

# **LOST & FOUND**

## **REUNITING LOST ITEMS WITH THEIR OWNERS – QUICKLY & SAFELY**

### **1. INTRODUCTION**

## **1. INTRODUCTION**

In today's fast-paced world, the loss of personal items in public places such as universities, shopping malls, public transport, and workplaces is a frequent and frustrating occurrence. Often, individuals have no systematic method to recover their lost belongings. Traditional approaches—such as physically revisiting locations, putting up posters, or relying on word-of-mouth—are inefficient, time-consuming, and rarely successful. Likewise, those who find misplaced items are often unsure of how to report or return them, leading to a significant number of unclaimed and permanently lost items.

To address this issue, the Lost & Found Item Management System has been developed as a web-based solution that connects individuals who have lost items with those who have found them. The platform provides a structured, user-friendly interface where users can report lost or found items, browse real-time listings, and initiate item claims. With dedicated pages such as the Report Lost Item Page, Report Found Item Page, and a central Feed Page, the system allows for detailed entries that include item descriptions, categories, dates, locations, and images—making the matching process easier and more effective.

The platform also includes a variety of features designed to streamline and secure the recovery process. The User Profile Page allows users to manage their reports and claims, while the Admin Dashboard enables system administrators to monitor activity and verify claim legitimacy. Advanced functionalities such as search filters, claim verification, and notification alerts ensure that the process remains efficient, transparent, and user-centered. This solution not only enhances the chances of item recovery but also fosters a responsible and collaborative community environment for managing lost and found property.

### **1.1 Problem Definition**

Losing personal items in public or shared spaces is a common problem faced by individuals on a daily basis. Whether it's a mobile phone left behind in a classroom, a wallet dropped in a shopping mall, or a bag misplaced on public transport, recovering such items often proves to be difficult due to the absence of a structured, centralized system for reporting and tracking. Traditional methods like posters, announcements, or relying on chance encounters are inefficient and offer no guarantee of recovering the lost belongings.

Moreover, individuals who find items are often unsure of the appropriate steps to return them. Without an official platform or verification process, the risk of fraud or miscommunication increases. In large institutions such as colleges, offices, or event venues, where hundreds of people may pass through daily, the volume of lost and found

items can become unmanageable without proper organization and oversight.

There is a clear need for a dedicated digital system that allows users to quickly report, search for, and claim lost or found items. Such a system must be accessible, secure, and easy to use, with features to manage item details, verify ownership, and facilitate communication between the finder and the owner. The Lost & Found Item Management System aims to fulfill this need by providing an organized, web-based solution that bridges the gap between finders and owners while ensuring accountability and efficiency in the process.

#### **The main issues include:**

- Difficulty in locating lost items
- Lack of communication between finders and owners
- Inconsistent reporting across locations
- Verification challenges for item ownership

### **1.2 Existing System**

Indian Railways has implemented initiatives like "Mission Amanat" and "Operation Amanat" to assist passengers in retrieving lost belongings. These programs are managed by the Railway Protection Force (RPF) and involve uploading details and photographs of found items on official portals, enabling passengers to identify and claim their possessions.

#### **Key Features:**

**Online Listings:** Found items are cataloged on RPF websites, complete with descriptions and images, allowing passengers to search for their lost belongings.

**Identification Process:** Passengers are required to provide specific details such as train number, coach number, date of travel, and a description of the lost item to facilitate identification.

**Physical Collection:** Once an item is identified, passengers must visit the designated Lost Property Office to claim their belongings, often presenting valid identification and proof of ownership.

#### **Challenges and Limitations:**

Despite these efforts, the current system exhibits several shortcomings:

**Limited Real-Time Updates:** The online databases are not consistently updated across all railway zones, leading to delays in listing found items and reducing the chances of timely recovery.

**Inconsistent Reporting Standards:** Variability in reporting procedures and digital infrastructure across different railway divisions results in a fragmented and sometimes inefficient user experience.

**Verification Difficulties:** The process for verifying ownership is largely manual, relying on physical documentation and personal identification, which may not always conclusively establish rightful ownership.

**Lack of Centralization:** The absence of a unified, centralized platform means passengers often have to navigate multiple portals or contact various offices, complicating the retrieval process.

These limitations underscore the need for a more integrated, real-time, and user-friendly system to enhance the efficiency and effectiveness of lost item recovery within Indian Railways.

### 1.3 Proposed System

To overcome the limitations of the existing lost and found mechanism used in systems like that of Indian Railways, we propose a centralized, intelligent, and user-centric Lost & Found Platform. This system leverages modern web technologies to provide a more efficient, secure, and reliable way of reporting, tracking, and reclaiming lost items.

#### Key Features of the Proposed System:

**Centralized Web-Based Platform:** Unlike the fragmented and zone-specific structure of the Indian Railways system, our platform provides a unified portal accessible to all users, regardless of their location. This centralized database ensures that information about lost and found items is consistently updated and available in real-time.

**Automated Matching System:** The platform incorporates an automated algorithm that compares lost and found reports based on keywords, categories, dates, and locations. This dramatically increases the chances of identifying matches without manual searching.

**Real-Time Notifications:** Users receive instant alerts when a potential match is found for their reported lost or found item. This proactive communication enhances

user experience and reduces the response time for claim initiation.

**Admin Verification and Data Management:** A secure Admin Dashboard allows administrators to verify claims, manage user activity, monitor data trends, and handle flagged reports. This adds a layer of trust and security to the platform.

**Legal Integration and Compliance:** The system is designed with the possibility of integration with law enforcement or institutional authorities, ensuring that item returns follow proper legal procedures and ownership is verified thoroughly.

This proposed system addresses the critical gaps in the current infrastructure, including the lack of real-time updates, inconsistent reporting mechanisms, and manual verification processes. By combining automation, centralization, and proactive communication, the platform offers a smarter, faster, and more reliable alternative to traditional lost and found procedures.

## 1.4 Literature Review

The concept of managing lost and found items through digital platforms has gained relevance in recent years, particularly with the increased reliance on online services for public convenience. Various organizations and institutions, such as airports, universities, public transport systems, and large event venues, have attempted to digitize the process to improve efficiency and item recovery rates.

One of the most recognized implementations is the Lost Property Management System by Indian Railways, which utilizes regional web portals to list found items. Initiatives like Mission Amanat aim to reunite passengers with lost belongings by displaying images and details of recovered items online. However, these systems lack real-time updates, centralized reporting, and consistent user experience across different railway zones. Manual verification and the need for physical visits often delay the recovery process, leading to a large number of unclaimed items.

Several international studies and systems, such as airport lost and found systems in the U.S. and U.K., incorporate barcode tagging, RFID tracking, and inventory management software to streamline the handling of found items. Some universities have implemented internal platforms where students and staff can report and claim lost items, but these are generally confined to campus use and lack broader applicability. In academic research, authors have explored the use of mobile apps and IoT-based solutions to improve item tracking, but these often require expensive hardware or infrastructure.

Despite these developments, there remains a gap in the availability of a scalable, centralized, and intelligent system that not only supports item reporting but also automates matching, sends alerts for potential claims, enables admin verification, and supports legal compliance. This project seeks to bridge that gap by offering a comprehensive web-based solution that integrates all these features into a single,

user-friendly platform. By learning from the limitations of existing systems and leveraging modern web technologies, the proposed Lost & Found Item Management System represents a significant improvement in digital lost item recovery and management.

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**2.SYSTEM  
REQUIREMENTS**

## **2. System Requirements**

### **2.1 Hardware Requirements**

For optimal performance and scalability, the Lost & Found Platform requires the following hardware infrastructure:

#### **Server with High Availability:**

Cloud-based Infrastructure: Preferred solutions include AWS, Microsoft Azure, or Google Cloud for ensuring high availability and scalability. These cloud platforms provide the flexibility to scale resources based on traffic, and they offer services for load balancing, auto-scaling, and disaster recovery.

CPU: Multi-core processors (e.g., 2.5 GHz or higher) to handle concurrent requests efficiently.

RAM: Minimum 8 GB of RAM (16 GB or higher recommended for scalability and performance).

Storage: SSD (Solid-State Drive) storage for faster data retrieval, with a minimum of 50 GB allocated for application data, logs, and user records.

Network: High-speed internet connection with at least 1 Gbps bandwidth for seamless user access, especially when handling multiple requests or large file uploads (such as images).

#### **Backup and Data Redundancy:**

Backup System: Automated cloud backups (daily or weekly) to ensure data integrity and quick recovery in case of failure.

Data Replication: Use of database replication in cloud environments for enhanced data availability and fault tolerance.

### **2.2 Software Requirements Specifications (SRS)**

The software stack chosen for the development of the Lost & Found Platform ensures performance, scalability, security, and user-friendliness:

#### **Operating System:**

Windows/Linux: Both operating systems are suitable for development, deployment, and testing. The platform can run on either Windows Server or Linux-based environments such as Ubuntu or CentOS.

#### **Backend:**

Node.js: A JavaScript runtime environment that can handle a large number of simultaneous connections with minimal overhead, making it suitable for handling real-time data and heavy I/O-bound operations.

#### **Frontend:**

React.js or Vue.js:

React.js: A JavaScript library for building user interfaces, suitable for building

dynamic and responsive web applications.

**Vue.js:** Another JavaScript framework for building interactive UIs with a focus on simplicity and flexibility, making it ideal for small to medium-sized applications.

**Database:**

**MongoDB:** MongoDB is a popular, open-source NoSQL database designed for flexibility and scalability. It stores data in JSON-like documents, making it ideal for applications with rapidly changing data structures such as lost & found systems. MongoDB is schema-less, supports horizontal scaling, and integrates well with JavaScript-based stacks like Node.js.

**AI Module (for Matching Algorithm):**

**TensorFlow or PyTorch:**

**TensorFlow:** A comprehensive, open-source machine learning framework used for building and training AI models. Ideal for implementing intelligent item matching algorithms based on user input.

**PyTorch:** Another open-source framework for machine learning, offering dynamic computation graphs, making it suitable for deep learning applications.

**APIs:**

**Google Maps API:**

Used for location tracking to provide geolocation services and accurately map the areas where items are lost or found. This enhances user experience by allowing them to filter or search for items based on their proximity or exact location.

**Additional Tools and Libraries:**

**Authentication:**

**OAuth 2.0 or JWT (JSON Web Tokens):** Secure methods for user authentication and session management to ensure safe access to personal data and platform features.

**Real-time Notifications:**

**WebSocket or Socket.IO:** To enable real-time notifications for potential matches and updates to lost/found reports.

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### **3.SYSTEM DESIGN**

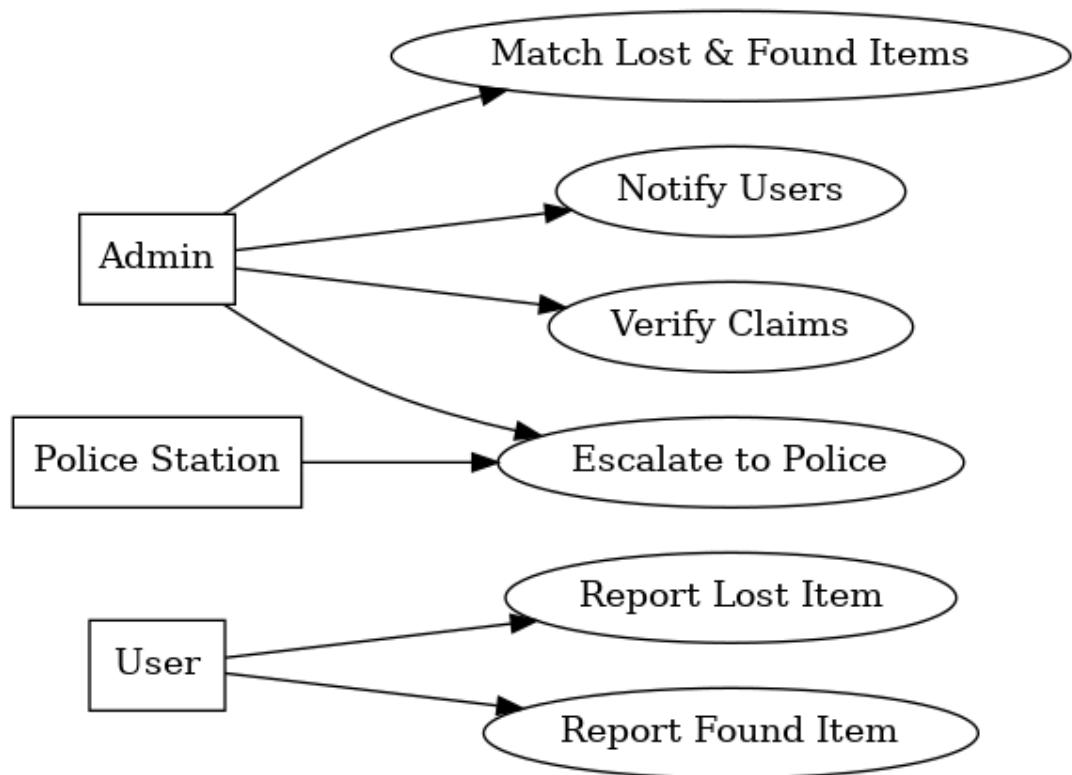
### 3. System Design

#### 3.1 Modules of System

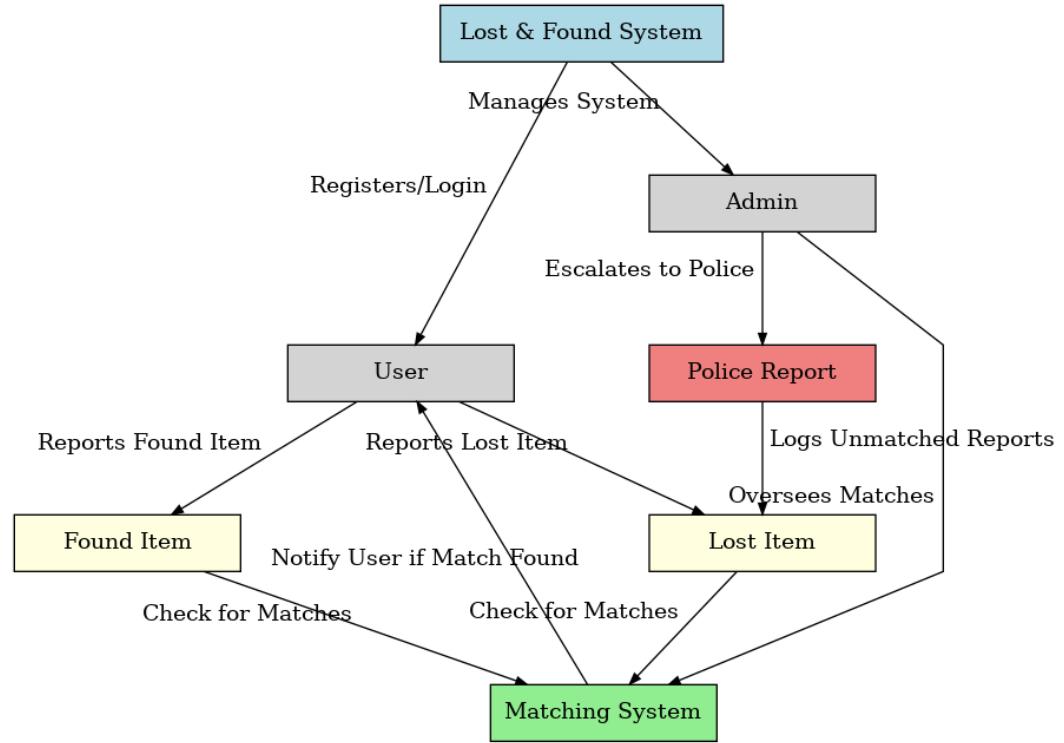
1. User Module: Allows users to create accounts, report lost/found items, and receive notifications.
2. Admin Module: Manages reported items, verifies submissions, and generates reports.
3. Matching Algorithm: AI-based system to match lost and found reports efficiently.
4. Communication Module: Enables messaging between finders and owners.
5. Law Enforcement Integration: Escalates unmatched reports to the police.

#### 3.2 UML Diagrams

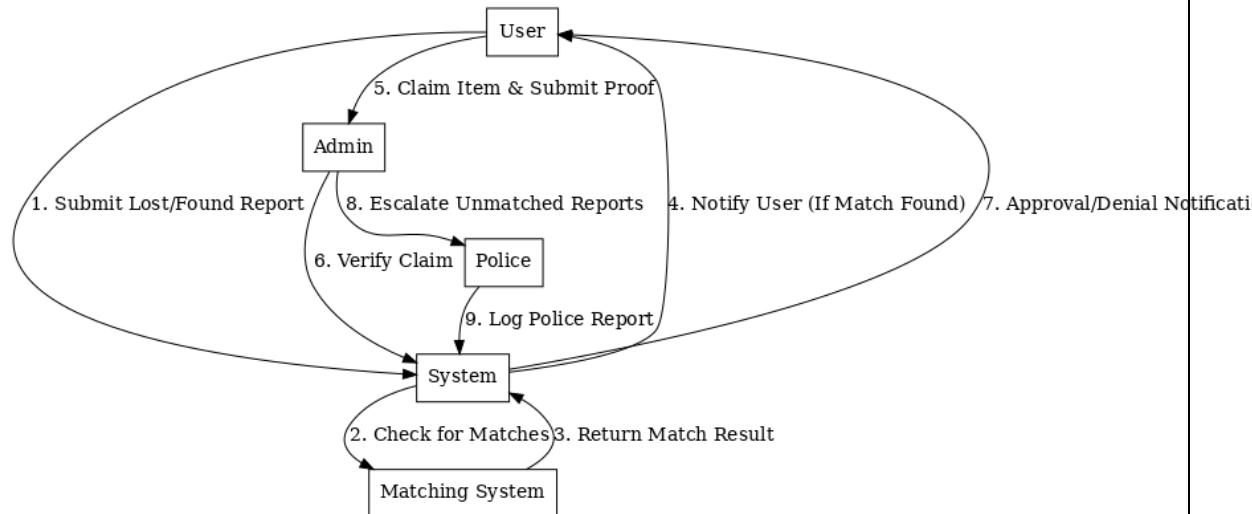
- Use Case Diagram: Represents user interactions with the system.



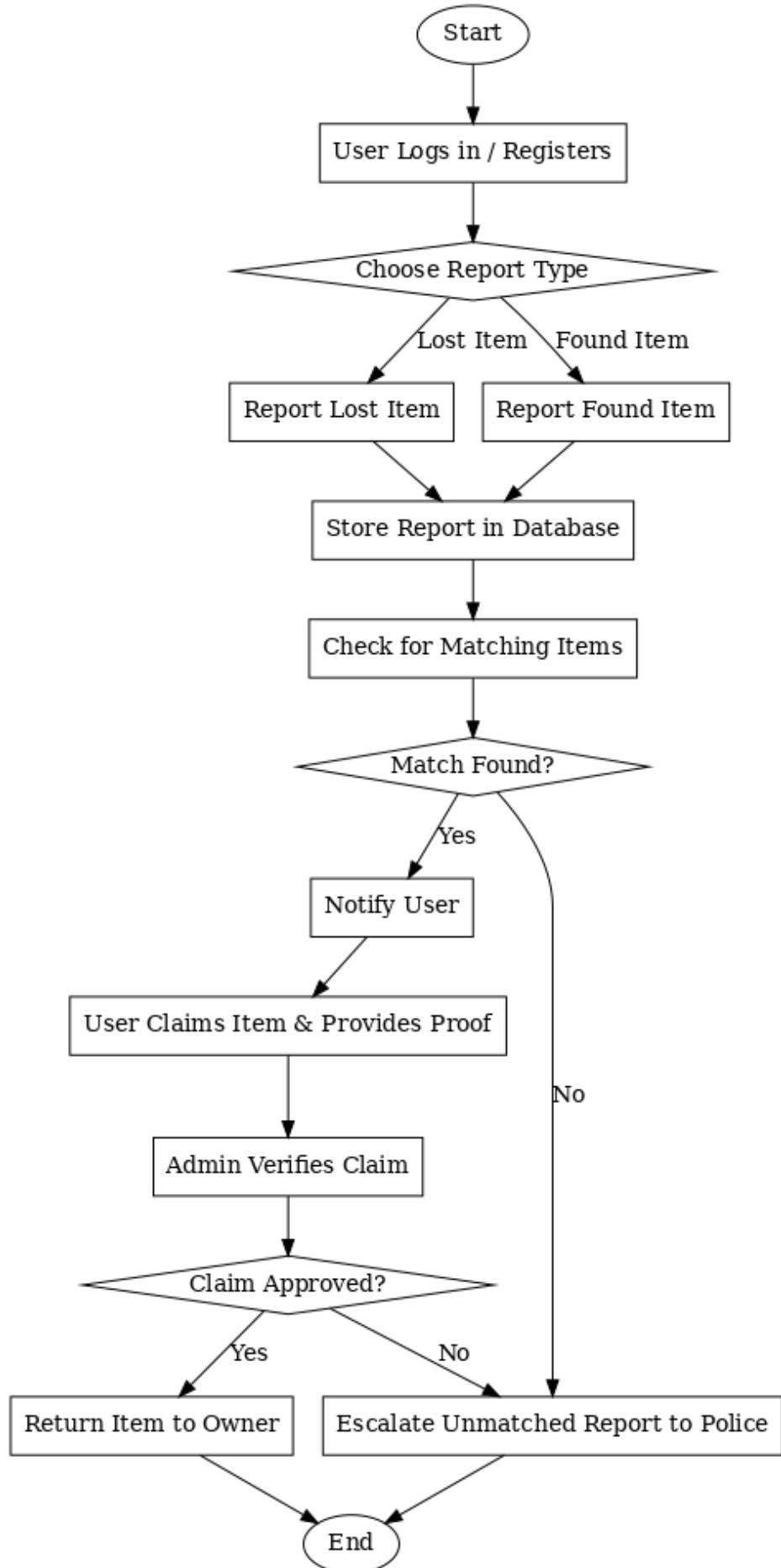
- Class Diagram: Defines the structure of the database and relationships.



- Sequence Diagram: Shows the workflow of item reporting and matching.



- Activity Diagram: Illustrates the step-by-step process of item retrieval.



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**4. IMPLEMENTATION**

## 4. Implementation

The platform will be implemented in the following stages:

1. Frontend Development: Creating a user-friendly interface with React.js.
2. Backend Development: Implementing the database and API services.
3. AI Matching Module: Training a model for automated item matching.
4. Testing and Deployment: Ensuring system reliability before public release.

### 4.1 Sample Code

#### admin.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Admin Panel</title>
    <link rel="stylesheet" href="styles.css">
    <script src="app.js"></script>
    <script src="admin.js"></script>

</head>
<body>
    <header>
        <div class="logo">
            
        </div>
        <nav>
            <ul class="nav-links">
                <li><a href="index.html">Home</a></li>
                <li><a href="feed.html">Feed</a></li>
                <li><a href="report.html">Report Item</a></li>
                <li><a href="profile.html">Profile</a></li>
                <li><a href="admin.html">Admin</a></li>
            </ul>
        </nav>
        <div class="auth-buttons">
            <a href="login.html" class="btn">Login</a>
            <a href="register.html" class="btn">Register</a>
        </div>
    </header>
```

```

<main>
    <h1>Admin Dashboard</h1>
    <p>Manage all lost and found reports.</p>
</main>
</body>
</html>

feed.html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Lost & Found Feed</title>
    <link rel="stylesheet" href="styles.css">
    <script src="app.js"></script>
    <script src="feed.js"></script>
    <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.4.2/css/all.min.css">
</head>
<body>
    <header>
        <div class="logo">
            
        </div>
        <nav>
            <ul class="nav-links">
                <li><a href="index.html">Home</a></li>
                <li><a href="feed.html" class="active">Feed</a></li>
                <li><a href="report.html">Report Item</a></li>
                <li><a href="profile.html">Profile</a></li>
                <li><a href="admin.html">Admin</a></li>
            </ul>
        </nav>
        <div class="auth-buttons">
            <a href="login.html" class="btn">Login</a>
            <a href="register.html" class="btn">Register</a>
        </div>
    </header>

    <main>
        <p>Here you can browse reported lost and found items.</p>

```

```

<section class="feed-list">
  <div class="feed-item">
    <div class="feed-header">
      
      <span class="username">John Doe</span>
      <div class="status-buttons">
        <button class="status found">Found</button>
        <button class="claim claimed">Claimed</button>
      </div>
    </div>
    
    <div class="feed-content">
      <h3>Lost: Wallet</h3>
      <p>Black leather wallet lost near Central Park on March 14.</p>
    </div>
  </div>
  <div class="feed-item">
    <div class="feed-header">
      
      <span class="username">Jane Smith</span>
      <div class="status-buttons">
        <button class="status lost">Lost</button>
        <button class="claim">Claim</button>
      </div>
    </div>
    
    <div class="feed-content">
      <h3>Found: Backpack</h3>
      <p>Blue Adidas backpack found at the subway station on March
15.</p>
    </div>
  </div>
</section>
</main>

<footer>
  <div class="footer-container">
    <div class="footer-left">
      
      <p><strong>Corporate & Communications Address:</strong><br>
A-143, 7th Floor, Sovereign Corporate Tower, Sector-136, Noida,
Uttar Pradesh (201305)
      </p>
      <p><strong>Registered Address:</strong><br>
      </p>
    </div>
  </div>
</footer>

```

K 061, Tower K, Gulshan Vivante Apartment, Sector 137, Noida,  
Gautam Buddh Nagar, Uttar Pradesh, 201305

```
</p>
<div class="social-icons">
    <a href="#"><i class="fa-brands fa-facebook"></i></a>
    <a href="#"><i class="fa-brands fa-instagram"></i></a>
    <a href="#"><i class="fa-brands fa-linkedin"></i></a>
    <a href="#"><i class="fa-brands fa-x-twitter"></i></a>
    <a href="#"><i class="fa-brands fa-youtube"></i></a>
</div>
</div>

<div class="footer-right">
    <div class="footer-column">
        <h3>Company</h3>
        <a href="#">About Us</a>
        <a href="#">Privacy Policy</a>
        <a href="#">Terms Of Use</a>
    </div>
    <div class="footer-column">
        <h3>Useful Links</h3>
        <a href="index.html">Home</a>
        <a href="login.html">Sign In</a>
        <a href="register.html">Sign Up</a>
    </div>
    <div class="footer-column">
        <h3>Need Help?</h3>
        <a href="#">Report issues</a>
        <a href="#">Contact Us</a>
        <a href="#">Feedback</a>
    </div>
</div>
</div>

<div class="footer-bottom">
    <p>&copy; 2025 Lost & Found Management. All Rights Reserved.</p>
</div>
</footer>
</body>
</html>
```

**BACKENED**

```

report.js
const mongoose = require('mongoose');

const reportSchema = new mongoose.Schema({
  type: String, // lost or found
  username: String,
  item: String,
  description: String,
  contact: String,
  place: String,
  image: String,
  dateReported: { type: Date, default: Date.now }
});

module.exports = mongoose.model('Report', reportSchema);

server.js
const express = require('express');
const mongoose = require('mongoose');
const multer = require('multer');
const cors = require('cors');
const path = require('path');
const bodyParser = require('body-parser');
const Report = require('./models/Report');

const app = express();
const PORT = 3000;

// MongoDB Connection
mongoose.connect('mongodb://127.0.0.1:27017/lostFoundDB', {
  useNewUrlParser: true,
  useUnifiedTopology: true
}).then(() => console.log(' ✅ Connected to MongoDB'))
  .catch(err => console.error(' ❌ MongoDB connection error:', err));

// Middleware
app.use(cors());
app.use(bodyParser.urlencoded({ extended: true }));
app.use(express.static('public'));
app.use('/uploads', express.static('uploads'));

// Multer setup
const storage = multer.diskStorage({

```

```

destination: (req, file, cb) => cb(null, 'uploads/'),
filename: (req, file, cb) => cb(null, Date.now() + '-' + file.originalname)
});
const upload = multer({ storage });

// Lost Item Route
app.post('/report-lost', upload.single('image'), async (req, res) => {
  const { username, item, description, contact, place } = req.body;
  const image = req.file ? req.file.filename : null;

  const lostReport = new Report({
    type: 'lost',
    username,
    item,
    description,
    contact,
    place,
    image
  });

  try {
    await lostReport.save();
    res.send('✅ Lost item reported successfully!');
  } catch (error) {
    console.error(error);
    res.status(500).send('❌ Error saving lost report.');
  }
});

// Found Item Route
app.post('/report-found', upload.single('image'), async (req, res) => {
  const { username, item, description, contact, place } = req.body;
  const image = req.file ? req.file.filename : null;

  const foundReport = new Report({
    type: 'found',
    username,
    item,
    description,
    contact,
    place,
    image
  });

```

```

try {
    await foundReport.save();
    res.send('✅ Found item reported successfully!');
} catch (error) {
    console.error(error);
    res.status(500).send('❌ Error saving found report.');
}
});

// Start Server
app.listen(PORT, () => {
    console.log(`🚀 Server running at http://localhost:${PORT}`);
});

server.js
// server.js
const express = require('express');
const mongoose = require('mongoose');
const dotenv = require('dotenv');
const cors = require('cors');
const path = require('path');
const authRoutes = require('./routes/auth');

// Load environment variables from .env file
dotenv.config();

const app = express();

// ✅ Enable CORS for frontend requests
app.use(cors());

// Middleware to parse JSON
app.use(express.json());

// Serve static files (e.g., register.html, login.html, register.js)
app.use(express.static(path.join(__dirname, 'public')));

// API routes
app.use('/api', authRoutes);

// MongoDB Connection
mongoose.connect(process.env.MONGO_URI)

```

```

.then(() => console.log('MongoDB connected'))
.catch((err) => console.error('MongoDB connection error:', err));

// Catch-all route for unhandled errors
app.use((err, req, res, next) => {
  console.error('Unhandled Error:', err);
  res.status(500).json({ message: 'Something went wrong on the server', error: err.message });
});

// Start the server
const PORT = process.env.PORT || 5000;
app.listen(PORT, () => {
  console.log(✓ Server running at http://localhost:${PORT});
});

.env
MONGO_URI=mongodb://localhost:27017/sample_mflix

```

```

package.json
{
  "name": "lost-and-found-management",
  "version": "1.0.0",
  "main": "server.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1",
    "start": "node server.js"
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "description": "",
  "dependencies": {
    "bcrypt": "^5.1.1",
    "cors": "^2.8.5",
    "dotenv": "^16.4.7",
    "express": "^5.1.0",
    "mongoose": "^8.13.2"
  }
}

```

## 4.2 Test Cases

**LOST & FOUND**

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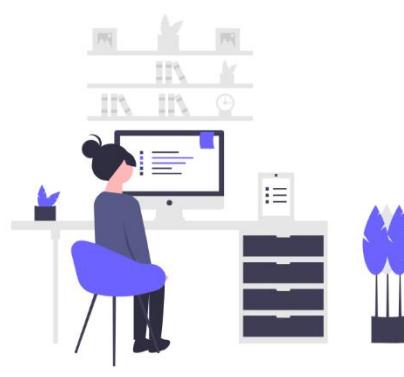
**QUICKLY & SAFELY**

**5.RESULTS**

## 5.Results

### 5.1 Output Screens

- Login page:



**LOST FOUND**

Sign in

Login as:

Email:

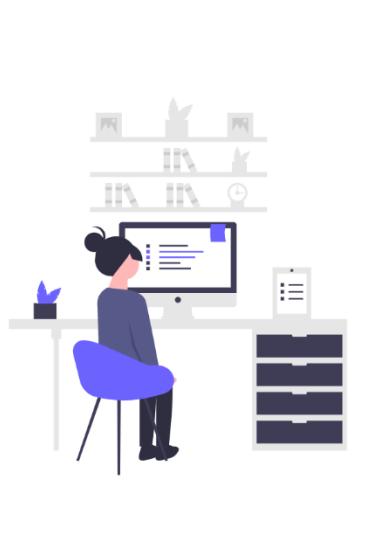
Password:

Show Password [Forgot Password?](#)

**Sign In**

[Not registered? Create an account](#)

- Register page:



**LOST FOUND**

Sign Up

Full Name:

Enter your full name

Username:

Enter your username

Email Address:

Enter your email

Phone Number:

Enter your phone number

Password:

Enter your password

Confirm Password:

Confirm your password

**Register**

[Already Have an Account? Sign In](#)

- Home page:



**Step 3: Submit the Report**  
Submit the report, and it will be visible in the feed for others to see.

SUBMIT



**Step 4: Connect with the Owner**  
Once the owner identifies their item, coordinate with them to return it.

- Report page:



Feed   Report Item   Profile

[Sign Out](#)

## Report Lost & Found

[Report Lost Item](#)   [Report Found Item](#)

### Report Found Item

**Username**

**Item Name**

**Item Description**

**Contact Details (Optional)**

**Place Where Item Was Found**

**Upload Image (Optional)**  
 No file chosen

**Submit**

➤ User profile page:



Irene Brooks  
 Interface and Brand Designer based in San Antonio

Follow   Get in touch

FOLLOWERS 2,985   FOLLOWING 132   LIKES 548

Report 3   Requests 2   Likes   About

ITEM NAME	IMAGE	LOCATION (LOST/FOUND)	DESCRIPTION	STATUS
Brown Leather Wallet		Central Park Cafe	Lost wallet, contained driver's license and credit cards. Brown bifold.	<span style="background-color: red; color: white; padding: 2px;">Not Retrieved</span>

➤ Feed page:

The screenshot shows a web application interface for reporting lost and found items. At the top, there is a navigation bar with links for Home, Feed, Report Item, Login, and Register. Below the navigation bar, a message says "Here you can browse reported lost and found items." Two items are listed in a grid format:

- Lost: Wallet**  
Black leather wallet lost near Central Park on March 14.  
Owner: John Doe (Found, Claimed)
- Found: Backpack**  
Blue Adidas backpack found at the subway station on March 15.  
Owner: Jane Smith (Lost, Claim)

At the bottom of the page, there is a footer section with the "LOST FOUND" logo. It includes corporate and communications address, registered address, company links (About Us, Privacy Policy, Terms Of Use), useful links (Feed, Report Item, Message), and a need help section (Report Issues, Contact Us, Feedback).

**LOST & FOUND**

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## **6.CONCLUSION**

## **6. Conclusion**

The Lost & Found Item Management System has been developed as a modern, scalable, and user-friendly solution to address the long-standing challenges associated with the recovery of lost belongings. By identifying the limitations of existing systems—such as those used by Indian Railways—and incorporating key technological advancements, this platform introduces a more reliable and efficient method for reporting, tracking, and reclaiming lost or found items.

Through features like automated matching, real-time notifications, admin verification, and secure authentication, the platform ensures transparency, speed, and user trust. Its centralized and web-based architecture makes it accessible from any location, offering a consistent experience to both users and administrators. Integration with AI and third-party APIs such as Google Maps further enhances its functionality, making the matching and location-based search more intuitive and accurate.

Overall, this project not only streamlines the lost and found process but also contributes to fostering a more connected and responsible community. It has the potential to be deployed in various environments such as educational institutions, public transport systems, corporate campuses, and large event venues, helping bridge the gap between finders and rightful owners with efficiency and ease.