Software Requirement Specification

For

Lost and Found Items at the Airport

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Chapter 1

INTRODUCTION

1.1 Methodology

Iterative process starts with a simple implementation of a subset of the software requirements and iteratively enhances the evolving versions until the full system is implemented. At each iteration, design modifications are made and new functional capabilities are added. The basic idea behind this method is to develop a system through repeated cycles (iterative) and in smaller portions at a time (incremental).

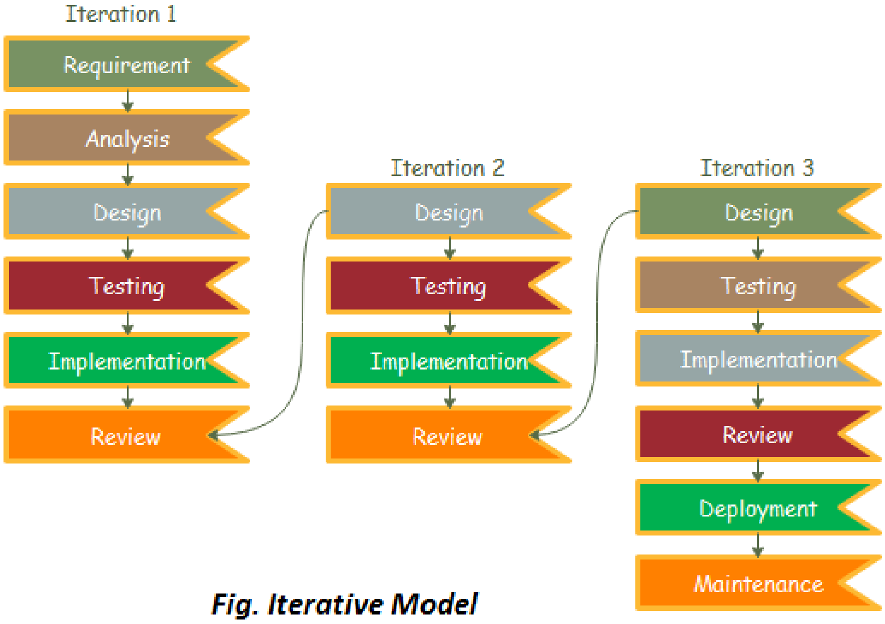


Fig. Iterative Model

Iterative and Incremental development is a combination of both iterative design or iterative method and incremental build model for development. ”During software development, more than one iteration of the software development cycle may be in progress at the same time.” This process may be described as an ”evolutionary acquisition” or ”incremental build” approach.”

In this incremental model, the whole requirement is divided into various builds. During each iteration, the development module goes through the requirements, design, implementation and testing phases. Each subsequent release of the module adds function to the previous release. The process continues till the complete system is ready as per the requirement.

The key to a successful use of an iterative software development life cycle is rigorous validation of requirements, and verification and testing of each version of the software against those requirements within each cycle of the model. As the software evolves through successive cycles, tests must be repeated and extended to verify each version of the software.

1.2 Purpose

The purpose of this document is to build an online system to manage belonging/s of passengers which are lost at the airport to ease the items management found at the airport. The current system in India is not a managed one, thus there is a need of a proper and easy way for the passengers to claim their item. The project is based on a web app using which the airport authority can manage the database and passengers can access and claim for their belonging

1.3 Document Convention

Bold-faced text has been used to emphasize section and sub-section headings. Highlighting is to point out words in the glossary and italicized text is used to label and recognize diagrams.

1.4 Intended Audience and Reading Suggestions

This project is a prototype for the Inventory management system for lost and found items at the airport and it is restricted within the college premises. This has been implemented under the guidance of college professors. This project is useful for the airport authority and as well as to the passengers

1.5 Project Scope

The purpose of the Inventory management system for lost and found items at the airport is to ease item management and to create a convenient and easy-to-use web app for passengers, trying to locate and claim their item. The system is based on a relational database with its items lost and found functions. We will have an embedded system where using mobile phones passengers can interact with airport authority easily. Above all, we hope to provide a comfortable user experience.

1.6 Tools Used

1.6.1 Node js

Node js is an open source cross platform javascript run time environment. It execute javascript code outside of the browser. It uses JavaScript everywhere, so it's easy for a JavaScript programmer to build back-end services using Node.js

1.6.2 Express

In this application we have used Express for backend which is a minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications. It allows to setup middlewares to respond to HTTP Requests.

1.6.3 MySQL

MySQL is a relational database management system based on the Structured Query Language, which is the popular language for accessing and managing the records in the database. MySQL is open-source and free software under the GNU license. For interacting with MySQL relational database management system we have used SQL (Structure Query Langauge).

MySQL WorkBench

We have used MySQL Workbench which is a unified visual tool for database architects, developers, and DBAs. MySQL Workbench delivers visual tools for creating, executing, and optimizing SQL queries. The SQL Editor provides color syntax highlighting, auto-complete, reuse of SQL snippets, and execution history of SQL. The Database Connections Panel enables developers to easily manage standard database connections, including MySQL Fabric. The Object Browser provides instant access to database schema and objects.

1.6.4 Bootstrap

It is an open-source and free CSS framework, which helps in directing a responsive device-friendly mobile-first front-end web page development tool. Bootstrap includes the CSS (Cascading Style Sheets), and an optional JavaScript supported design template (plug-ins) that deals with typography, implementation of buttons, forms, and various other component's user interface. This framework helps in faster web development and supports developers in creating responsive web pages faster. We can Quickly design and customize responsive mobile-first sites with Bootstrap, the world's most popular front-end open source toolkit, featuring Sass variables, responsive grid system, extensive prebuilt components, and powerful JavaScript plugins.

1.6.5 XAMPP

XAMPP is one of the widely used cross-platform web servers, which helps developers to create and test their programs on a local webserver. It was developed by the Apache Friends, and its native source code can be revised or modified by the audience. It consists of Apache HTTP Server, MariaDB, and interpreter for the different programming languages.

1.6.6 Visual Studio Code

For writing and maintaining our code we have used Visual Studio Code which is a code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality.

1.6.7 Version Control System - Git

A version control system is a software that tracks changes to a file or set of files over time so that you can recall specific versions later. It also allows you to work together with other programmers. Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Chapter 2

Overall Description

2.1 Product Perspective

An inventory management database system stores the following information.

- **User details:**

  The database consists of users full name, contact details, gender, email ID, UIDAI number, city, state, country. These details are required to file a claim.

- **Item details:**

  The DB consists of the description of item found at the airport, i.e. the id, name, type, location, date, terminal number, photo and other details including status.

- **Admin details:**

  The DB consists of the username, password, contact, gender, email id, employee id, department, address. These details provide valid login to an employee(admin) of a particular airport after getting registered.

2.2 Software Interface

Software Used	Description
Platform	Any JavaScript enabled Web Browser
Database	To save and retrieve the item records, admin records, user records, we have chosen MySQL
Tools/IDE	Visual Studio Code, NPM,
Technologies Used	HTML, CSS, JavaScript, Nodejs, Bootstrap

2.3 Hardware Interface

Component	Minimum	Recommended
Processor	1.9 gigahertz dual core processor	3.3 gigahertz (GHz) or dual core processor
Memory	2 GB RAM	4 GB RAM
Display	Super VGA with a resolution of 1024 x 768	Super VGA with a resolution of 1024 x 768

2.4 Communication Interface

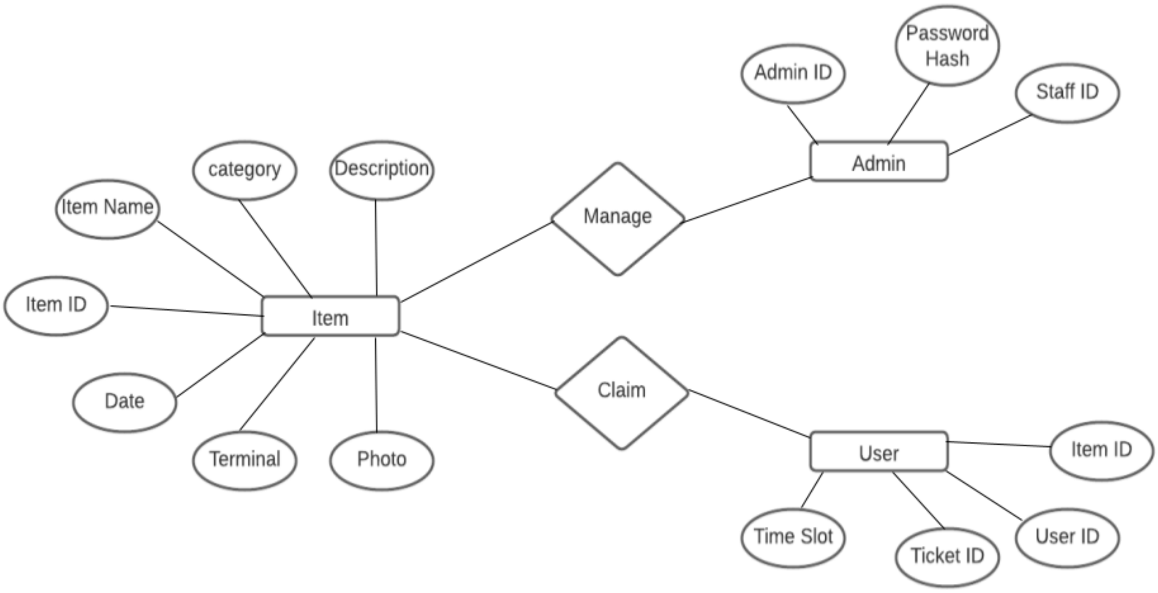
If the lost item is not present in the lost items' data. In this case, the user can communicate with the airport authority with the complaint form and necessary action will be taken by the airport authority.

2.5 Constraints

- Only Admin can add and remove items.
- For find an item in list of items, date and terminal in which item was lost should be necessary.
- JavaScript must be enabled by the web browser to run the features of application.

2.6 E-R Diagram

- This diagram illustrates how “entities” such as people, objects relate to each other within a system.
- Entities in lost and found items application can be user, admin, item with admin activity for login.
- User attributes: Time Slot, Ticket ID, User ID, Item ID.
- Admin attributes: AdminID, PasswordHash, Staff ID.
- Item attributes: ItemName, Category, Description, ItemID, Date, Terminal, Photo.
- After successful login admin can perform admin activities.

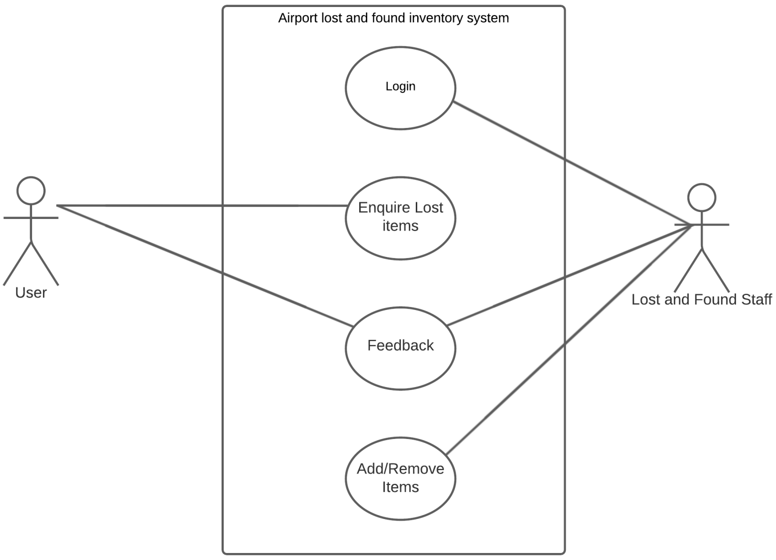


Chapter 3

Specific Requirements

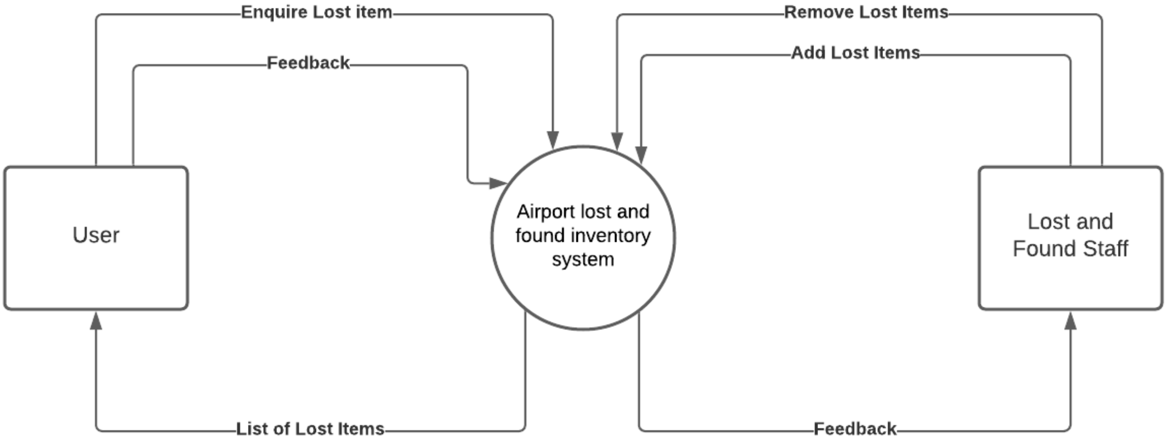
3.1 Use-Case

- This diagram describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors). Each use case should provide some observable and valuable result to the actors or other stakeholders of the system.
- In lost and found item application, user and admin are the actors where user can interact with front-end of the system and admin handles the interface between database (back-end) and front-end.
- Both user and admin play their roles on their respective ends. Admin add/update/delete an item.
- User can enter the duration and airport where he lost the item and then can check for his belonging/s in the list of items. After that, he can claim for his belonging/s and if not found then can make a complaint regarding his lost item.



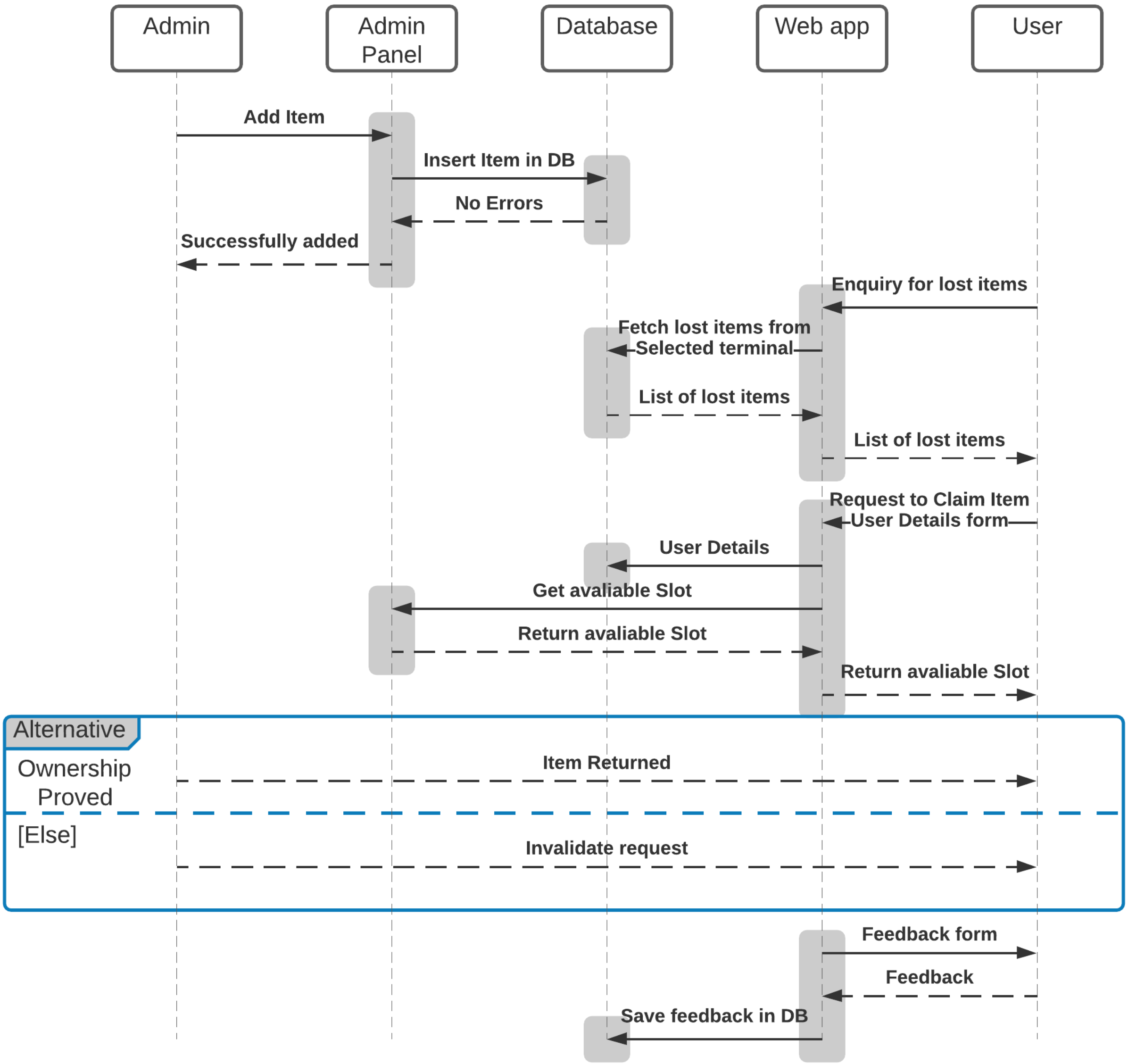
3.2 Context Diagram

- A context diagram, sometimes called a level 0 data-flow diagram, is drawn in order to define and clarify the boundaries of the software system. It identifies the flows of information between the system and external entities. The entire software system is shown as a single process.
- In lost and found item application, user and admin are the external entities where they can interact with with the Airport lost and found inventory system.
- Admin : Add lost items, remove lost items and get feedback from users.
- User : Enquire lost item, give feedback and get list of lost items.



3.3 Sequence Diagrams

- A sequence diagram or system sequence diagram (SSD) shows object interactions arranged in time sequence in the field of software engineering. It depicts the objects involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the logical view of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios.



Chapter 4

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