PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Software Requirements Specification

for

Lost and Found System

Samyukta B (PES2UG21CS470)

Sanjana Naik (PES2UG21CS475)

Sarayu Thampan (PES2UG21CS480)

Shravya Nandyal (PES2UG21CS496)

PES University, Electronic City Campus

5th September, 2023.

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Table of Contents

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Revision History

Name	Date	Reason For Changes	Version

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Introduction

Purpose

Everyday numerous items are lost/misplaced in public places and are found by strangers who wish to return them to their rightful owners. We have proposed a Lost and Found System where users can report lost items and finders can report found items. The sole purpose of this project is to bridge the gap between individuals who have misplaced items and those who have found them.

Intended Audience

The targeted readers of this documentation are the Admins who will be handling the backend of our application.This documentation is intended for the testers and developers. The users of this application are people in communities, institutions, airports, shopping malls, and public places.

Product Scope

This software is aimed to efficiently track, organize, and reunite lost items with their owners through a digital platform by creating a centralized repository where users can search and report for lost items. In doing so, it reduces the emotional and financial impact of losing valuable items and streamlines the reporting and searching processes using clear categories, descriptions, and images.

Our primary goals are:

- *To create a user-friendly interface for effortless reporting and searching.*
- *To incorporate advanced search functionalities enabling users to find items based on name, category, and description.*
- *To incorporate an efficient notification system (through email) that alerts users of potential matches.*

Business strategies include:

- *Providing a reliable Lost and Found service that showcases the company's commitment to customer care, improving its reputation.*
- *The system generates valuable data and insights about lost and found items, which can be analyzed to identify trends, improve security protocols, and make informed decisions to prevent future losses.*
- *To ensure the security and credibility of reports through Admin verification.*

References

https://www.slideshare.net/JayedHossainJibon/lost-and-found-web-project

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

https://www.studocu.com/row/document/comsats-university-islamabad/topics-in-computer-science-ii/se46-lost-and-found-management-system/20837857

https://www.lucidchart.com/pages/ - Use Case Diagram

https://www.canva.com/design/DAFtl5rqB6Y/Cz59i6h8RuCN7LHSLYnHVQ/edit

Overall Description

Product Perspective

The context of the Lost and Found System typically revolves around organizations or environments where individuals frequently misplace or lose personal belongings, and there is a need for an organized and efficient system to manage these lost items.

The origin of the Lost and Found System can be traced back to the limitations and inefficiencies of traditional, manual lost and found processes. These processes often relied on handwritten logs, physical storage of lost items, and time-consuming searches when individuals inquired about their lost belongings.

Product Functions

- *Searching- Users can search for an item based on name, category, and description (mandatory).*
- *Reporting system- User can post the name, category, description, date and time, location last seen/discovered.*
- *Uploading- Users can report or upload an image of the missing item.*
- *Status- Once the Admin verifies the User, the User can acknowledge that the missing item has been received.*
- *Customer Registration- User must register/login to report a missing item or found item.*
- *Notification- The user gets notified if there are potential matches to his missing item.*
- *Admin's role- Once the item is successfully retrieved that report is deleted from the frontend but remains in the database.*
- *Updating- All the reports are stored in the database.*
- *Raising Ticket- Users can raise a ticket when they face an issue which will be sent to the Admin.*

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

User Classes and Characteristics

Lost Property Owners:

Frequency of Use: Infrequent or occasional users.

Characteristics: These users have lost personal belongings and are seeking a platform to report and inquire about their lost items.

Found Property Reporters:

Frequency of Use: Occasional users.

Characteristics: These users find lost items and want to report them to the Lost and Found system. They may include employees or community members who come across lost property and need a way to submit that information about the found items.

Lost and Found Administrators:

Frequency of Use: Regular or daily users.

Characteristics: These users manage the Lost and Found system. They have the highest privilege levels, with responsibilities that include processing lost and found reports, verifying the users, and handling the physical retrieval of items.

Public Users (Browsers):

Frequency of Use: Infrequent users.

Characteristics: These users may visit the Lost and Found system's public interface to browse and search for lost items that match their descriptions. They may include individuals trying to find lost property before officially reporting it as lost.

IT Support or Technical Staff:

Frequency of Use: Occasional to regular users.

Characteristics: These users may be responsible for maintaining and troubleshooting technical issues related to the Lost and Found system. They require technical expertise to address software or hardware problems that may arise.

Customer Support:

Frequency of Use: Occasional to regular users.

Characteristics: These users assist lost property owners and found property reporters with inquiries and provide support. They need access to information within the system to answer questions and resolve issues efficiently.

The most important user classes for a Lost and Found system are typically:

- *Lost Property Owners: Ensuring they can easily report and search for their lost items is crucial for user satisfaction and system utility.*
- *Lost and Found Administrators: These users are essential for the system's operation, as they manage the entire process, from recording lost and found items to returning them to their rightful owners.*
- *Found Property Reporters: They play a vital role in populating the system with information about found items, which is essential for reuniting owners with their belongings.*

Operating Environment

Key hardware components may include:

- *Database Server: To store information about lost and found items, users, and administrative data, a database server with sufficient storage capacity and processing power is necessary.*
- *Network Infrastructure: Reliable network connectivity is crucial for users to access the system. This includes routers, switches, and network security measures to protect sensitive data.*
- *User Devices: Lost and Found system users may access the system through various devices, such as desktop computers, laptops, smartphones, and tablets. The software should be responsive and accessible across different screen sizes and resolutions.*

Software Components and Applications:

Web Servers: The software may rely on web server software such as Apache, Nginx, or Microsoft Internet Information Services (IIS) to serve web pages and handle HTTP requests.
Database Management Systems (DBMS): The software will interact with a DBMS for data storage and retrieval.

Web Browsers: Users will access the system through web browsers like Chrome, Firefox, Safari, and Edge. The software should be compatible with common browsers and adhere to web standards.
Security Software: To ensure the security of the system, it may need to coexist with security software such as firewalls, intrusion detection systems, and antivirus solutions.
Email Servers: The software may integrate with email servers to send notifications and communication to users and administrators.
Authentication and Authorization Systems: If the Lost and Found system is part of a larger ecosystem, it may need to integrate with authentication and authorization systems.

Design and Implementation Constraints

Corporate or Regulatory Policies:
Data Privacy Regulations: Compliance with data privacy regulations may limit the way data is collected, stored, and processed within the system.
Corporate Security Policies: Organizations may have strict security policies that dictate encryption standards, access controls, and other security measures that must be implemented in the software.
Hardware Limitations:
Hardware Compatibility: The target hardware for deployment may have limitations in terms of processing power, memory, and storage capacity, which can impact software design and performance optimization.
Timing Requirements: Real-time or time-sensitive applications may require adherence to specific timing constraints, influencing design decisions.

2.6 Assumptions and Dependencies

Interfaces to Other Applications:
Third-Party Integrations: If the system needs to interact with external applications or services, developers must follow predefined APIs, protocols, or data formats, limiting flexibility in integration.
Specific Technologies, Tools, and Databases:
Technology Stack: Organizations may have standardized technology stacks or prefer certain programming languages, frameworks, and development tools that developers must use for consistency and supportability.
Database Systems: The choice of a database management system (DBMS) may be dictated by existing infrastructure and expertise.
Security Considerations:

Encryption: Data security standards may require particular encryption algorithms and key management practices.

Maintainability:

If the customer's organization will maintain the software, developers may need to structure the codebase to ensure ease of ongoing maintenance and updates.

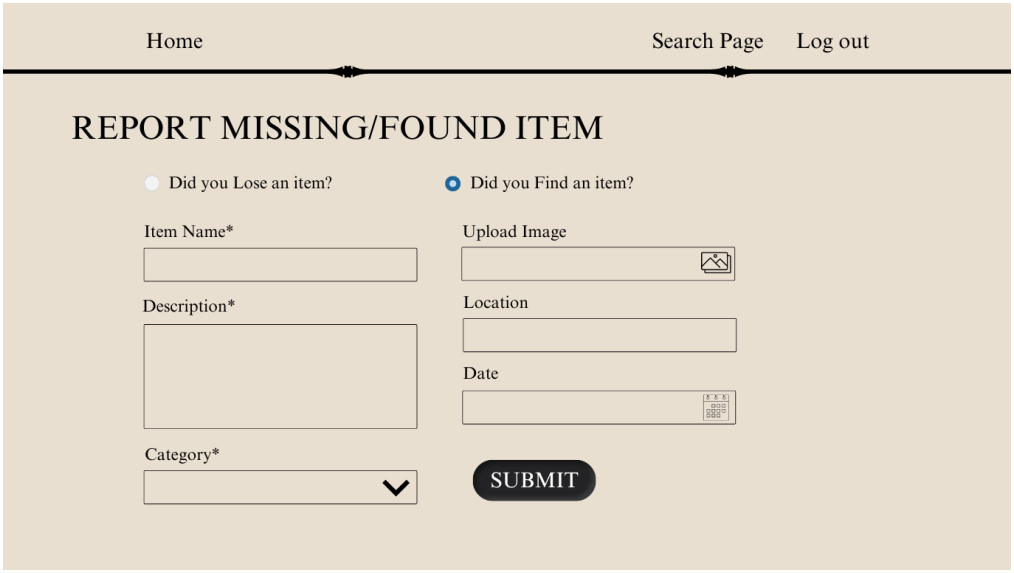
External Interface Requirements

User Interfaces

The User has to login into our application to be able to use it. Once after, he will be directed to a page from which he can choose to search for an item using the search bar, or click on report a 'Lost' item or 'Found' item. From there the user will be directed to a form page where he can enter details of his lost/found item. This is a sample screen image for the Searching functionality and the Reporting functionality.

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering



Software Interfaces

TBD *<Describe the connections between this product and other specific software components (name and version), including databases, operating systems, tools, libraries, and integrated commercial components. Identify the data items or messages coming into the system and going out and describe the purpose of each. Describe the services needed and the nature of communications. Refer to documents that describe detailed application programming interface protocols. Identify data that will be shared across software components. If the data sharing mechanism must be implemented in a specific way (for example, use of a global data area in a multitasking operating system), specify this as an implementation constraint.>*

Communications Interfaces

Since the product being developed is a web based application, HTTP and HTTPS protocols will be used primarily. Uploading a post would require an HTTP POST request to the server. This application will contain an email notification system to notify users when their lost items are found or when there are updates to their posts. SMTP (Simple Mail Transfer Protocol) can be used for sending emails.

For updating every single post onto the database, a communication with MySQL will need to be established to be able to make queries. The server then stores this information in the database.

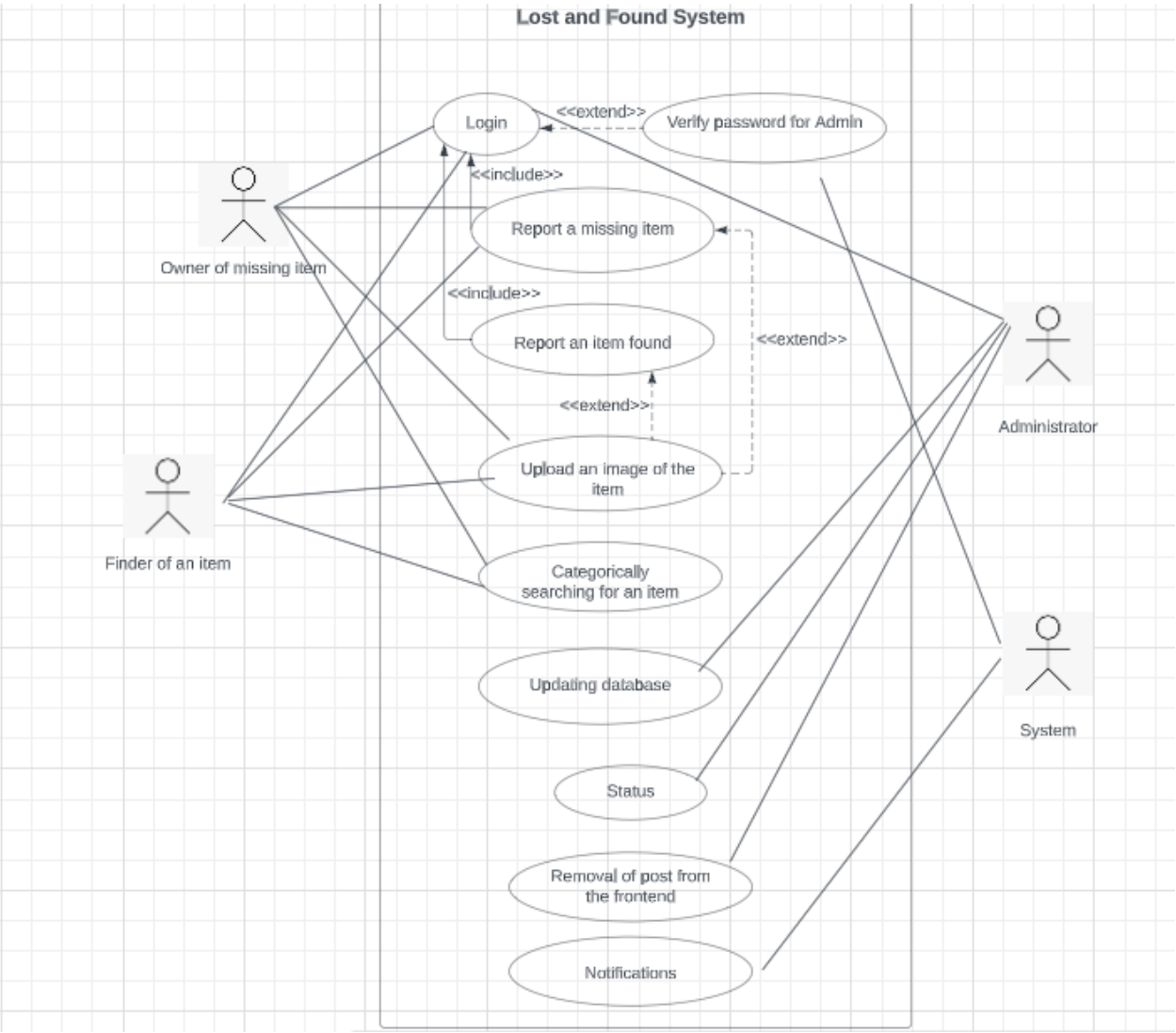
PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Considering security concerns, this application will be primarily using HTTPS for encryption. Database alterations can solely be performed by the administrator to provide consistency along with security. Admins can access and modify data sequentially, and the database engine itself will handle concurrent access, ensuring data consistency.

Analysis Models

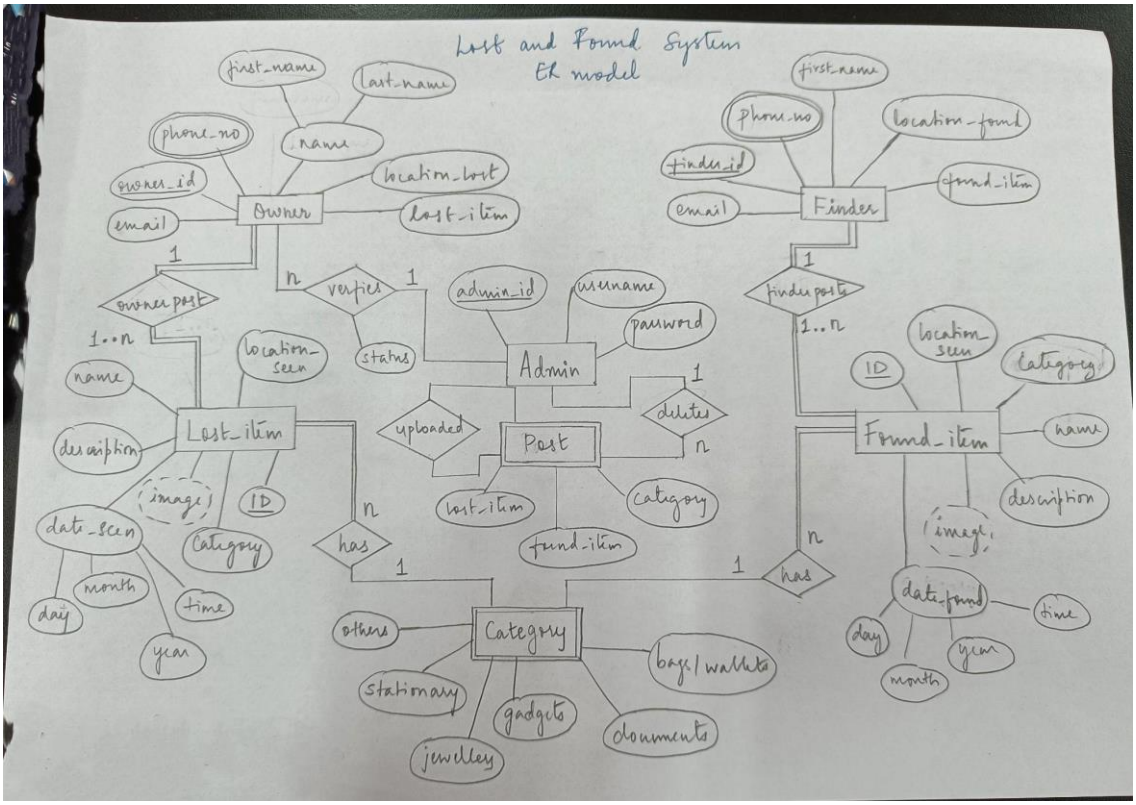
Lost and Found System Use Case Diagram



PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

ER model for the Lost and Found System



System Features

Searching for Item using filtering

5.1.1 Description and Priority

The "Searching" feature in the Lost and Found system is designed to provide users with an efficient method to search the database for lost items. By inputting details such as the item's name, category, and description, users can quickly sift through the repository of reported items to find potential matches. Priority: High

5.1.2 Stimulus/Response Sequences

User does a basic or advanced filtered search by providing the necessary details. The system displays a list of all the items that match the search criteria. The user has the option to 'Reset filters' to return back to the original list of search results.

5.1.3 Functional Requirements

System will have a basic search functionality (search bar) with which the user does a basic search where item name, category and description are mandatory. It can also be extended using the advanced filters, by providing more details such as location of loss, date and time. In case of invalid inputs or filter combinations that yield no results, an appropriate error message will be displayed.

Reporting a Missing or Found item

5.2.1 Description and Priority

The "Reporting" feature in the Lost and Found system is very essential to the application where the user can post the name, category, description, date and time, location last seen and images of the item along with their contact information which will be stored in the database. In the event of another person finding a missing item, they can login and report a 'Found' item and enter all necessary details of that item. Priority: High

5.2.2 Stimulus/Response Sequences

Users can report a 'Lost' or 'Found' item and this information is stored in the database. The model matches the lost and found reports and displays them on the website. If there are potential matches to a missing item, the user gets notified through email.

5.2.3 Functional Requirements

A comprehensive form is needed where users can report lost or found items. For item name, location of loss/discovery and contact information a text field must be created where the user can provide the details. For mentioning the category, there must be a dropdown list or menu containing various item categories (electronics, documents, jewelry, etc). For date and time, picker tools must be added to allow users to specify when the item was lost or found. There must be an optional file input where users can attach an image of the item.

Status Button

5.3.1 Description and Priority

The Status functionality will be visible to the Admin only. It provides information about the status of a specific lost or found item. Priority: Medium

5.3.2 Stimulus/Response Sequences

When the Admin verifies the user and the user retrieves their lost item successfully, the Admin shall update the status on the application. There will be a button with each report generated which will read 'Item retrieved'. When the Admin clicks on this button, that particular report is deleted from the frontend but remains in the database. The user shall receive an email stating that their item has been collected and the report has been taken down. In case, if it wasn't the owner who collected the item, they must raise a ticket to the same to the admin.

5.3.3 Functional Requirements

There must be a clearly visible button with the label 'Item Retrieved' below a user's report. This button will be visible to the Admin to signify that a particular item has not yet been recovered.

Updating the database

5.4.1 Description and Priority

When the user uploads a post with Item details, it is added to the database. This helps the model match lost and found reports. Priority: High

5.4.2 Stimulus/Response Sequences

The Item's information is stored only when the user posts a report of 'Item Lost' or 'Item Found'. When the model finds potential matches to the lost item, the user will receive an email stating the same. Once the user is verified and the item is collected, the Admin will take the post down from frontend but it will still be present in the database. On the occasion of the item not being retrieved after certain months, the report expires.

5.4.3 Functional Requirements

For the database component of the project, the platform will be MySQL. When the user wants to Report a Missing/Found Item, they will be directed to the respective page which contains a form. Upon the completion and submission of the form by the user, the encapsulated data will be processed and stored within the MySQL database infrastructure.

Issuing tickets

5.5.1 Description and Priority

The "Ticket" functionality is used when the user wants to raise a ticket for any issue they are facing. This can also be used as a feedback system. Priority: Low

5.5.2 Stimulus/Response Sequences

In the infrequent event that someone else retrieves the missing item instead of the user, the user can promptly issue a ticket regarding the situation by utilizing the 'Issuing Ticket' button to notify the relevant parties.

5.5.3 Functional Requirements

There can be an Issue Ticket form page where users can issue a ticket related to any problem they are facing, ranging from giving feedback or reporting a problem to the Admin.This form will then be viewed by the admin and necessary action will be taken.

Other Nonfunctional Requirements

Performance Requirements

The performance required for a lost and found system are response time, scalability and real time notifications. The system will respond to user action (e.g., searching for lost items, reporting found items) within a minute under normal load conditions.

Quick response time enhances user satisfaction and efficiency, especially when users are anxious about lost belongings or eager to claim found items. This system is scalable, and can be used by institutions, airports, shopping malls, and public places. Users will receive real-time notifications (through email) within a minute of a matching lost and found item being logged into the system.

Safety Requirements

The lost and found system will provide guidelines to users on how to report and handle such items safely and promptly involve the appropriate authorities if necessary. The admin can login to the application as 'Admin' which is password protected. Users are provided with safety guidelines and recommendations for using the lost and found system responsibly and safely.

Security Requirements

Users are not allowed to access and modify databases.

Software Quality Attributes

A user-friendly interface ensures that users can easily navigate and use the system, improving overall satisfaction. High availability is essential to ensure users can access the system whenever needed. The system remains operational even when faced with unexpected conditions.

Business Rules

Admins: These individuals have full access to the system, including the ability to add or remove reports, verify users, manage user accounts and check the raised tickets.
Users: Regular users can report lost items, search for lost items, and claim found items. They have limited access to the system's functionalities.
Maintains detailed logs of all system activities, including user actions, item updates, and access to sensitive data.

Other Requirements

The software will allow users to record and track information about lost and found items.This includes such as item description, location found, date and time, and any relevant identifiers.
There will be a process for claimants to report and retrieve their lost items. This may involve verifying the ownership of items through identification or proof.

Appendix A: Glossary

TBD *<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>*

Appendix B: Field Layouts

Sample sheet with information required to register the customer

Field	Length	Data Type	Description	Is Mandatory
User Id	16	Numeric		Y

User name	16	String		Y
Item name	20	String	Name of item	Y
Category	20	String	Ex:Stationery,Documents, Bag/Wallet	Y
Item description	80	String	Detailed description of item lost/found	Y
Date	8	Date		N
Time	6	Timestamp		N
Location	20	String	Place where the item was last seen/found	N
Ticket Id	16	Numeric		N
Ticket description	50	String		N

Sample Report Requirements: Include the fields to be included in the report (TBD)

Registration Report	**Transaction Report**
Bank Account Number	Transaction Reference Number
ISFC Code	Bank Account Number
Bank Name	IFSC Code
Account Status	Bank Name
Account Type	Customer Name

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Customer Name	Card Number
Card Number	Debit Transaction Amount
SI Start Date	Transaction Date
Status	Status
Remarks	Debit Attempt Number
	Remarks

Appendix C: Requirement Traceability Matrix

Sl. No	Requirement ID	Brief Description of Requirement	Architecture Reference	Design Reference	Code File Reference	Test Case ID	System Test Case ID

PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering