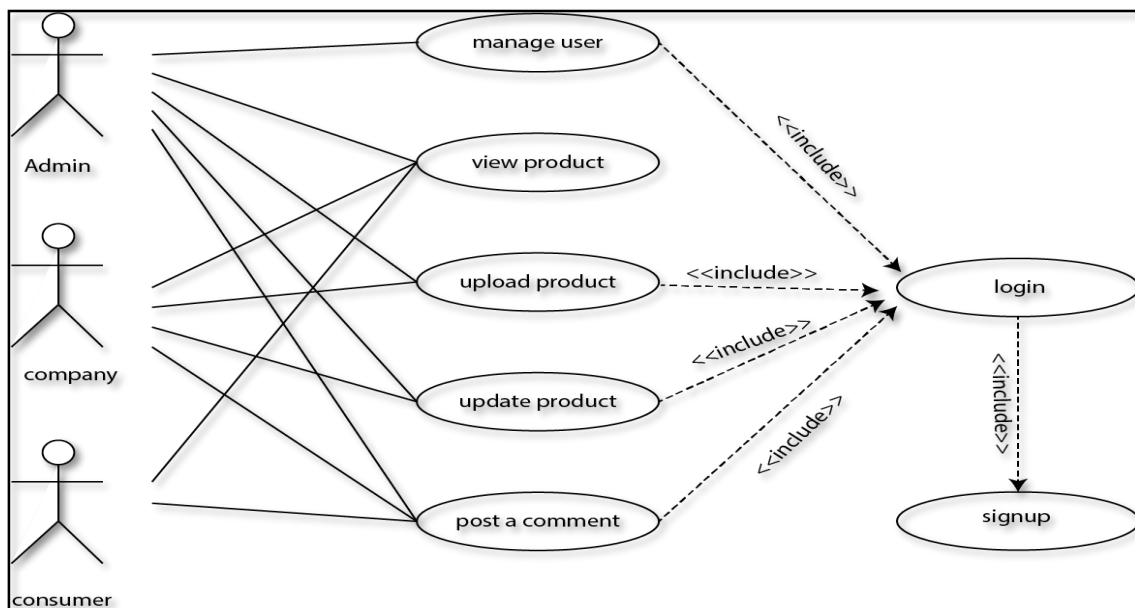

Figure 3.3.1: Use Case Model for Clarinfo (WEB)

It contains information about all the use case of the case Model shown in the above picture. We have described every use case through a table in the below section. Each table shows five kinds of detail information about a use case. They are Use case name, Actor, Pre-condition, Primary Path, and Exceptional Path. Use case name means the name of the process. Actor defines who will be the user. Pre-condition tells whether or not another process is needed to enter or use this process. Primary Path defines how the process works step by step. And last but not the least Exceptional Path shows us what will the process do if an exception occurs in a primary path.

We have a total of seven tables which is given below for the better understanding of the processes of our project.

Table 3.3.1 describes "Signup" process of admin and consumer in our project and it gives us an understanding of how the process works in the project. Signup process has seven primary paths they enter the first name, enter the last name, enter e-mail, enter the username, enter the password, enter a password again to confirm and click the register button. In this then the primary path has five exceptional paths.

Table 3.3.1: Use case description of Signup for admin and consume

Use case name:	Signup
Actor:	Admin, consumer
Pre-condition:	None
Primary Path:	• Enter user First Name • Enter user Last Name • Enter user E-mail • Enter Username • Enter the password • Confirm password • Click "Signup" Button
Exceptional Path:	• Invalid E-mail • User Username already is taken • Username needs at least 4 characters • The password does not match • Password length in minimum 4 characters

Table 3.3.2 describes "Signup" for company uses a process of our project and it gives us an understanding of how the process works in the project. This Signup process has seven primary paths they enter Company Name, Company License, Username,

Password, Confirm Password, E-Mail, Contact Number, Select Country, and Signup again to confirm and click the register button. In this then the primary path has five exceptional paths.

Table 3.3.2: Use case description of Signup for company user

Use case name:	Signup
Actor:	company user
Pre-condition:	None
Primary Path:	- Enter Company Name - Enter Company License - Enter Username - Enter Password - Enter Confirm Password - Enter E-Mail - Enter Contact No. - Select Country - Signup
Exceptional Path:	- User Username already is taken - Invalid E-mail - Invalid Company License - Username needs at least 4 characters - The password does not match - Password length in minimum 4 characters

Table 3.3.3 describes "login" process of our project and it gives us an understanding of how the process works in the project. Login process has three primary paths they enter

the user ID, enter the password and click the login button. In this three primary path have two exceptional paths that are user ID/Password is invalid.

Table 3.3.3: Use case description of Login

Use case name:	Login
Actor:	Admin, Consumer, company user
Pre-condition:	Signup
Primary Path:	1. Enter user ID 2. Enter the password 3. Click "Login" Button
Exceptional Path:	1. User ID/Password is invalid 2. User ID/Password is invalid

Table 3.3.4 describes "Manage User" process of our project and it gives us an understanding of how the process works in the project. Manage User process has two primary paths they are select a username, click block button and click remove button. In this three primary path have no exceptional paths.

Table 3.3.4: Use case description of Manage User

Use case name:	Manage User
Actor:	Admin
Pre-condition:	Login
Primary Path:	1. Select username 2. Click "Bock" Button 3. Click "Login" Button
Exceptional Path:	

Table 3.3.5 describes "Vie product" process of our project and it gives us the image view of a product. One button will appear on the image. If the button was clicked then the product information page appears. The consumer can see the full detail of a product including product image. It has no exceptional path.

Table 3.3.5: Use case description of View product.

Use case name:	View product
Actor:	Admin, Company User, Consumer
Pre-condition:	
Primary Path:	1.Click "View" Button
Exceptional Path:	

Table 3.3.6 describes "Upload Product" process of our project and it gives us an understanding of how the process works in the project. Upload Product has primary paths they choose a file, click UPLOAD Button. In this two primary paths have no exceptional paths.

Table 3.3.6: Use case description of Upload product.

Use case name:	Upload product
Actor:	Admin, company user
Pre-condition:	Login

Primary Path:	1. Product Name
	2. Product Price 3.Brand Name
	   4. Manufacturer
	   5. Country Of Origin
	   6. Barcode
	   7. Product Image
	   8. Click "Upload Product" button.

Exceptional Path:	

Table 3.3.7 describes "Update product" process of our project and it gives us an understanding of how the process works in the project. Export Data process has one primary path, click the Export Button. In this primary path have no exceptional path.

Table 3.3.7: Use case description of Import Data.

Use case name:	Update product
Actor:	Admin, Company User
Pre-condition:	Login
Primary Path:	Click "Update Product" Button
Exceptional Path:	

3.4 Design requirement

The design requirements for our project will different from the other projects, because our project will work on our specific problem of the tourist. We designed our project for a specific segment, that is tourism site of Bangladesh and we try to provide the all things to our application that are necessary for a user to operate our application easily.

- In our application we design a product view system that any

  users can get the product detail.

- We design category-wise product.

- We design an emergency option for the user which can help them in different situations.

We should also keep in mind something when we designed

- Small device support like mobile (for layout)
- Logo (for icon and logo)
- Color code (for color background)
- Tab support
- Toolbar support

CHAPTER 4

Design Specification

4.1Front End Design

Clarinfo Homepage:

The homepage is used to give us a graphical understanding of our website. It is the main interface of our portal. It has an explicit navigation bar where all the options are given. The user can choose options according to their login process. Navigation bar contains view product, contacts, about us, login button, sign up button, search bar. The home page also contains some vertical image view. The image view shows the recent uploaded and popular product.

Figure 4.1.1: Clare-info home page

Company Sign up page:

Signup for the company uses a process of our project and it gives us a graphical understanding of how the process works in the project. This Signup process has seven

primary paths they enter Company Name, Company License, Username, Password, Confirm Password, E-Mail, Contact Number, Select Country, and Sign up again to confirm and click the register button.

Figure 4.1.2: Company Sign-up page

Login Page:

Login page gives us a graphical understanding of how a user can log in our server. The login page has two input field, one is for Users name and another is for Password. After dealing with input field user needs to click on Login Button to perform their functionality. If User Name and Password is incorrect then there will appear an error message "username or password is incorrect". Then the user has to re-enter the correct username or password.

LOG-IN

Please enter your E-mail and Password

Email Address

Password

Forgot password?

Log-in

Figure 4.1.3: Company login page

View Product Page:

View product page shows the user a clear view of the products. Products are displayed here in a horizontal orientation. These horizontal displays are in a category such as recent upload, popular upload, perfumes, soft drinks etc. When the user puts the cursor on an item from the horizontal display, a view button will appear. If the user clicks on the view product button, another page will execute with product detail information. In product view page shows only product image, name, and price. To get a detail view of the product user has to press the view button. Consumer, company user can get this product view.
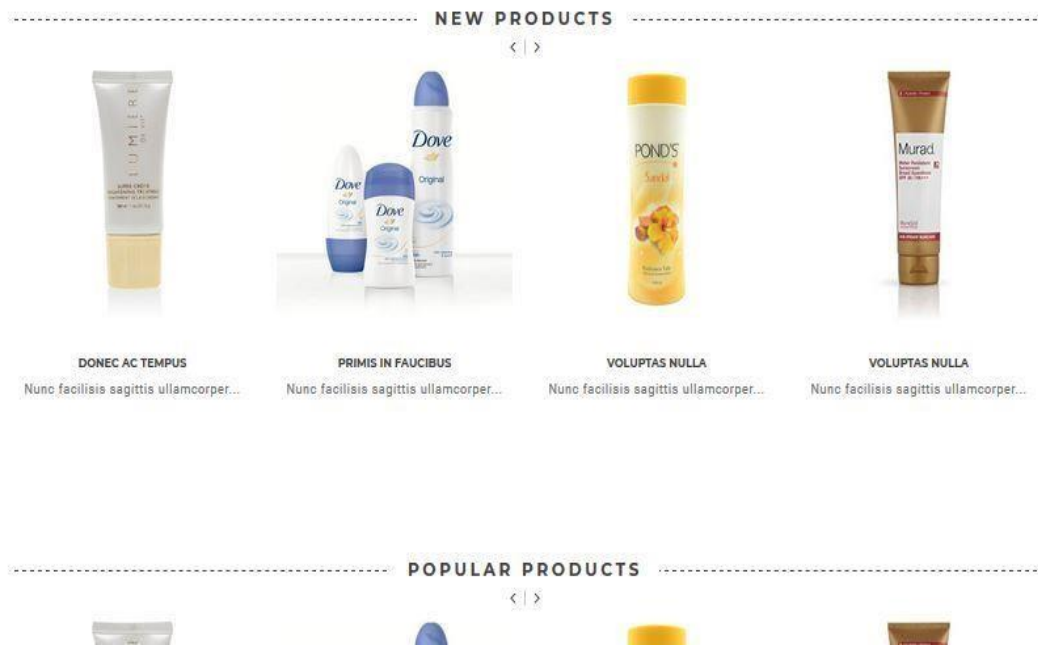
Figure4.1.4: View Product page

Upload Product Page:

Upload product page specially designed for the company so that they can upload their product information. Information of the Product name, product price, product brand, manufacture, country of origin, package type and product image. This page contains several input fields as follows, Product name, product price, product brand and manufacture, country of origin and package type and product image. After filling up the input fields user needs to press the submit button. A pop-up message will show the upload success message. The user can upload as much as they want to upload. If there is need any update in uploaded data, use has to go to the updated product.

PRODUCT INFORMATION

Product Name   👤   Product Name

Product Price $ Product Price

Brand Name   🪶   Brand Name

Manufaturar   👤   Manufacturar

Country Of Origin   ☰   Select your Country ⌄

Barcode   ▭   Barcode

Product Image   🖼   Browse...   No file selected.

Submit

Figure4.1.5: Upload Product page

Contact Page:

Contact page contains the system developer and owner's contact information. The user can get the owner contact. The can submit their problem on this page. The page developer can able to send feedback to the user. This page represents a platform for both user and service provider. The can interact with each other. The developer can sort out the problem directly from the end user.

About Page:

About page provides the system information, our services, terms, and condition. It also provides system functionality and system capability. The user can be able to learn about the website and what does it mean to the social life. The elaborate information is provided in this about page. How a user can get the proper product information is given on this page. The barcode functionality also described here.

4.2 Back End Design

Back-end is the part that working behind the project, but the user is not notifying or cannot see this part. Actually front-end design is only way to interact with the user but user cannot watch and never visualized how to this part is working. Back-end does everything that happens on the server or behind the application. For android application, it is more difficult to handle back-end part than a web application, because android device components are very limited.
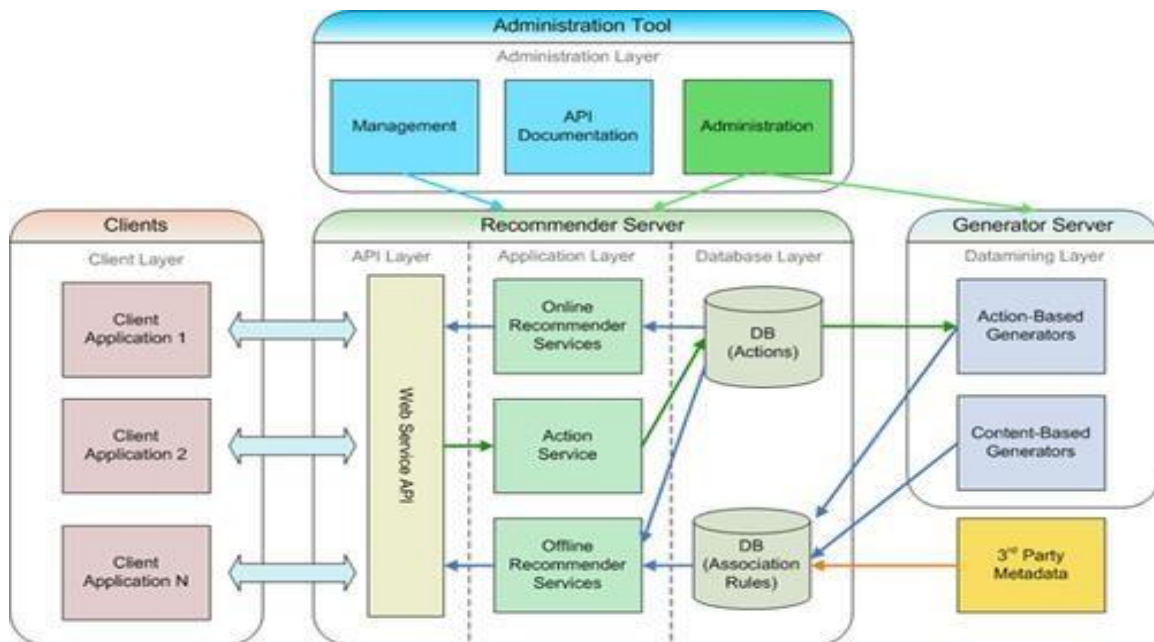

Figure 4.2.1: Back end design

4.3 Interaction Design and UX

Interaction design means by which we can watch the connection between a framework and its user. All things considered association configuration is the procedures which comprehend the user issue space, process the issue and discover the outcomes, perform activities by the regarding comes about and take care of the issue. On the other hand, user experience focuses on the overall experience between a user and an application. In our application, some features can interact with the user. In our application, we added an option by which one user can make his/her contact number private, many of us don't want to use this type of application for lack of security and for this reason we use this feature so that people use our application comfortably. For UX we have tried to give some fantastic experience by our application. We keep our system simple and easier for better experience and performance for the use.

In this section, we will describe how the consumer can buy a product with his mobile phone having an Android operating system. Mobile user interface design shows users how they get visual of the clarinfo android app. Mobile UI design describes the total visual interface or a graphical representation of clarinfo android app. All interfaces are given below.

Home Screen:

This is the front interface of the mobile app. Scanner interface has only one button named SCAN. If the user presses the SCAN button, he will allow to next interface which is Scanner. This interface contains the app logo at the top of the screen. The home screen gives the user a clear understanding of what he will have to do.

Figure 4.3.1: Home Screen

Scanner Page:

In this UI a barcode scanner appears and allows the mobile camera to scan the product barcode. Scanner interface has two buttons as an icon at the top screen. One button is for zoom and another is for the flush. Flush is useful while there isn't enough light. At the top bar, there is a back head arrow behind the app name. The arrow is used to go to the previous screen. The user has to hold the scanner until the scan completed. After completing the scan, a pop-up window will appear with a message. The title of the pop-up window is Scan result. At forward we will discuss Scan result.

Figure 4.3.2: Scanner

Scan Result:

In this interface, a pop-up window appears. If the scan result matches the barcode with the portal database, the pop-up window provide the user to scan result with three options. The options are represented as a button on the pop-up screen named View, Visit and Close. If user press view button, a window will open with the product detail. If user press visit button, a browser will open our website www.clarinfo.com. The close button is to go back to the scan page. This pop-up screen is very easy to understand for a user. Here is no complex UI. Everything is straightforward.
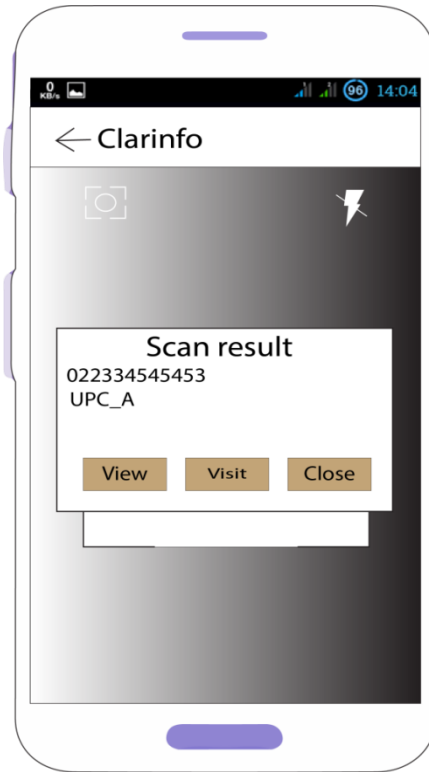
Figure 4.3.3: Scan result

This interface is a visual interface where the user can see the scanned product details. At the top of this screen, a back head arrow is used to go back to the previous page. The screen body contains the product image, product name, product price, product brand, and manufacturer, country of origin and package type. This product information has an explicit view of the user. The fonts have a clear vision for the user. If a user wants to go to the previous page, he can press the back arrow from the top of the screen.
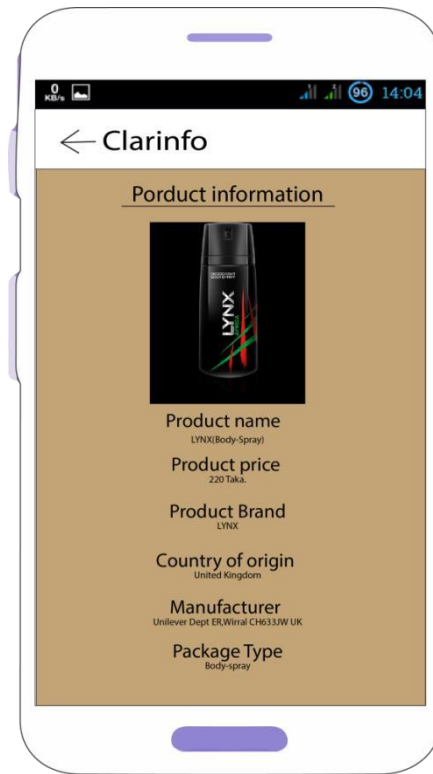
Figure 4.3.4: View page

While user presses the visit button from the pop-up window, the browser will execute our website. Since our website is responsive, the browser shows the mobile screen view of the web portal. Our portal has an easy navigation system.

This page provides the system information, our services, terms, and condition. It also provides system functionality and system capability. The user can be able to learn about the website and what does it mean to the social life. The elaborate information is provided in this about page. How a user can get the proper product information is given on this page. The barcode functionality also described here.

CHAPTER 5

Implementation and Testing

5.1 Implementation and Database

Every newborn plan must face reality during which it's to come back to measure. Just in case of net Applications the subsequent must be taken into consideration:

HTTP protocol, the technological foundation of net applications, is homeless. Every Command is dead severally, with none data of the commands that came before it. Net application's responsibility is to stay the state between requests. The spoken language between user and application will be initiated solely by the user. Management flow of net applications is driven by user requests. It always consists of an advanced sequence of interactions between the user and the server.

Web application design defines the interactions between applications, middleware systems and databases to make sure multiple applications will work along. Once a user sorts during a URL and faucets "Go," the browser cannot twice the Internet-facing pc the web site lives on and requests that individual page.

The server then responds by causing files over to the browser. Then action, the browser executes those files to point out the requested page to the user. Now, the user gets to move with the website. Of course, all of those actions are dead at intervals a matter of seconds. Otherwise, users wouldn't trouble with websites.

What's necessary here is that the code that has been parsed by the browser? This terrible code might or might not have specific directions telling the browser a way to react to a large swath of inputs. As a result, net application design includes all sub-components and external applications interchanges for a complete package application.

Of course, it's designed to perform expeditiously whereas meeting its specific desires and goals. Net application design is essential since the bulk of worldwide network traffic and every single app and device uses web-based communication. It deals with scale, efficiency, robustness, and security. How net Application design Works with new

applications, you have got the server vs. the consumer facet. In essence, there are 2 programs running concurrently:

- The code that lives within the browser and responds to user input
- The code that lives on the server and responds to hypertext transfer protocol requests when writing an associated app, it's up to the net developer to determine what the code on the server ought to kill regard to what the code on the browser ought to do. With server-side code, languages include:
  - Ruby on Rails
  - PHP
  - C++
  - Java
  - Python
  - JavaScript

  In fact, any code which will answer hypertext transfer protocol requests has the potential to run on a server. Here are a number of different attributes of server-side code:
- Is ne'er seen by the user (except at intervals a rare malfunction)
- Stores information like user profiles, tweets, pages, etc.
- Creates the page the user requested
  With client-side code, languages used include:
- CSS
- PHP
- JavaScript
- HTML

These are then parsed by the user's browser. Moreover, the client-side code is seen and amended by the user. Plus, it's to speak solely through HTTP requests and can't browse files off of a server directly. Moreover, it reacts to user input

5.2 Data Flow Diagrams

A data flow chart shows the method data flows through a method or system. It includes information inputs and outputs, information stores, and also the varied sub-processes the info moves through. DFDs square measuring ginned mistreatment standardized symbols and notation to explain varied entities and their relationships. Data flow diagrams visually represent systems and processes that might be onerous to explain in a very chunk of text. You'll use these diagrams to map associate degree existing system and build it higher or to set up out a brand new system for implementation.

Visualizing every part makes it straightforward to spot inefficiencies and turn out the most effective doable system.

5.3 Database Design and Implementation

When designed properly, databases square measure unbelievably powerful tools for recording, storing, retrieving, and examination information. However, an information designed while not care and purpose aren't simply ineffective, it will be a true hindrance to those that use it most. Once building information not standing its final purpose adhering to the subsequent best practices can make sure that the ultimate product that's each helpful and simple to use.
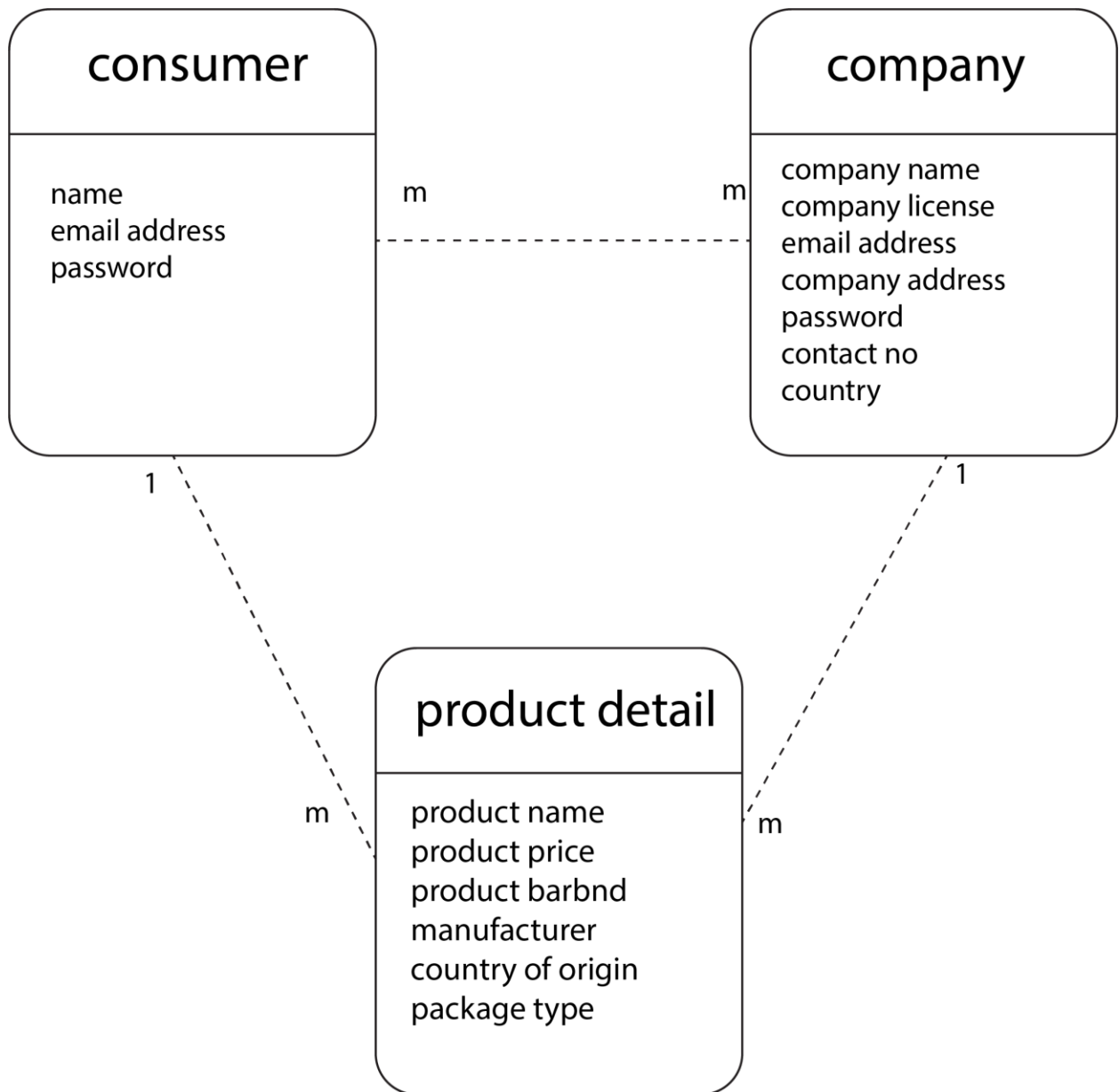
Figure 5.3.1: Database design

5.4 ER-Diagram

An entity relationship diagram (ERD) shows the relationships of entity sets hold on in an exceeding info. Associate degree entity during this context is associate degree object, a part of information. Associate degree entity set may be an assortment of comparable entities. These entities will have attributes that outline its properties. By process, the entities, their attributes, and showing the relationships between them, associate degree

ER diagram illustrates the logical structure of databases.ER diagrams square measure accustomed sketch out the look of an info.
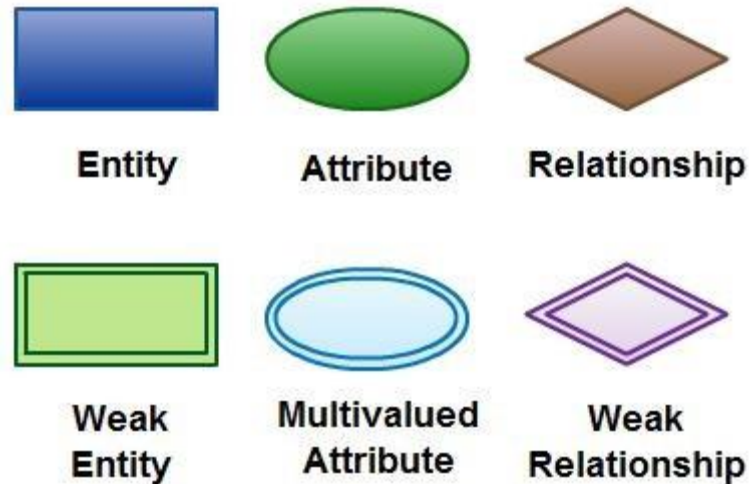
ER Diagram Symbols and Notations

Figure 5.4.1: ER Diagram Symbols and Notations

There square measure 3 basic parts in associate degree ER Diagram: entity, attribute, relationship. There square measure additional parts that square measure supported the most parts. They're the weak entity, multi-valued attribute, derived attribute, weak relationship, and algorithmic relationship. Cardinality and cordiality square measure 2 different notations employed in ER diagrams to any outline relationships. An entity is someone, place, event, or object that's relevant to a given system. For instance, a faculty system might be students, teachers, major courses, subjects, fees, and different things. Entities square measure painted in ER diagrams by a parallelogram and named victimization singular nouns.

Weak Entity

A weak entity is associate degree entity that depends on the existence of another entity. In additional technical terms, it is outlined as associate degree entity that can't be known by its own attributes. It uses a distant key combined with its attributed to making the first key. Associate degree entity like order item may be an example for this. The order item is going to be insignificant while not associate degree order; therefore, it depends on the existence of the order.

Attribute

An attribute maybe a property, trait, or characteristics of associate degree entity, relationship, or another attribute. For instance, the attribute item Name is associate degree attribute of the entity item. Associate degree entity will have as several attributes as necessary. Meanwhile, attribute can even have their own specific attributes. For instance, the attribute "customer address" will have the attribute range, street, city and state. These squire measure known as composite attributes. Note that some prime level ER diagrams don't show attribute for the sake of simplicity. In people who do, however, attributes are squire measure painted by oval shape.

Multi-valued Attribute

If associate degree attribute will have quite one worth it's known as a multivalent attribute. It's necessary to notice that this can be completely different from associate degree attribute having its own attributes. For instance, an instructor entity will have multiple subject values

Derived Attribute

An attribute supported another attribute. This can be found seldom in ER diagrams. For instance, for a circle, the realm is derived from the radius.
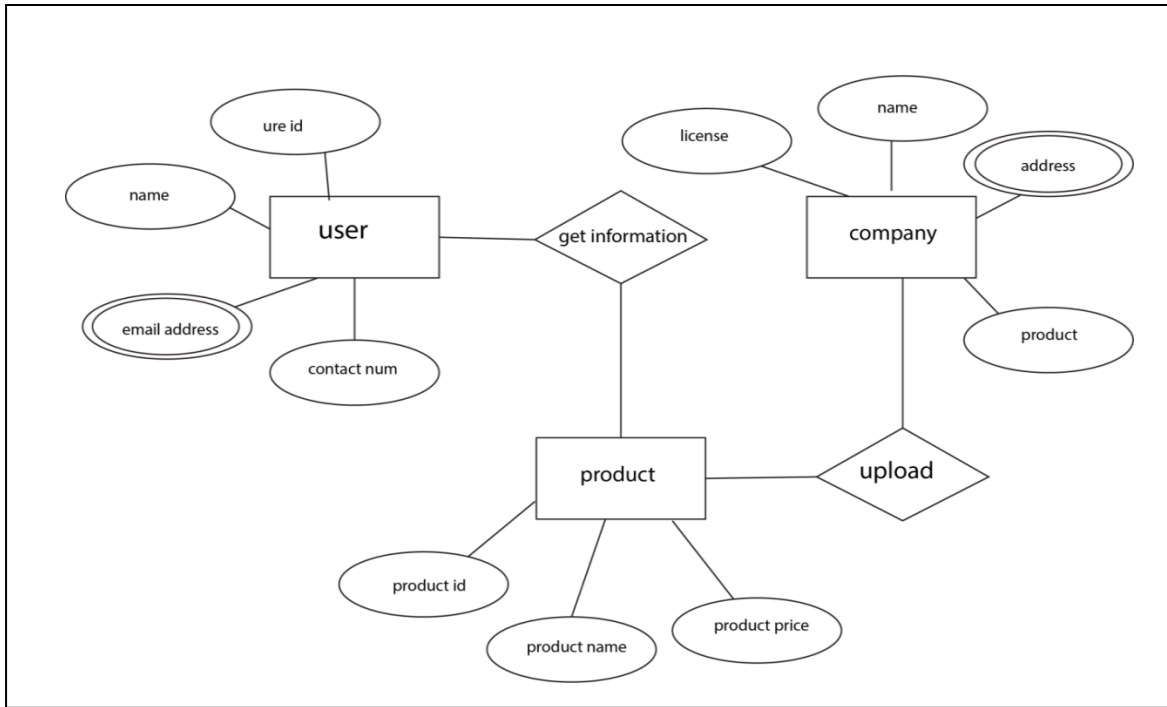Here is the project ERD.

Figure 5.4.2: ER Diagram

5.5 Database Table design:

We designed a database table for our project that can able to provide all basic request. We build three tables. The tables are the user table, company table, login table, and product table. All this table s is given below.

User table:

Table 5.5.1: Database table for user

Field	Type	Null
Id	Int(10)	No
username	Varchar(200)_	No
Email address	Varchar(200)_	No
Password	Varchar(200)_	No
Address	Varchar(200)_	No
contact	Varchar(200)_	No

Company table

<div align="center">Table 5.5.2: Database table for company</div>

Field	Type	Null
Id	Int(10)	No
Company name	Varchar(200)	No
License	Varchar(200)	No
Address	Varchar(200)	No
Username	Varchar(200)	No
password	Varchar(200)	No
Email address	Varchar(200)	No
Contact no	Varchar(200)	No
Country	Varchar(200)	No

Login table:

<div align="center">Table 5.5.3: Database table for login</div>

Field	Type	Null
Id	Int(20)	No
Email address	Varchar(200)	No
password	Varchar(200)	No

Product table:

<div align="center">Table 5.5.3: Database table for product</div>

Field	Type	Null
Id	Int (200)	No
Name	Varchar(200)	No
Price	Int (20)	No
Brand	Varchar(200)	No
Country of origin	Varchar(200)	No
manufacturer	Varchar(200)	No
Package type	Varchar(200)	No

CHAPTER 6

Conclusion and Future Scope

6.1 Conclusion

This is to conclude that the project that I took as final year project where we worked together with a sincere effort. Most of the requirements have been fulfilled and the requirements which have been remaining can be completed with a short extension.

We tried to implement the best practices and Framework of PHP. We also implement Barcode with the web portal and also with the mobile application. We worked in Android studio for the first time in this project. So sometimes we faced some problems at the time of work.

6.2 Implication for Further Study

In this research, we find out a model to predict IT-related Career for CSE students and mine the knowledge about what CSE students think about a career by applying Web development. Anyone can study this project to get the idea and provide feedback.

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