# ECO FRIENDLY SCRAP SYSTEM

Submitted in partial fulfillment of the requirements of

**PG Diploma in Advanced Computing**

By


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|---|---|
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Project Coordinator

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**Pune**

**April 2022**

# CERTIFICATE

This is to certify that the project entitled **"Eco Friendly Scrap System"** is a bonafide work of **"Swapnali Thorat 210943120107, Pragati Maliye 210943120070, Anuja Ingale 210943120033, Ravina Hazari 210943120032"** submitted to **Infoway Technologies, Pune** in partial fulfilment of the requirement for the award of the Post Graduate Diploma in Advanced Computing.

**Supervisor/Guide** **Faculty Supervisor/Guide**

# DECLARATION

I declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed

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# ABSTRACT

Presently, there is rapid growth in waste due to urbanization, industrialization, and population growth. There must be required an appropriate waste management technique for saving the environment and natural resources through proper recycling mechanism. Waste is waste and it must be properly treated regardless of its type like E-waste, solid waste, bio medical waste, etc. We have proposed an online integrated framework to manage the all kinds of waste.

The main module of the proposed work is Customer, Organization, Dealer and Recycler. In this framework, traditional 'eco green' is acting as a modern way to collect the waste from home by the collector and deposit to the Recycler. This complete process is performed in just one click on 'eco green' website that will reduce the processing time, efforts, cost and increase the efficiency of waste management.

Keywords:- eco-green, recycle, paper, plastic, environment, rewards, java.

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# List of Figures

# Chapter 1

# INTRODUCTION

Eco-friendly Scrap System is working in waste paper, metals, plastic recycling management with a goal to spread awareness about recycling the newspaper and encouraging people to save the paper, save the trees, save the environment and save the world. Eco-Scrap intends to help out busy people to throw away and get money for their trash newspaper. You can avail this service upon the request by giving a call or sending enquiry by e-Mail on our application. Eco-friendly Scrap System invites to join hands and try to help us in recycling management.

Eco-friendly Scrap System is web based application so we can conduct the customers waste from home like newspaper, plastic etc. after complete the order we can show points on their profile. Such applications can be extensively used in various places in anywhere. It will help in people those wants the sell their materials on our platform and get well reward for it, created an interactive and engaging environment for people.

## 1.1 Problem Definition:

This existing system of selling scrap has several disadvantages. It requires lots of time to travel to the particular shop to sell the scrap. It has lots of manual work. Since everyone is leading busy life now days, time means a lot to everyone. Also there are expenses for travelling from house to shop. It is less user-friendly. In current system user must go to shop and sell the material. It is difficult to carry the all material. More over the shop from where we would like to sell some thing may not be open 24*7*365.

## 1.2 Objective of Project:

In a pandemic situation like corona, we faced many problems for sell product. For user, it has become very difficult to analyze how sell the our materials. For household , they had to carry waste and have to walk a long to sell the waste in waste collector store. So we came up with an idea of making a Eco-Scrap website to collect waste from customer at doorstep. We aim at door-to-door collections of scrap from the household and providing benefits to the customer on selling of maximum scrap.

# Chapter 2

# ANALYSIS

## 3.1. Existing System

This existing system of selling of scrap is time wasting and requires lots of manual work. It has no specific times of collection. And no guarantee of any profit. Since everyone is leading busy life now days, time means a lot to everyone. Also there are expenses for travelling from house to shop. It is less user-friendly. In current system user must go to shop and sell the scrap. It is difficult to carry the all scrap. More over the shop from where we would like to sell some thing may not be open 24*7*365.

## 3.2. Proposed System

The Eco-friendly Scrap System is available 24*7 and is time saving system. This system gives assured reward and makes the customer use 3R's -reduce , recycle and reuse. It makes easier to customer by having information about the collection of scrap by mail.

## 3.3. Software Requirement Specification

1. **Frontend-** REACTJS
2. **Backend-** Spring boot
3. **Database-** MySQL 5.7 with Workbench 8.0
4. Google Chrome version 79.0
5. Apache Tomcat Server 9.0

## 3.4. Hardware Requirement Specification

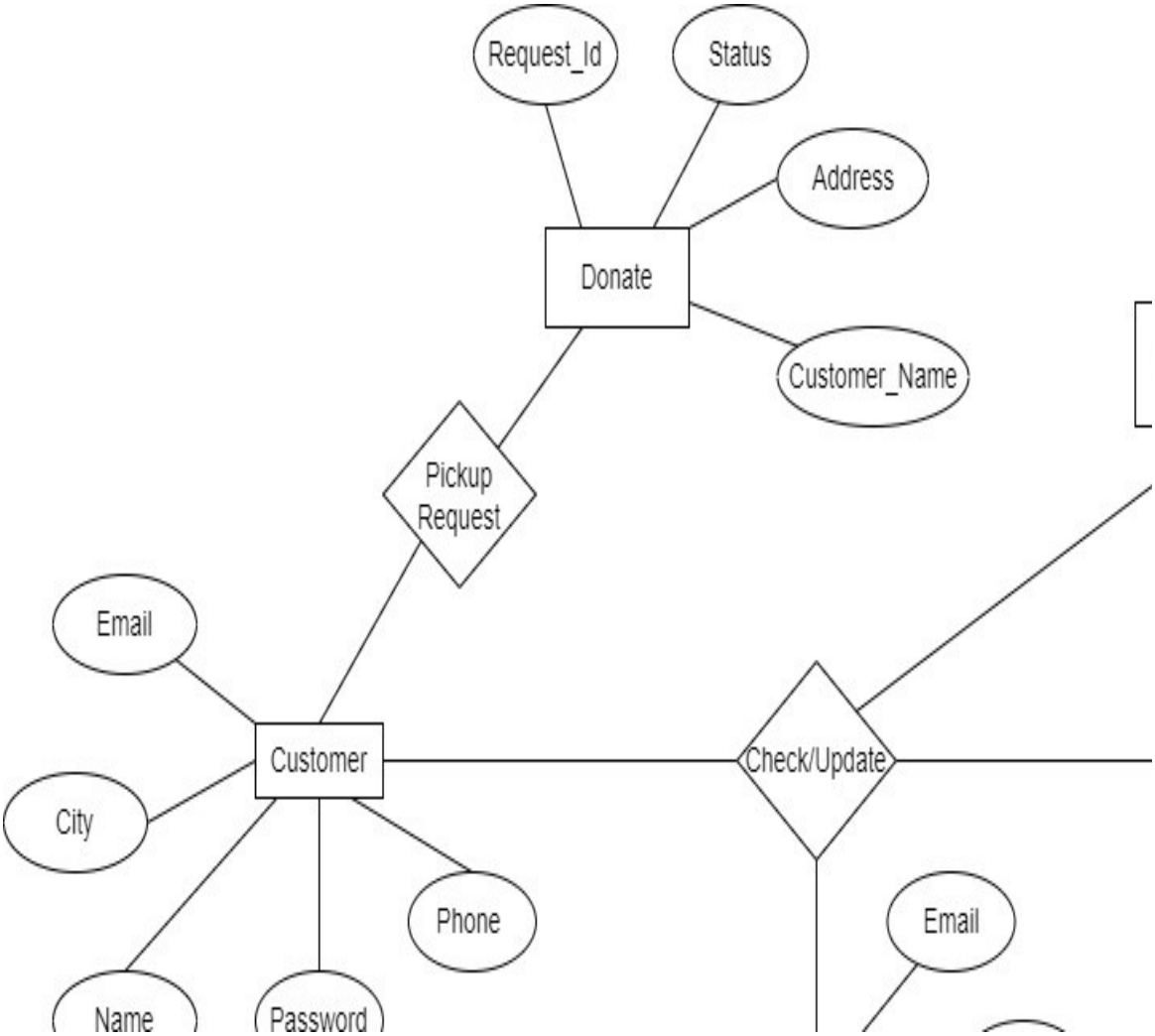
1. Intel i3 processor 3rd generation or later / AMD Ryzen 200 2nd generation or later
2. 2 GB ddr3 ram.
3. Windows 7 Home edition or later.
4. 200 GB Sata HDD Space
5. Data Connection 200 kbps

# Chapter 3

# DESIGN

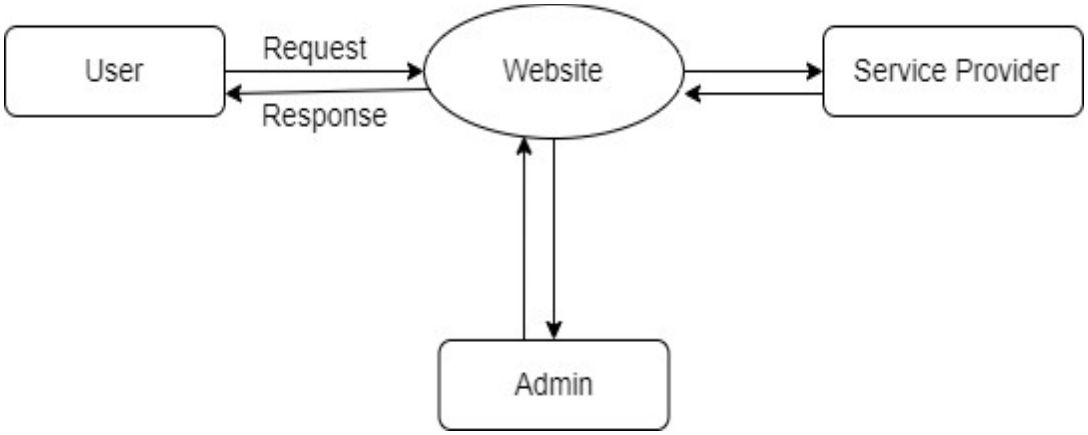
## 3.1 UML Diagrams

### 3.1.1 E-R Diagram:

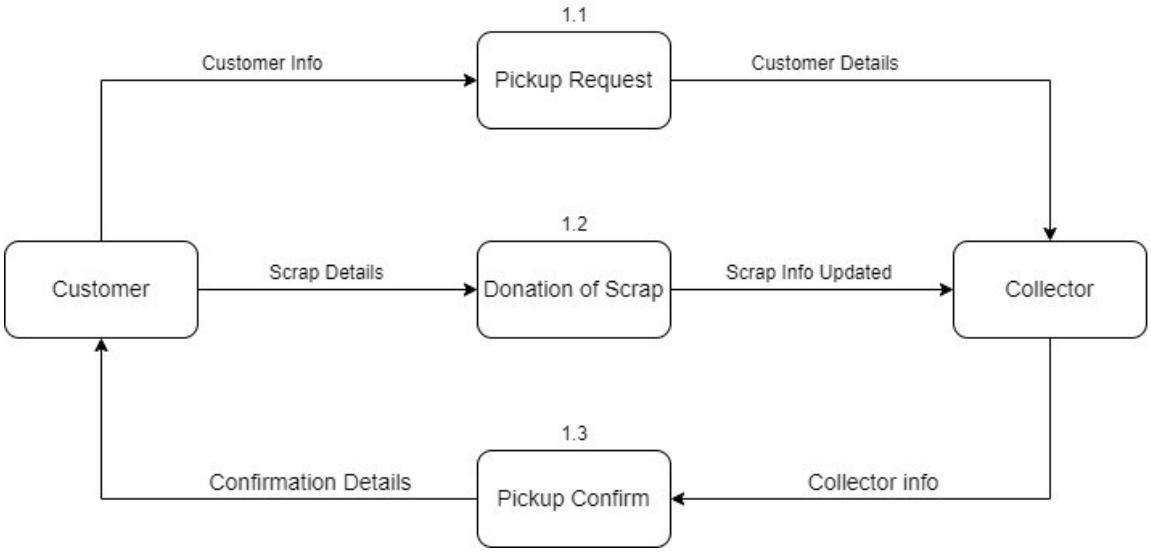


### 3.1.2 Data Flow Diagram (DFD):

**Level 0:**




**Level 1:**



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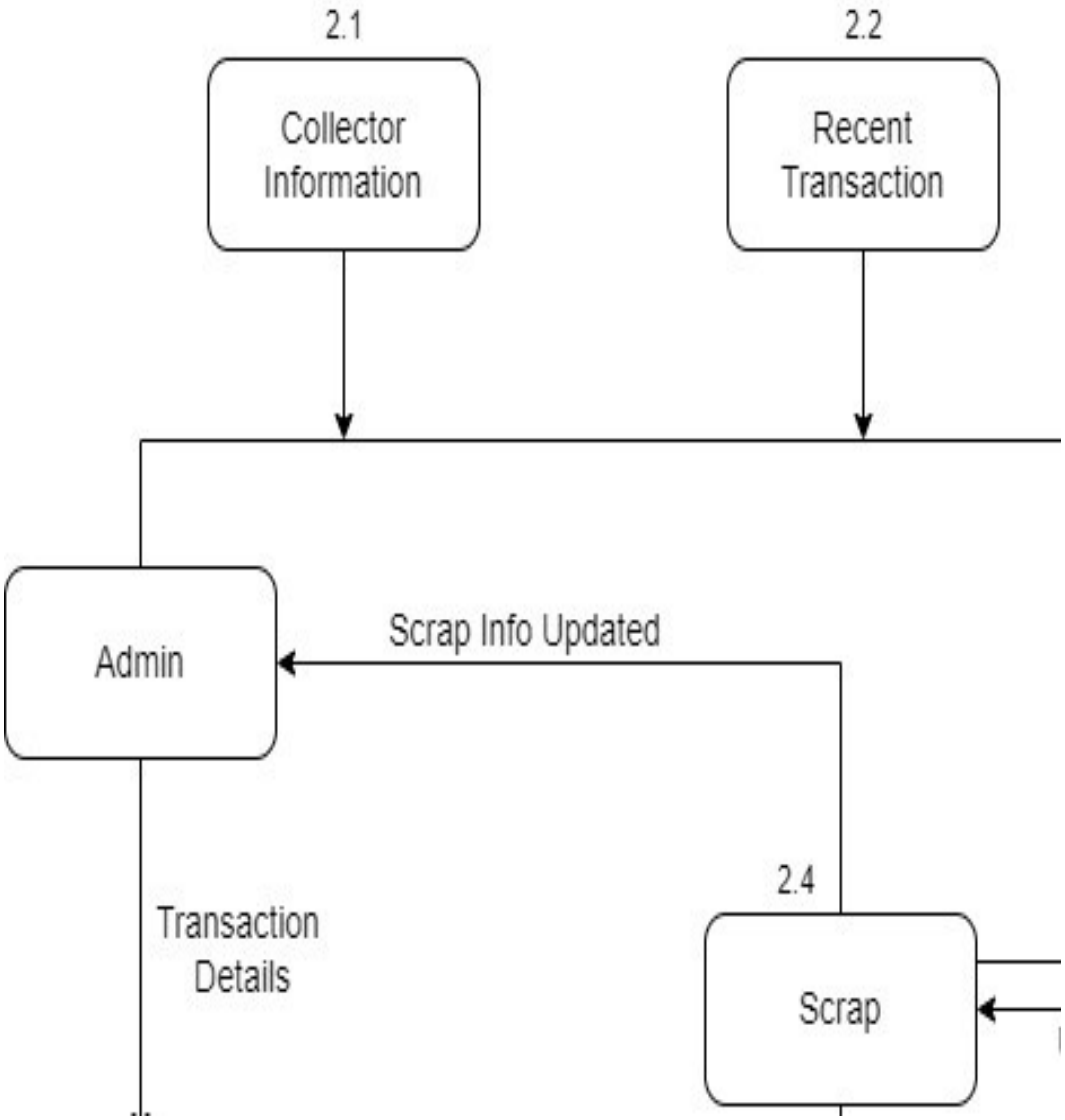
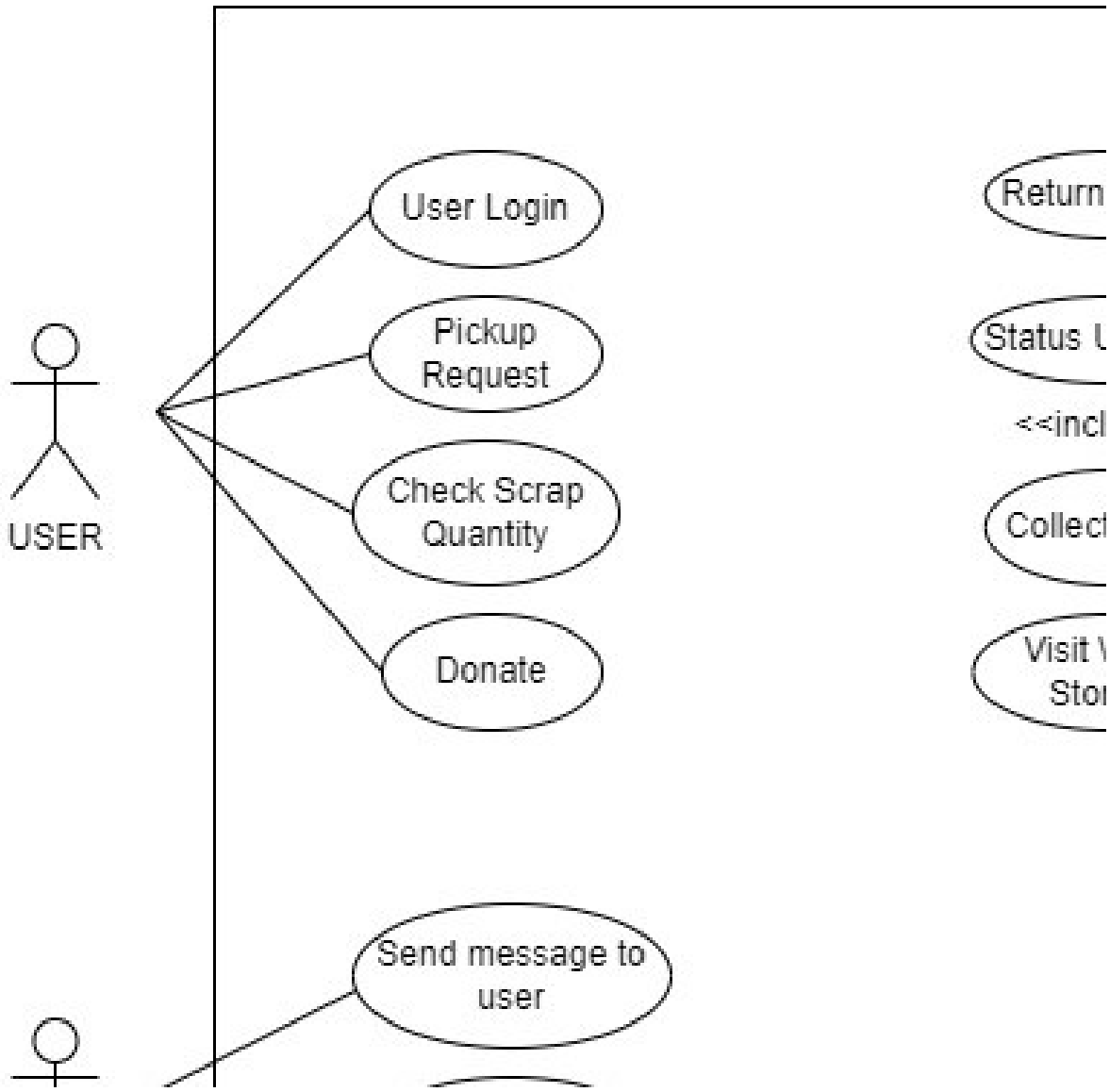
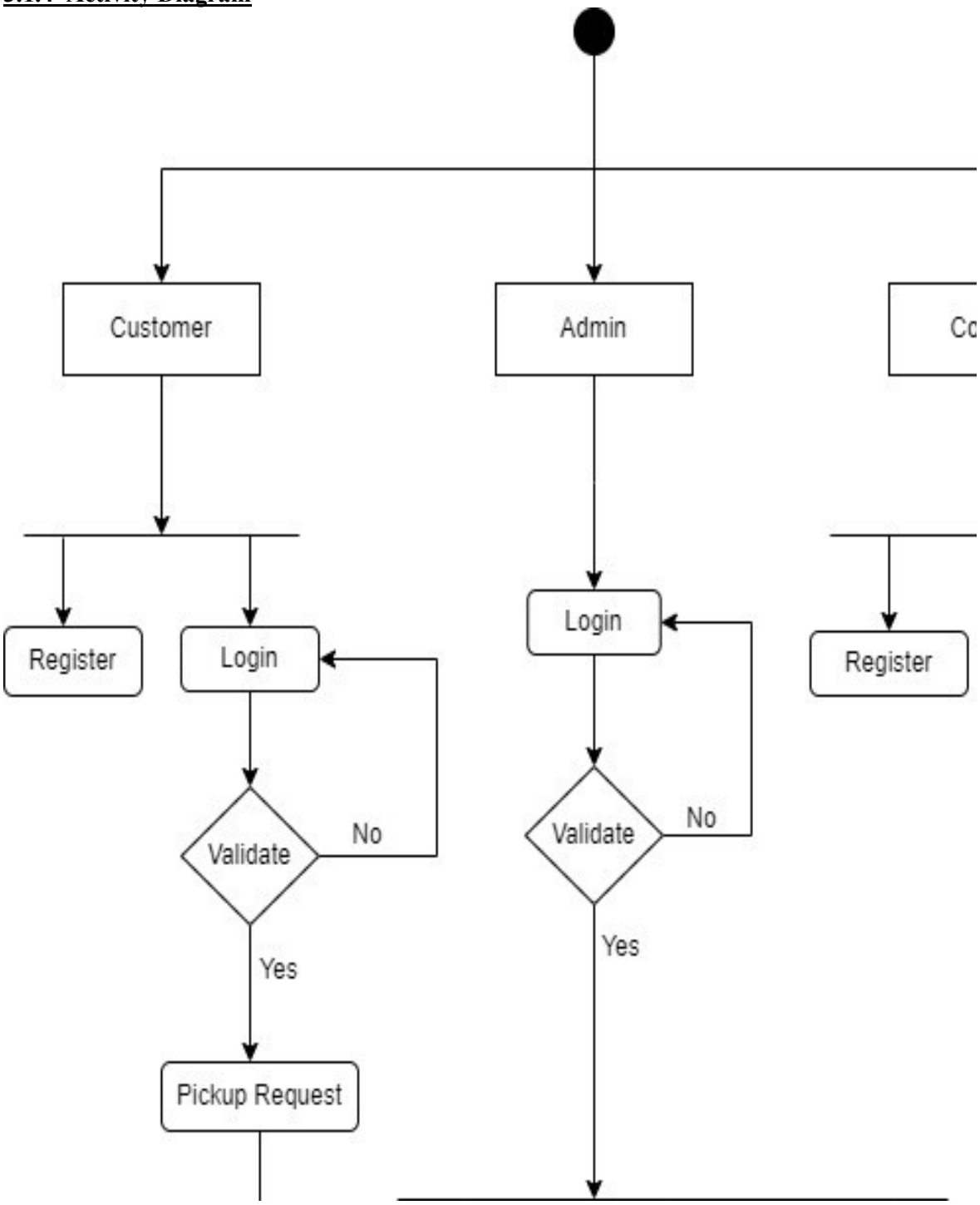

2.1
Collector Information
2.2
Recent Transaction
Admin
Scrap Info Updated
Transaction Details
2.4
Scrap

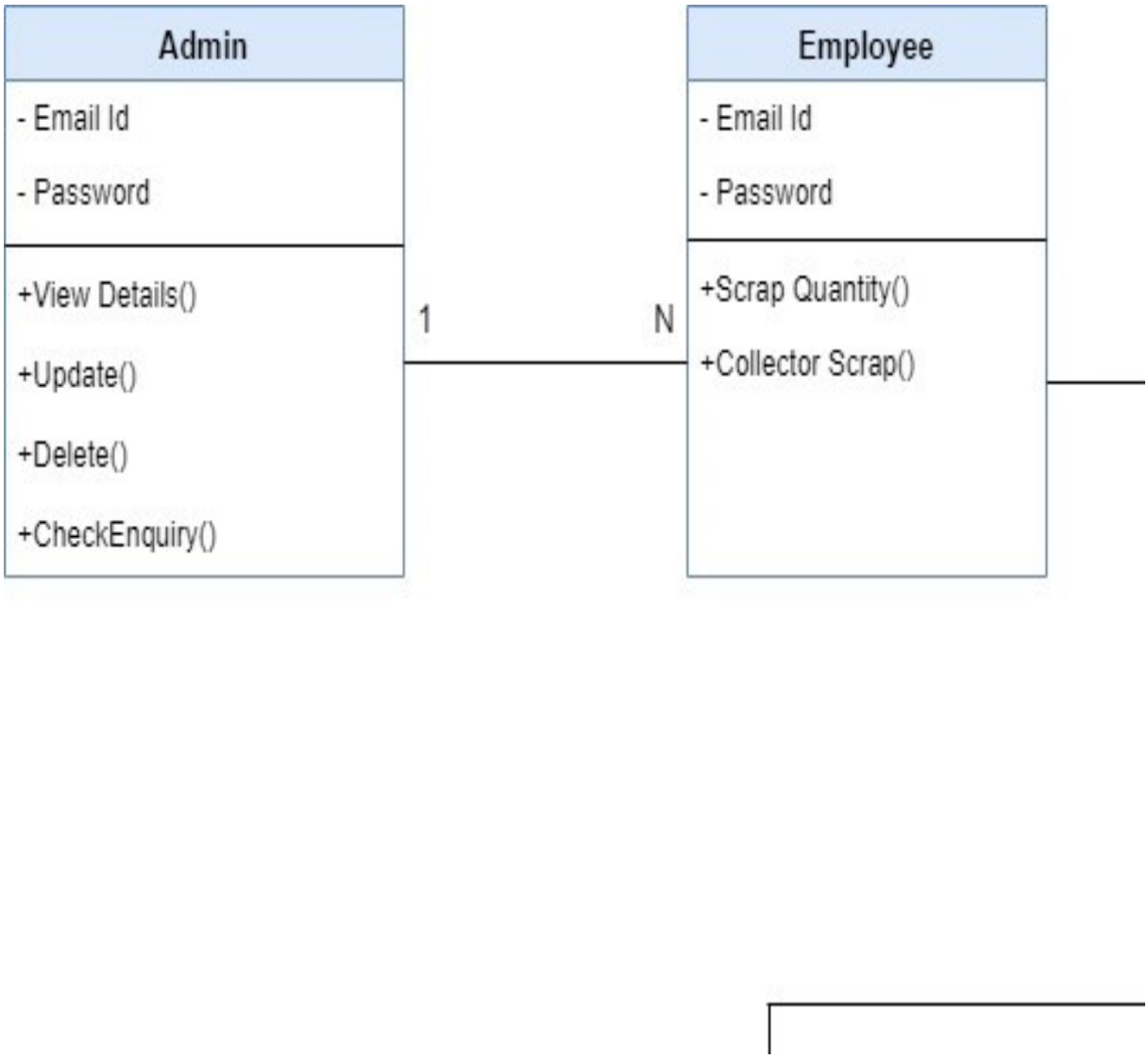
### 3.1.3 Use Case Diagrams:



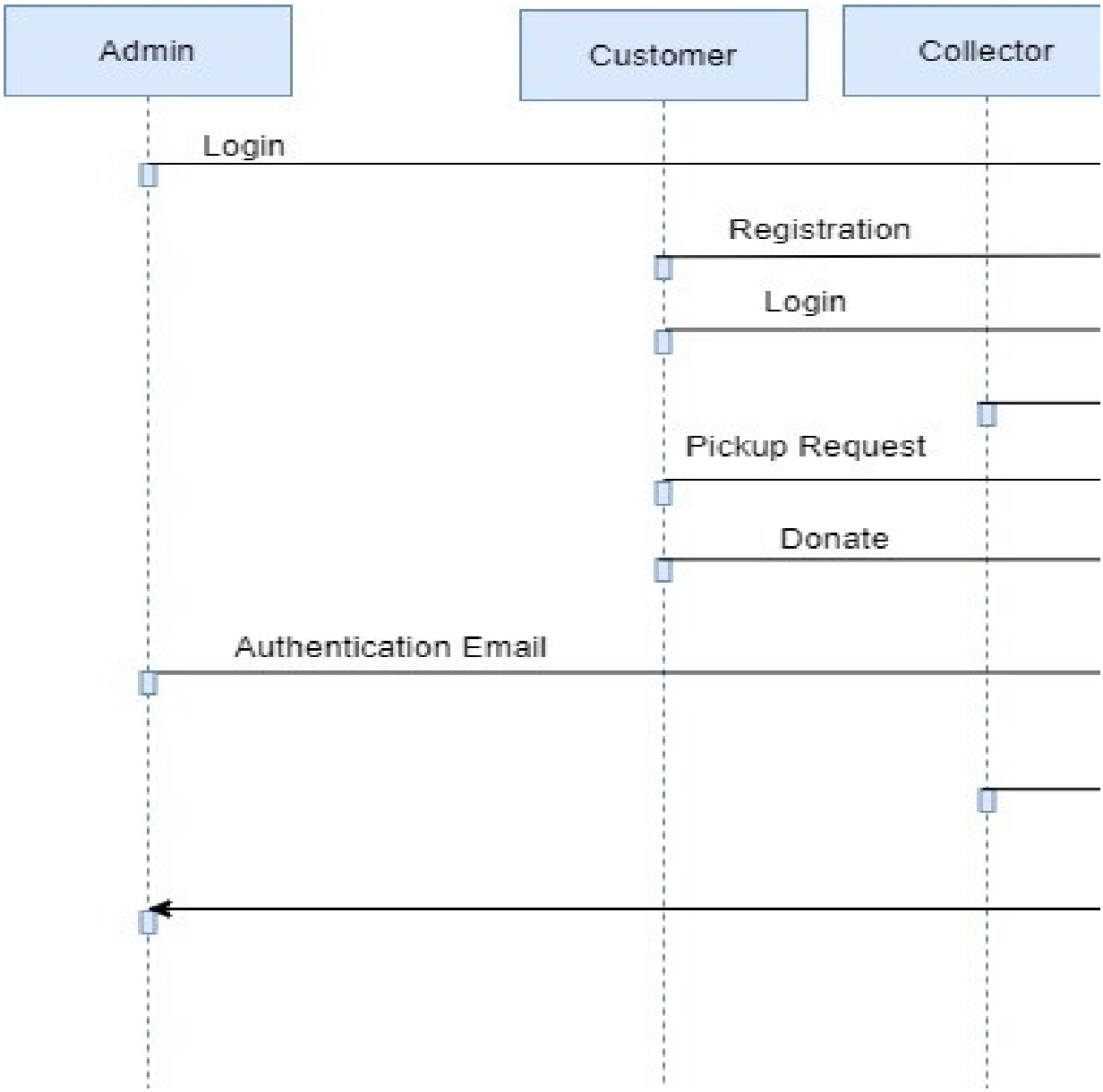
### 3.1.4 Activity Diagram



### 3.1.5 Class Diagram



### 3.1.6 Sequence Diagram:



# Chapter 5

# IMPLEMENTATION

## 4.1. Modules:

1. Admin Section
2. Employee Section
3. Customer Section

## 4.2 Module Description:

1. **Admin section:**

   In above three section , Admin can do all CRUD operation for making scrap prices and do further implementation. He can see customer details as well as customers list.

2. **Employee section:**

   In Employee section , Employee can see pickup request of customer and he can also see pending and completed status of pickup request .he can search pending request by date and update whether it is pending or done.

3. **Customer section:**

   In Customer section , after the registration and login customer can pickup the request for there scrap and set the date for pickup.

# 4.3 Introduction of Technologies Used:

## 1. Spring Framework:[BACKEND]

Spring Framework is a Java platform that provides comprehensive infrastructure support for developing Java applications. Spring handles the infrastructure so you can focus on your application.

Spring enables you to build applications from “plain old Java objects” (POJOs) and to apply enterprise services non-invasively to POJOs. This capability applies to the Java SE programming model and to full and partial Java EE.

### 1.1 Features of Spring Framework:

**1. Lightweight:** Spring is modular lightweight framework which allows you to selectively use any of its modules on the top of Spring Core.

**2. Inversion of Control (IOC):**This is another top feature of Spring framework where application dependencies are satisfied by the framework itself. Framework creates the object in runtime and satisfies application dependencies.

**3. Aspect Oriented Programming (AOP):** Aspect Oriented Programming (AOP) is very popular in programming world and in Spring it is well implemented. Developer can use Aspect Oriented Programming (AOP feature of Spring to develop application in which business logic is separated from system services.

**4. Container:**Spring provides their own container for managing the bean lifecycle.

**5. MVC Framework:**Spring MVC Framework is used for developing MVC based web applications.

**6. Transaction Management:**Spring framework provides generic Transaction Management layer which can be used with or without J2EE(JEE) environment.

**7. JDBC Exception Handling:**Spring provides their own abstraction of JDBC exception which further simplifies the exception handling in program.

### 1.2 Advantages of Spring Framework:

**1. Solving difficulties of Enterprise application development**

Spring is solving the difficulties of development of complex applications, it provides Spring Core, Spring IoC and Spring AOP for integrating various components of business applications.

**2. Support Enterprise application development through POJOs**

Spring supports development of Enterprise application development using the POJO classes which removes the need of importing heavy Enterprise container during development. This makes application testing much easier.

**3. Easy integration other frameworks**

Spring designed to be used with all other frameworks of Java, you can use ORM, Struts, Hibernate and other frameworks of Java together. Spring framework do not impose any restriction on the frameworks to be used together.

**4. Application Testing**

Spring Container can be used to develop and run test cases outside enterprise container which makes testing much easier.

**5. Modularity**

Spring framework is modular framework and it comes with many modules such as Spring MVC, Spring ORM, Spring JDBC, Spring Transactions etc. which can used as per application requirement in modular fashion.

**6. Spring Transaction Management**

Spring Transaction Management interface is very flexible it can configure to use local transactions in small application which can be scaled to JTA for global transactions.

## 2.ReactJS:[FRONTEND]

ReactJS is a declarative, efficient, and flexible JavaScript library for building reusable UI components. It is an open-source, component-based front end library responsible only for the view layer of the application.

A ReactJS application is made up of multiple components, each component responsible for outputting a small, reusable piece of HTML code. The components are the heart of all React applications. These Components can be nested with other components to allow complex applications to be built of simple building blocks. ReactJS uses virtual DOM based mechanism to fill data in HTML DOM. The virtual DOM works fast as it only changes individual DOM elements instead of reloading complete DOM every time.

## Features of React:

1. **JSX:**

   JSX stands for JavaScript XML. It is a JavaScript syntax extension. Its an XML or HTML like syntax used by ReactJS. This syntax is processed into JavaScript calls of React Framework.

2. **Components:**

   ReactJS is all about components. ReactJS application is made up of multiple components, and each component has its own logic and controls. These components can be reusable which help you to maintain the code when working on larger scale projects.

3. **One-way Data Binding:**

   ReactJS is designed in such a manner that follows unidirectional data flow or one-way data binding. The benefits of one-way data binding give you better control throughout the application.

4. **Virtual DOM:**

   A virtual DOM object is a representation of the original DOM object. It works like a one-way data binding.This makes the application faster, and there is no wastage of memory.

5. **Simplicity:**

   ReactJS uses JSX file which makes the application simple and to code as well as understand.

6. **Performance:**

ReactJS is known to be a great performer. This feature makes it much better than other frameworks out there today.

## 3. MySQL:[DATABASE]

MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation.

**Features of MySQL:**

1. **MySQL is a database management system:**
2. **MySQL databases are relational.**
3. **MySQL software is Open Source.**
4. **The MySQL Database Server is very fast, reliable, scalable, and easy to use.**
5. **MySQL Server works in client/server or embedded systems.**

# Chapter 5

## TEST CASES

| Test Id | Item to be Tested | Steps | Input | Actual Output | Expected Output | Pass/ Fail |
|---|---|---|---|---|---|---|
| 1 | User Id | User need to enters user name and Password | User name<br><br>Password | Display Home Page | Display Home Page | Pass |
| 2 | System check for proper user email and password entered by users | System compares the data entered by user and the entered data in database | User email<br><br>password | | | |
| 2.1 | | If user email and password is valid | | Make connection | Make connection | pass |
| 2.2 | | If user email and password is invalid | | Report invalid user id | Report Connection error | pass |
| 3. | System checks whether Details of user are entered as per the format. | System checks whether the entered details are valid form or not. | | | | |
| 3.1 | | If the form is valid | User entered the data | Data entered in Database | Data entered in Database | Pass |
| 3.2 | | If the form is invalid | User entered the data | “Invalid Data” message will be printed | “Invalid Data” message will be printed | Pass |

**A Full System test will be conducted including following type of tests:**

1. **Funtional Testing:**

To be truly robust application require more than simple functional testing before release into production.

- Permits only secure and authentication access.
- Thus requires the user to be registered with the system before use.
- Does all validation time to time as per the need.
- Does all the convention of the data internally while requires.
- Appropriate alerts are generated as per the conditions for user convenience.
- Database is updated time to time as the transaction process proceeds.

At least one and preferably all of the following type of testing before realizing application to customers should be performed.

2. **Manual Testing:**

Manual testing is a software testing process in which test cases are executed manually without using any automated tool. All test cases executed by the tester manually according to the end user's perspective. It ensures whether the application is working, as mentioned in the requirement document or not. Test cases are planned and implemented to complete almost 100 percent of the software application. Test case reports are also generated manually.

Manual Testing is one of the most fundamental testing processes as it can find both visible and hidden defects of the software. The difference between expected output and output, given by the software, is defined as a defect. The developer fixed the defects and handed it to the tester for retesting.

**Types of Manual Testing**

There are various methods used for manual testing. Each technique is used according to its testing criteria.

- White Box Testing
- Black Box Testing
- Gray Box Testing

1. **White-box testing:**

   The white box testing is done by Developer, where they check every line of a code before giving it to the Test Engineer. Since the code is visible for the Developer during the testing, that's why it is also known as White box testing.

2. **Black box testing:**

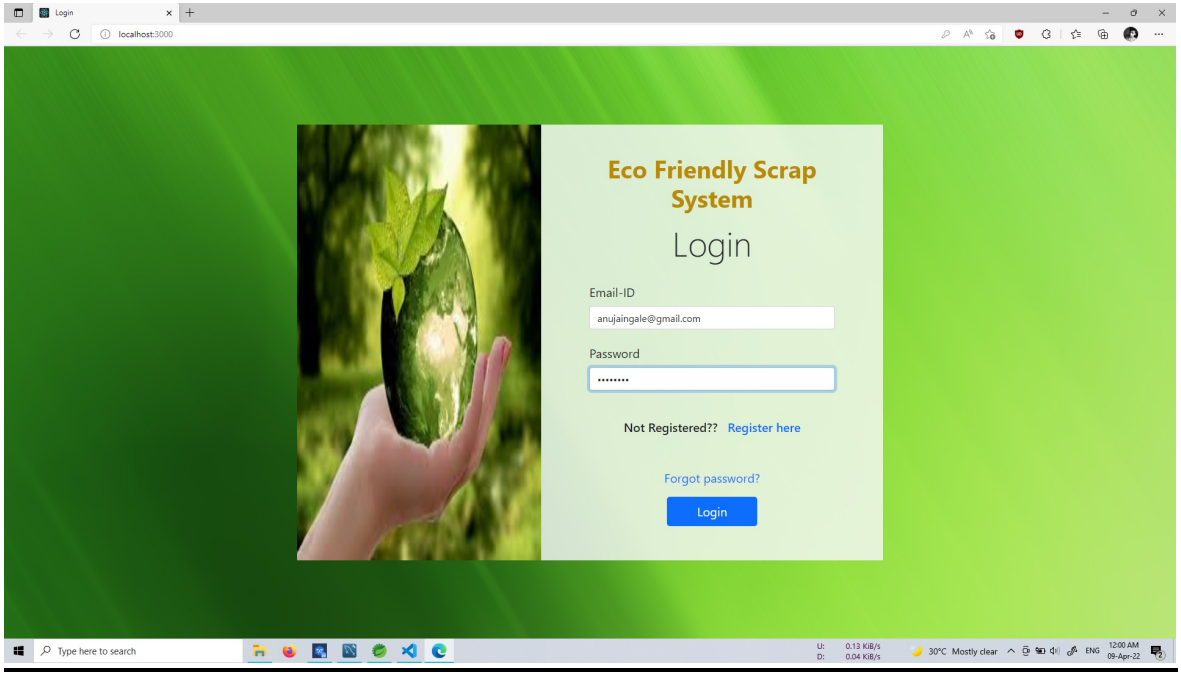
   The black box testing is done by the Test Engineer, where they can check the functionality of an application or the software according to the customer /client's needs. In this, the code is not visible while performing the testing; that's why it is known as black-box testing.

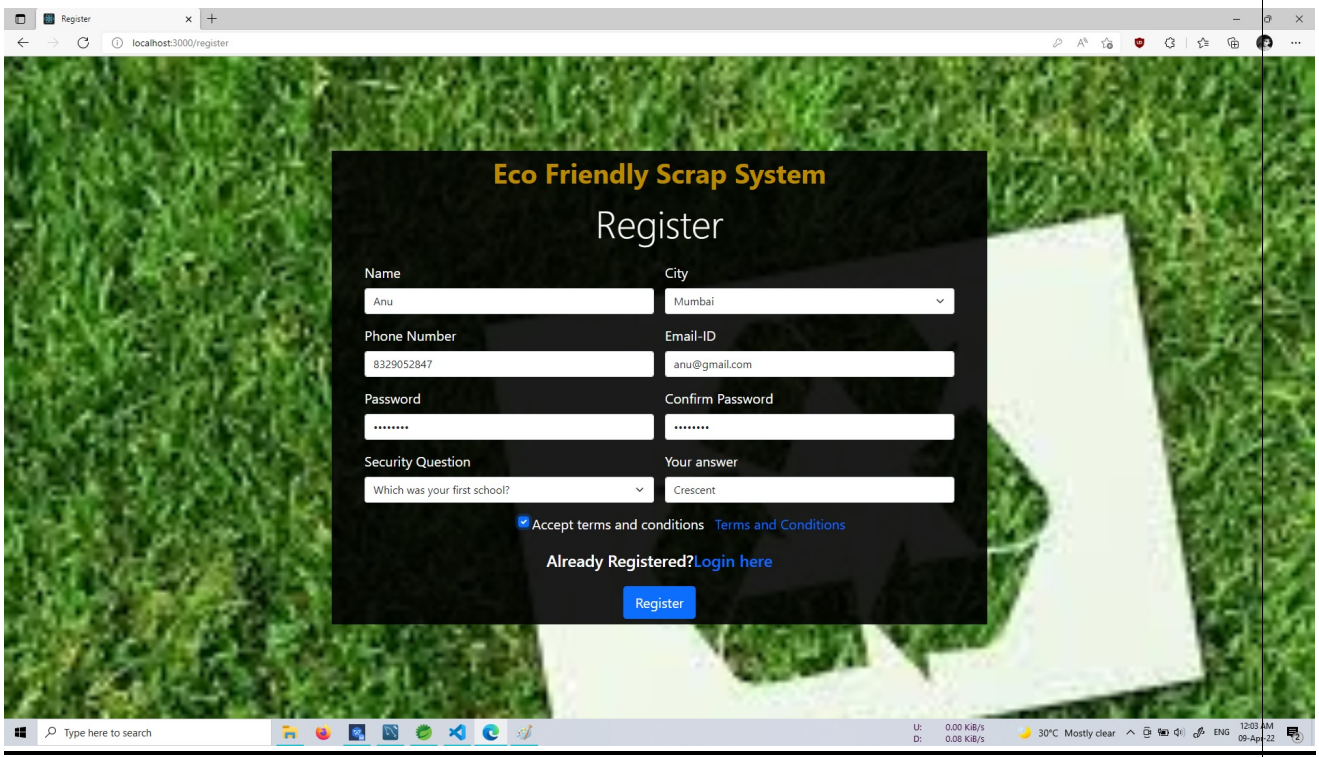
3. **Gray Box testing:**

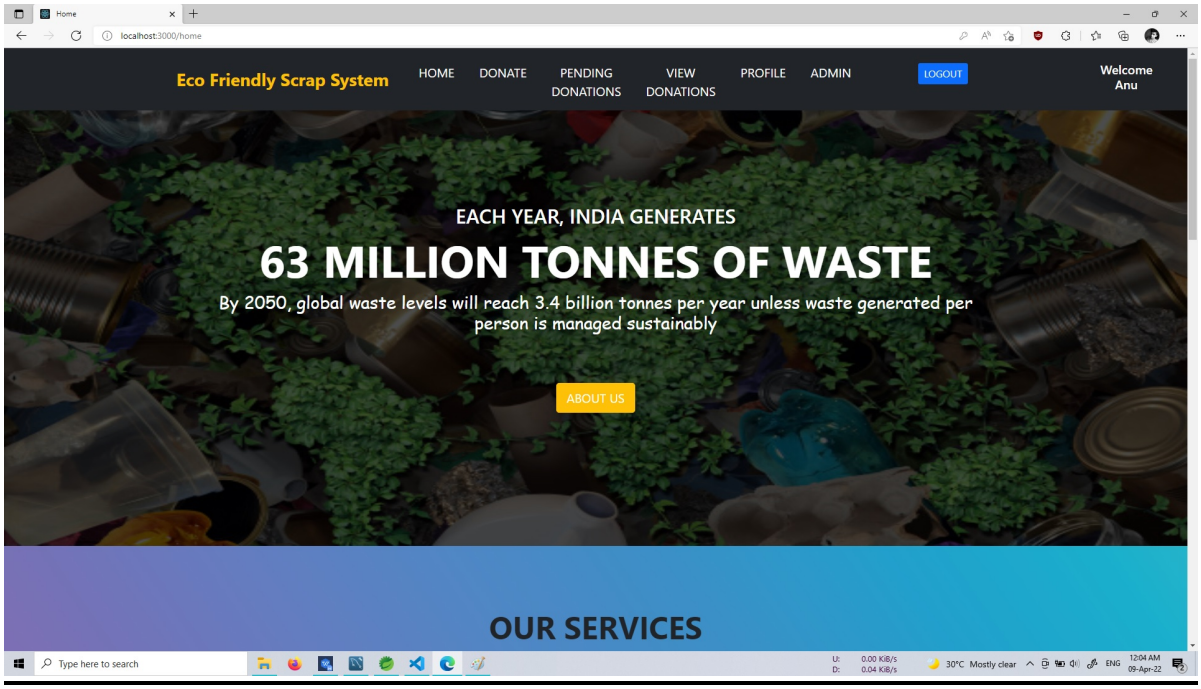
   Gray box testing is a combination of white box and Black box testing. It can be performed by a person who knew both coding and testing. And if the single person performs white box, as well as black-box testing for the application, is known as Gray box testing.

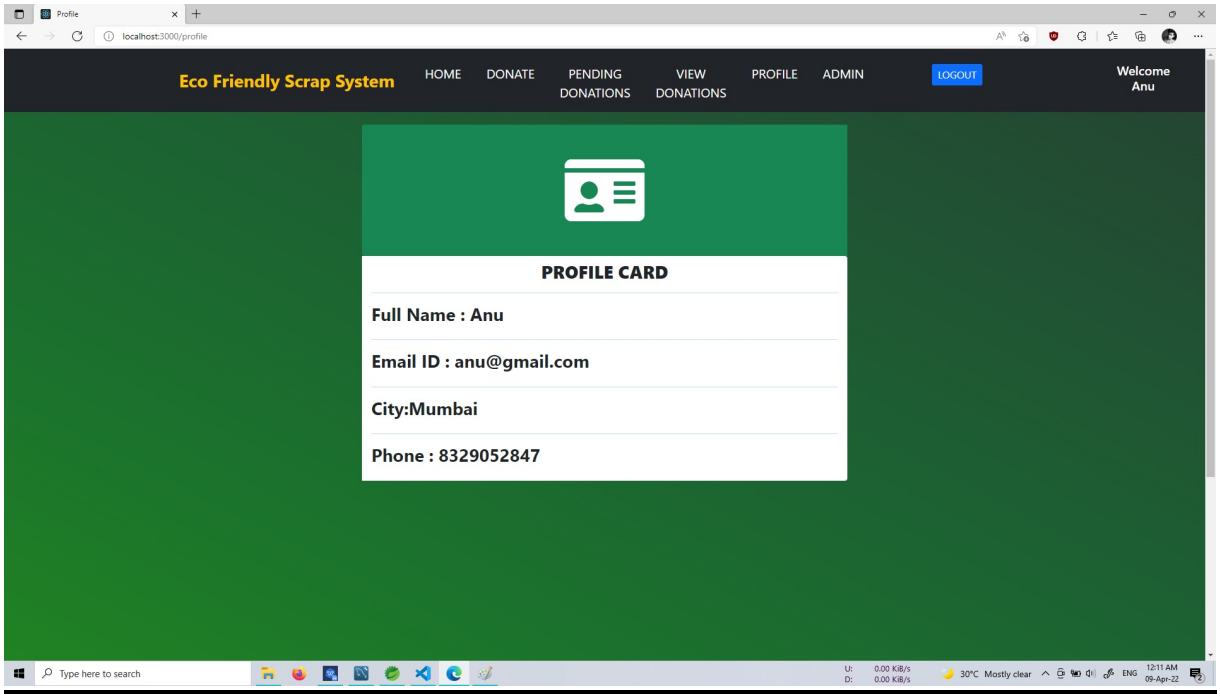
# Chapter 6

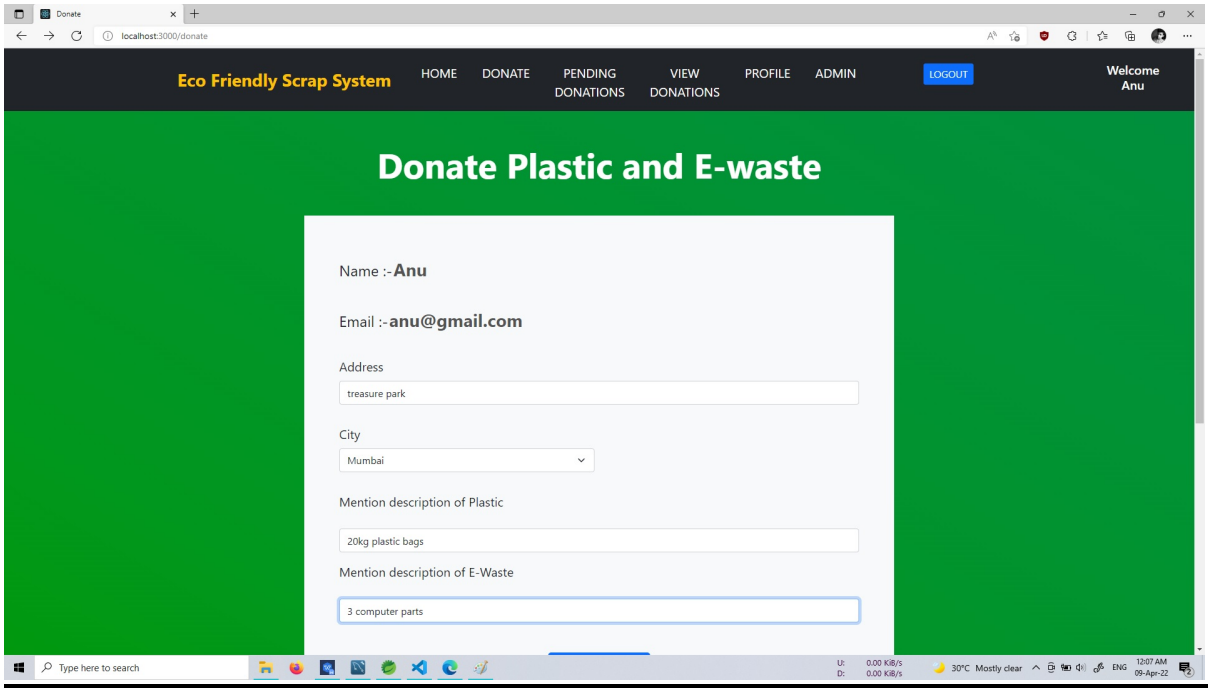
## SCREENSHOT OF WEBPAGES

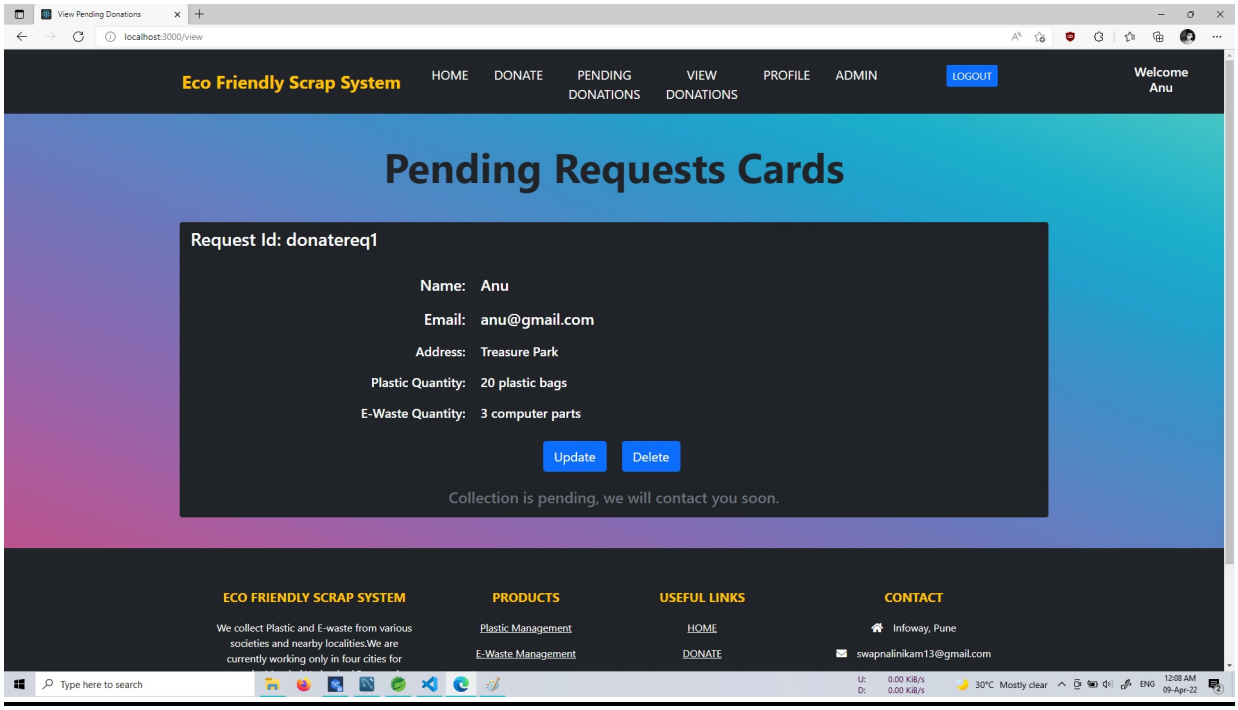


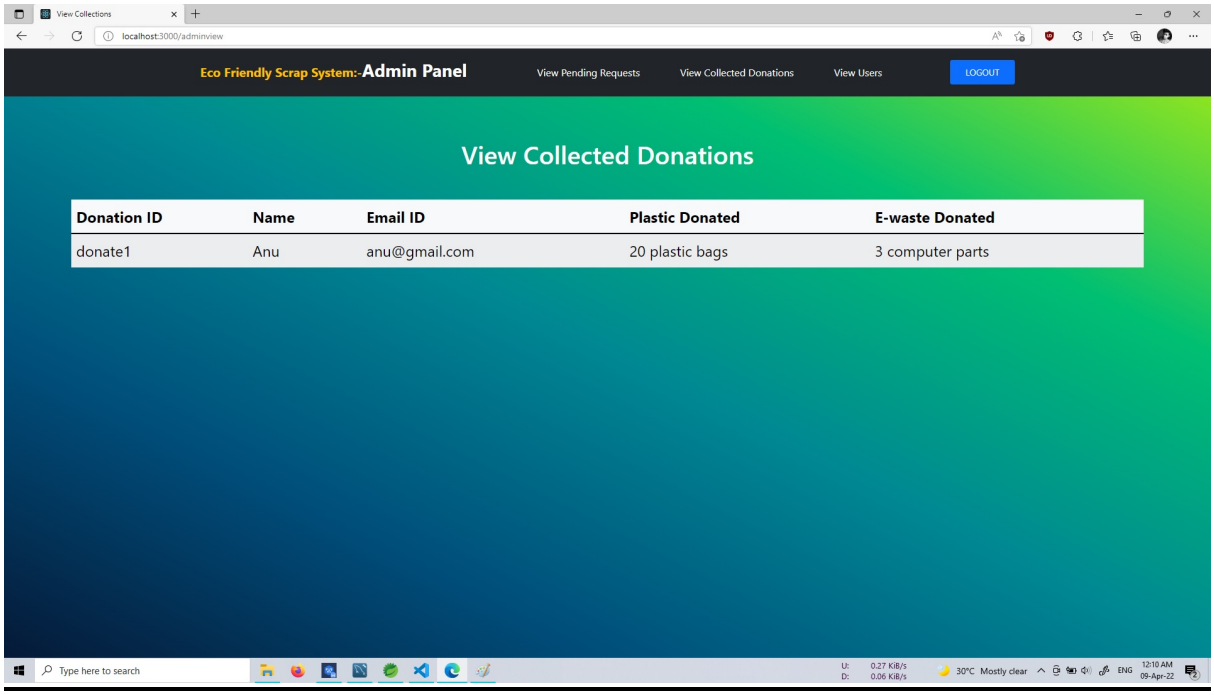



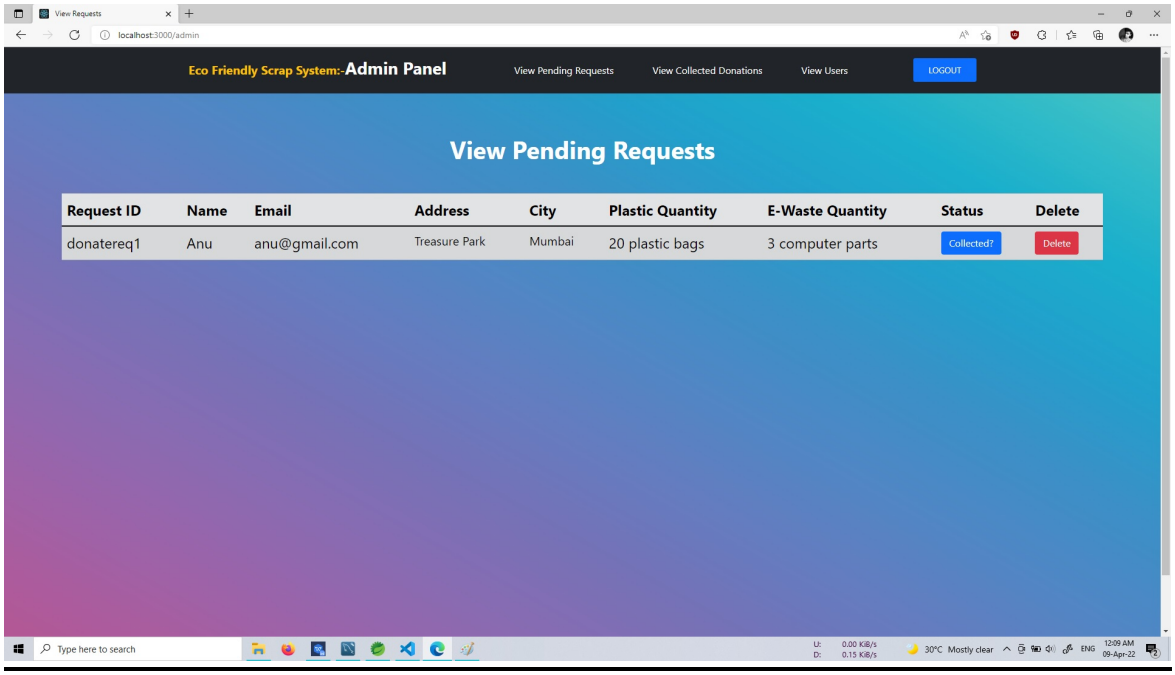

Home
localhost:3000/home
Eco Friendly Scrap System
HOME
DONATE
PENDING DONATIONS
VIEW DONATIONS
PROFILE
ADMIN
LOGOUT
Welcome Anu
EACH YEAR, INDIA GENERATES
63 MILLION TONNES OF WASTE
By 2050, global waste levels will reach 3.4 billion tonnes per year unless waste generated per person is managed sustainably
ABOUT US
OUR SERVICES
Type here to search

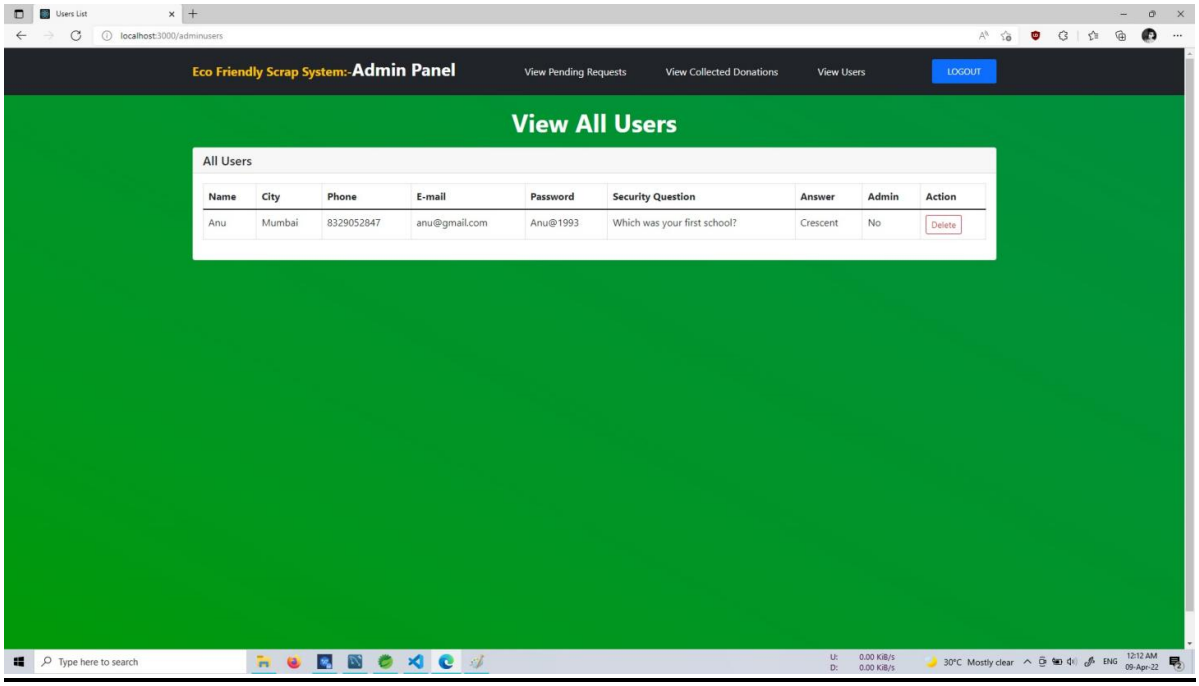

Profile
localhost:3000/profile
Eco Friendly Scrap System
HOME
DONATE
PENDING DONATIONS
VIEW DONATIONS
PROFILE
ADMIN
LOGOUT
Welcome Anu
PROFILE CARD
Full Name : Anu
Email ID : anu@gmail.com
City:Mumbai
Phone : 8329052847
Type here to search


Donate
localhost:3000/donate
Eco Friendly Scrap System
HOME
DONATE
PENDING DONATIONS
VIEW DONATIONS
PROFILE
ADMIN
LOGOUT
Welcome Anu
Donate Plastic and E-waste
Name :-Anu
Email :-anu@gmail.com
Address
treasure park
City
Mumbai
Mention description of Plastic
20kg plastic bags
Mention description of E-Waste
3 computer parts


View Pending Donations
localhost:3000/view
Eco Friendly Scrap System
HOME
DONATE
PENDING DONATIONS
VIEW DONATIONS
PROFILE
ADMIN
LOGOUT
Welcome Anu
Pending Requests Cards
Request Id: donatereq1
Name: Anu
Email: anu@gmail.com
Address: Treasure Park
Plastic Quantity: 20 plastic bags
E-Waste Quantity: 3 computer parts
Update
Delete
Collection is pending, we will contact you soon.
ECO FRIENDLY SCRAP SYSTEM
We collect Plastic and E-waste from various societies and nearby localities.We are currently working only in four cities for
PRODUCTS
Plastic Management
E-Waste Management
USEFUL LINKS
HOME
DONATE
CONTACT
Infoway, Pune
swapnalinikam13@gmail.com


View Collections
localhost:3000/adminview
Eco Friendly Scrap System:-Admin Panel
View Pending Requests
View Collected Donations
View Users
LOGOUT
View Collected Donations
Donation ID
Name
Email ID
Plastic Donated
E-waste Donated
donate1
Anu
anu@gmail.com
20 plastic bags
3 computer parts
Type here to search
30°C Mostly clear
ENG
12:10 AM
09-Apr-22


View Requests
localhost:3000/admin
Eco Friendly Scrap System:-Admin Panel
View Pending Requests
View Collected Donations
View Users
LOGOUT
View Pending Requests
Request ID
Name
Email
Address
City
Plastic Quantity
E-Waste Quantity
Status
Delete
donatereq1
Anu
anu@gmail.com
Treasure Park
Mumbai
20 plastic bags
3 computer parts
Collected?
Delete
Type here to search
30°C Mostly clear
ENG
12:09 AM
09-Apr-22


Users List
localhost:3000/adminusers
Eco Friendly Scrap System:-Admin Panel
View Pending Requests
View Collected Donations
View Users
LOGOUT
View All Users
All Users
Name
City
Phone
E-mail
Password
Security Question
Answer
Admin
Action
Anu
Mumbai
8329052847
anu@gmail.com
Anu@1993
Which was your first school?
Crescent
No
Delete
Type here to search
30°C Mostly clear
ENG
12:12 AM
09-Apr-22

# Chapter 7

## CONCLUSIONS

Main purpose behind development of this project is to make everyone aware about recycling. This can be made easy and every human should contribute to nature by taking small steps which is very important in every situation for the humans health.

# Chapter 8

## FUTURE ENHANCEMENT

Manufacturing companies of all shapes and sizes pay close attention to their scrap rate, as this affects their profits. To provide a platform for industries to help them to buy and sell scrap as row material for their cost saving in row material as well as to sell their scrap at good price to increase their profit and ultimately reduce manufacturing cost. Scope is in all the industries where scrap is their discarded material from a manufacturing job. So they will use our website to buy row material and sell scrap

# Chapter 10

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[7] https://developer.mozilla.org/en-US/docs/Web/JavaScript

[8] https://jquery.com/

[9] https://www.ieee-security.org/TC/SP2017/papers/226.pdf