Database Management System : UE23CS351A

Level 2 - Orange Problem

LocateU-Lost-And-Found-System

Team member1:-

Name: Pratheek J Gowda

SRN: PES1UG23CS448

Section: H

Team member2:-

Name: Rajat Ramakrishna Bhat

SRN: PES1UG23CS465

Section: H

Description :

LocateU is a comprehensive Flask + MySQL web application designed to simplify the process of reporting, tracking, and claiming lost or found items within an institution. It features dual-role authentication with separate student and staff dashboards, image upload and storage with BLOB database integration, intelligent automated matching using string similarity algorithms (SequenceMatcher) to suggest matches based on item names, categories, locations, and dates, real-time notifications with role-based filtering for personalized user alerts, and a multi-stage verification workflow where staff can verify item ownership before approving claims. The system ensures data integrity and transparency through stored procedures, database triggers, and comprehensive transaction logging.

User Requirement Specification :

Purpose of the Project

The purpose of this project is to design and develop a university-level Lost and Found Management System that allows students and administrators to record, track, and manage lost and found items efficiently. In most academic institutions, students frequently lose their personal belongings such as books, ID cards, mobile phones, and other valuables. Similarly, found items often remain unclaimed for long periods because of a lack of proper reporting and tracking mechanisms. This project aims to bridge that gap by providing a structured and reliable database-driven system that makes it simple for students to report lost items, submit details of found items, and check the status of their claims.

The project also ensures accountability and transparency in handling lost property within the university campus. By using this system, we seek to reduce the time and effort that students and staff currently spend on searching for lost items, while also minimizing the risk of unclaimed or misplaced belongings being discarded without proper notification. The purpose is to create a digital solution that ensures that lost belongings are returned to their rightful owners in a smooth and organized manner.

Scope of the Project

The scope of the project covers the design and implementation of a fully functional Lost and Found Management System that will be accessible to students and university administrators. Students will be able to register into the system with their details, report lost items by providing descriptions, upload information about items they have found, and track the status of their claims. Administrators will be able to verify reports, manage the database of lost and found items, confirm ownership based on student details, and maintain a proper record of transactions.

The system will be developed with a backend database that ensures data consistency and reliability, while also supporting essential features like unique student records, item categorization, and claim verification. The scope also includes ensuring that duplicate entries are prevented and that there is a secure way to validate student identity before releasing any claimed item. The project does not extend to developing mobile applications or integrating external third-party tools but focuses entirely on building a robust web-based platform supported by a relational database.

Detailed Description

The Lost and Found Management System is a database-driven application designed to handle the process of recording, storing, and tracking lost and found items within the university campus. Students are at the heart of the system, and every student is required to have a unique record that includes their name, email, phone number, department, and year of study. Once registered, students can interact with the system in two main ways. Firstly, if a student loses an item, they can log into the system and submit details of the item such as the name of the item, a description, the location where it was lost, and the approximate date of loss. Secondly, if a student finds an item, they can provide a similar record which includes the category of the item, its condition, the place where it was found, and the date it was retrieved.

All records are stored in the database and can later be searched and filtered by both students and administrators. The system ensures that every lost or found item is assigned a unique identifier, allowing for accurate tracking. When a student comes to claim an item, the administrator verifies the ownership by checking the details provided by both the owner and the finder. Once verified, the administrator updates the database to mark the item as claimed, ensuring that it is no longer listed as available.

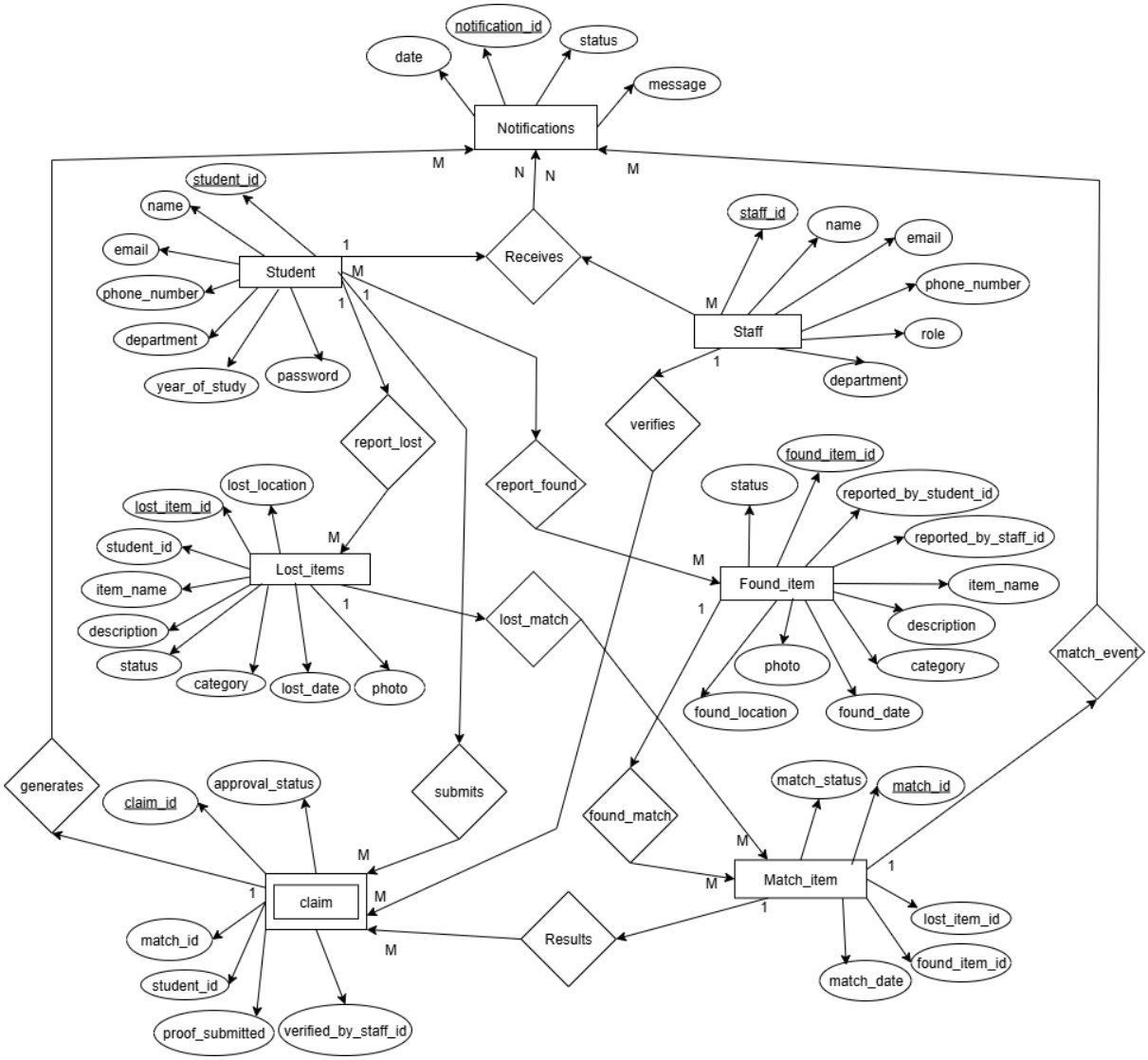
The system also maintains transparency and prevents misuse by ensuring that no two students can register with the same email or phone number. This prevents duplication and makes it easier for administrators to manage student records. Additionally, reports of lost and found items are time-stamped so that administrators can prioritize recent claims. The database is designed to handle multiple categories of items, ranging from books and stationery to electronics and personal belongings, making the system versatile enough to address the diverse needs of the university community.

In practical terms, the system acts as a bridge between students who have lost belongings and those who have found them. Instead of relying on notice boards, word of mouth, or manual registers, the Lost and Found Management System provides a centralized and secure digital platform that keeps all information in one place. It reduces confusion, saves time, and ensures that students can recover their belongings more efficiently. By implementing this project, we are providing not only a solution to an existing problem but also a model that can be adapted by other institutions to improve campus life through better management of lost and found items.

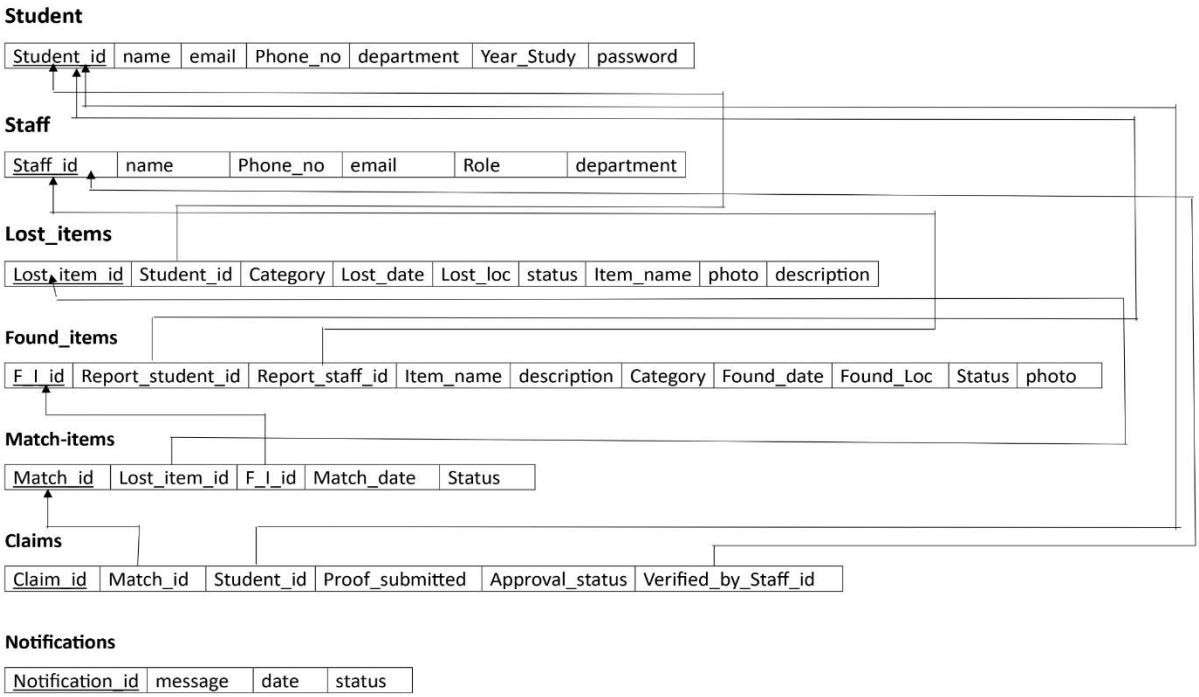
List of Softwares/Tools/Programming languages used:-

- HTML
- CSS
- JavaScript
- Python
- MySQL
- Flask
- Werkzeug
- mysql.connector
- python-dotenv
- difflib
- io & base64
- MySQL Workbench
- VS Code
- Git and Github

E-R Diagram:



Relational Schema:



DDL Commands :

```sql
DROP DATABASE IF EXISTS LostAndFoundDB;
CREATE DATABASE LostAndFoundDB;
USE LostAndFoundDB;
CREATE TABLE student (
    student_id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL,
    phone_number VARCHAR(15) UNIQUE NOT NULL,
    department VARCHAR(50) NOT NULL,
    year_of_study INT CHECK (year_of_study BETWEEN 1 AND 5),
    password VARCHAR(255) NOT NULL
);
CREATE TABLE staff (
    staff_id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL,
    phone_number VARCHAR(15) UNIQUE NOT NULL,
    role VARCHAR(50) NOT NULL,
    department VARCHAR(50) NOT NULL,
    password VARCHAR(255) NOT NULL
);
```

```sql
CREATE TABLE lost_items (
    lost_item_id INT PRIMARY KEY AUTO_INCREMENT,
    student_id INT,
    category VARCHAR(50) NOT NULL,
    lost_date DATE NOT NULL,
    lost_loc VARCHAR(100) NOT NULL,
    status VARCHAR(20) DEFAULT 'Unresolved',
    item_name VARCHAR(100) NOT NULL,
    photo LONGBLOB NULL,
    description TEXT,
    FOREIGN KEY (student_id) REFERENCES student(student_id) ON DELETE CASCADE
);
CREATE TABLE found_items (
    f_i_id INT PRIMARY KEY AUTO_INCREMENT,
    report_student_id INT NULL,
    report_staff_id INT NULL,
    item_name VARCHAR(100) NOT NULL,
    description TEXT,
    category VARCHAR(50) NOT NULL,
    found_date DATE NOT NULL,
    found_loc VARCHAR(100) NOT NULL,
    status VARCHAR(20) DEFAULT 'Unclaimed',
    photo LONGBLOB NULL,
    FOREIGN KEY (report_student_id) REFERENCES student(student_id) ON DELETE SET NULL,
    FOREIGN KEY (report_staff_id) REFERENCES staff(staff_id) ON DELETE SET NULL
);
CREATE TABLE match_items (
    match_id INT PRIMARY KEY AUTO_INCREMENT,
    lost_item_id INT NOT NULL,
    f_i_id INT NOT NULL,
    match_date DATE NOT NULL,
    status VARCHAR(20) DEFAULT 'Pending',
    FOREIGN KEY (lost_item_id) REFERENCES lost_items(lost_item_id) ON DELETE CASCADE,
    FOREIGN KEY (f_i_id) REFERENCES found_items(f_i_id) ON DELETE CASCADE
);
CREATE TABLE claims (
    claim_id INT PRIMARY KEY AUTO_INCREMENT,
    match_id INT NOT NULL,
    student_id INT NOT NULL,
    proof_text TEXT NOT NULL,
    proof_file LONGBLOB NOT NULL,
    approval_status VARCHAR(20) DEFAULT 'Pending',
    verified_by_staff_id INT,
    FOREIGN KEY (match_id) REFERENCES match_items(match_id) ON DELETE CASCADE,
    FOREIGN KEY (student_id) REFERENCES student(student_id) ON DELETE CASCADE,
    FOREIGN KEY (verified_by_staff_id) REFERENCES staff(staff_id) ON DELETE SET NULL
);
CREATE TABLE notifications (
    notification_id INT PRIMARY KEY AUTO_INCREMENT,
    message TEXT NOT NULL,
    date DATE NOT NULL,
    status VARCHAR(20) DEFAULT 'Sent'
);
```

Outputs:-

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	14:21:47	DROP DATABASE IF EXISTS LostAndFoundDB	0 row(s) affected, 1 warning(s): 1008 Can't drop database 'lostandfounddb'; ...	0.000 sec
2	14:21:47	CREATE DATABASE LostAndFoundDB	1 row(s) affected	0.000 sec
3	14:21:47	USE LostAndFoundDB	0 row(s) affected	0.000 sec
4	14:21:47	CREATE TABLE student (student_id INT PRIMARY KEY AUTO_INCRE...	0 row(s) affected	0.079 sec
5	14:21:47	CREATE TABLE staff (staff_id INT PRIMARY KEY AUTO_INCREMENT,...	0 row(s) affected	0.078 sec
6	14:21:47	CREATE TABLE lost_items (lost_item_id INT PRIMARY KEY AUTO_INC...	0 row(s) affected	0.062 sec
7	14:21:47	CREATE TABLE found_items (f_i_id INT PRIMARY KEY AUTO_INCRE...	0 row(s) affected	0.078 sec
8	14:21:47	CREATE TABLE match_items (match_id INT PRIMARY KEY AUTO_INC...	0 row(s) affected	0.063 sec
9	14:21:47	CREATE TABLE claims (claim_id INT PRIMARY KEY AUTO_INCREME...	0 row(s) affected	0.062 sec
10	14:21:48	CREATE TABLE notifications (notification_id INT PRIMARY KEY AUTO_...	0 row(s) affected	0.032 sec

Total no. of Tables

Result Grid | Filter Rows: | Expor

Tables_in_lostandfounddb
claims
found_items
lost_items
match_items
notifications
staff
student

CRUD operation Screenshots:

- **Create operation on lost_items:**

```
INSERT INTO lost_items (
    student_id,
    category,
    lost_date,
    lost_loc,
    status,
    item_name,
    photo,
    description
) VALUES (
    3,
    'Electronics',
    '2025-01-12',
    'College Ground',
    'Unresolved',
    'Smartwatch',
    NULL,
    'Black strap smartwatch lost during sports event'
);
```

Output:-

lost_item_id	student_id	category	lost_date	lost_loc	status	item_name	photo	description
1	1	Electronics	2025-11-14	Library	Unresolved	College ID card	NULL	It has my name Satwik Hegde and my SRN
3	1	Electronics	2025-01-12	College Ground	Unresolved	SmartWatch	NULL	Black strap smartwatch lost during sports event
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

- **Read operation on lost_items table:**

```
76 •    select * from lost_items;
```

Output:-

lost_item_id	student_id	category	lost_date	lost_loc	status	item_name	photo	description
1	1	ID Cards	2025-11-14	infornt of BE block	Unresolved	College ID card	NULL	It has my name Satwik Hegde and my SRN
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

38 15:51:41 UPDATE lost_items SET category = 'Electronics', lost_loc = 'Library' WHERE lost_item_id = 1

- **Update operation on lost_items table**

```
78 •    UPDATE lost_items
79      SET
80          category = 'Electronics',
81          lost_loc = 'Library'
82      WHERE
83          lost_item_id = 1;
```

Output:-

lost_item_id	student_id	category	lost_date	lost_loc	status	item_name	photo	description
1	1	Electronics	2025-11-14	Library	Unresolved	College ID card	NULL	It has my name Satwik Hegde and my SRN
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

- **Delete operation on lost_items table**

```
DELETE FROM lost_items
WHERE lost_item_id = 3;
```

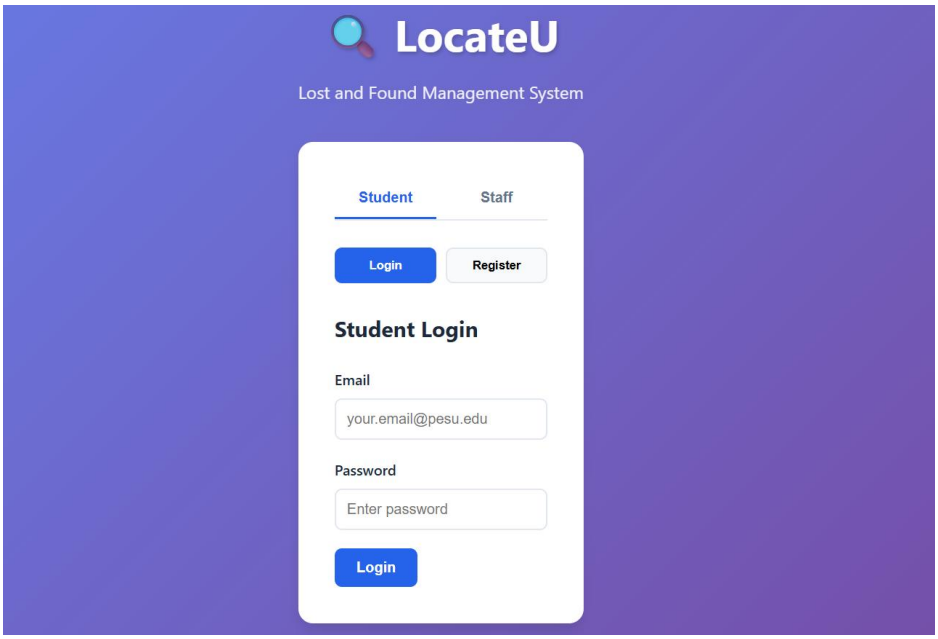
Output:-

43 16:02:38 DELETE FROM lost_items WHERE lost_item_id = 3

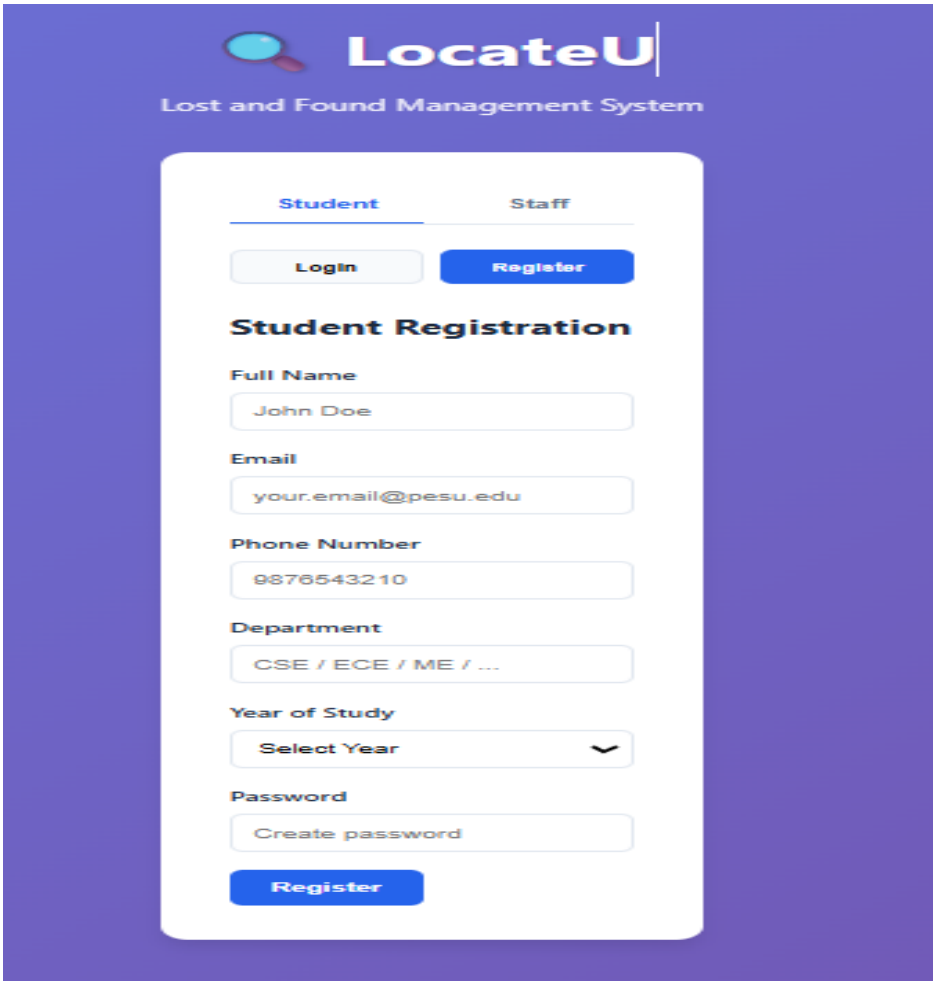
lost_item_id	student_id	category	lost_date	lost_loc	status	item_name	photo	description
1	1	Electronics	2025-11-14	Library	Unresolved	College ID card	NULL	It has my name Satwik Hegde and my SRN
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

List of functionalities/features of the application :

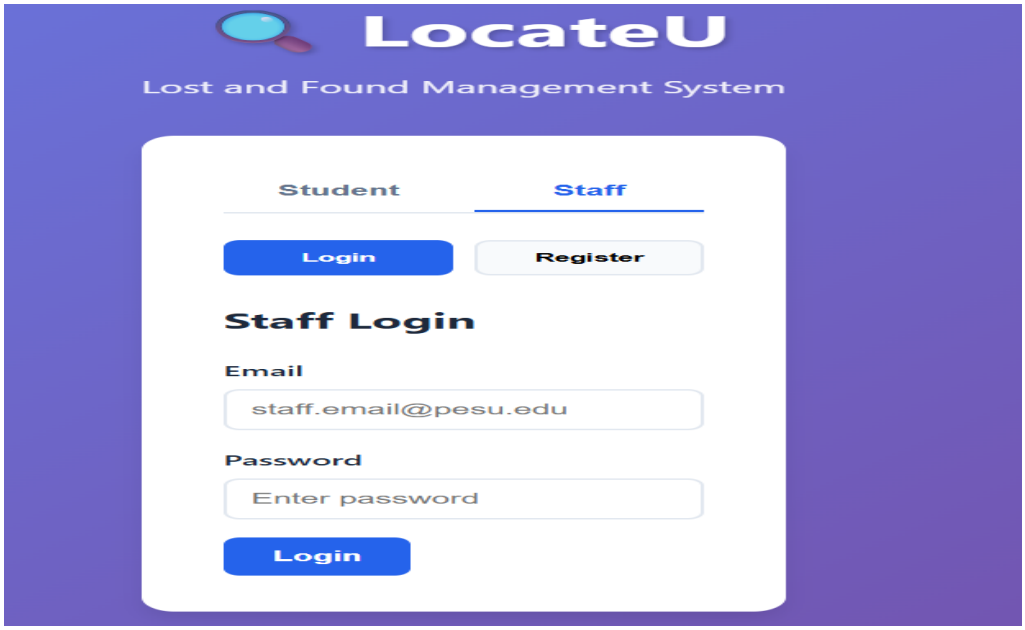
- **Student login page**



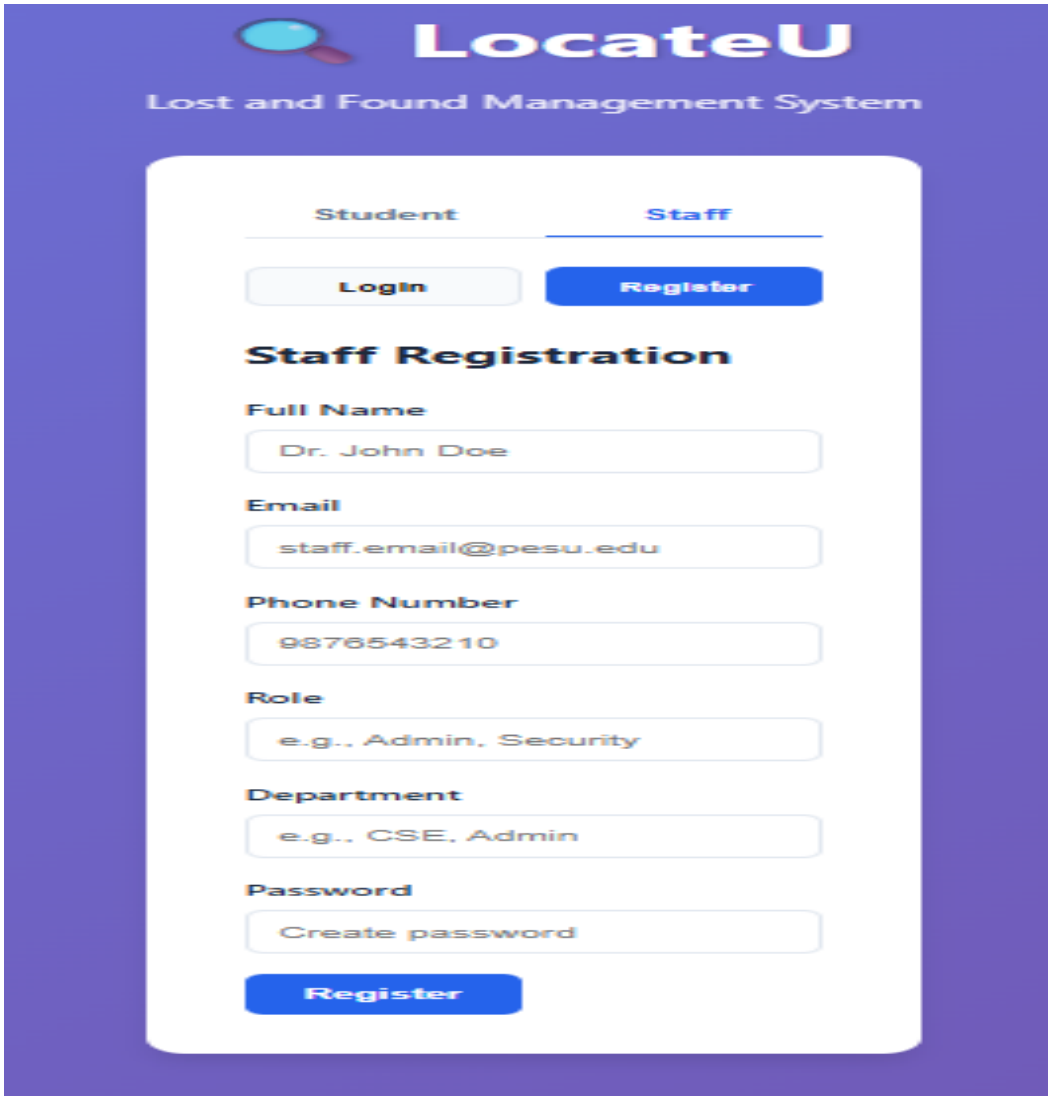
- **Student Register page**



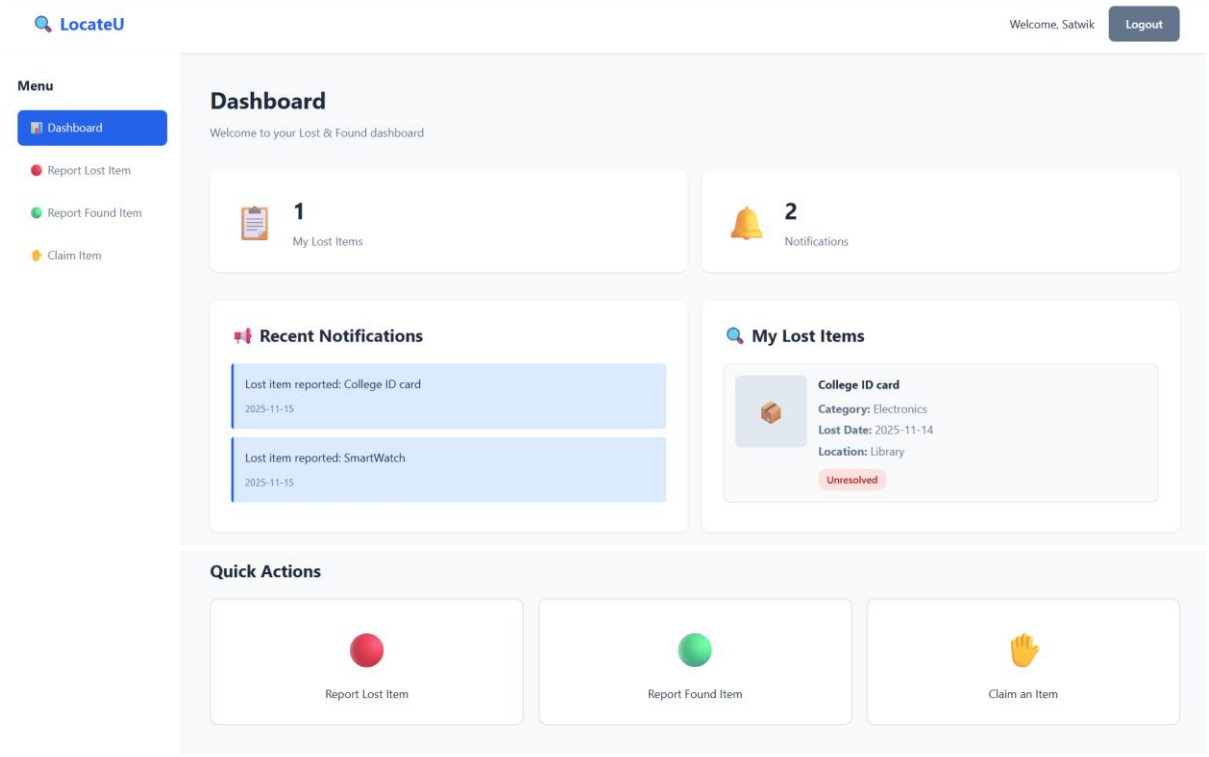
- **Staff registration and login page**



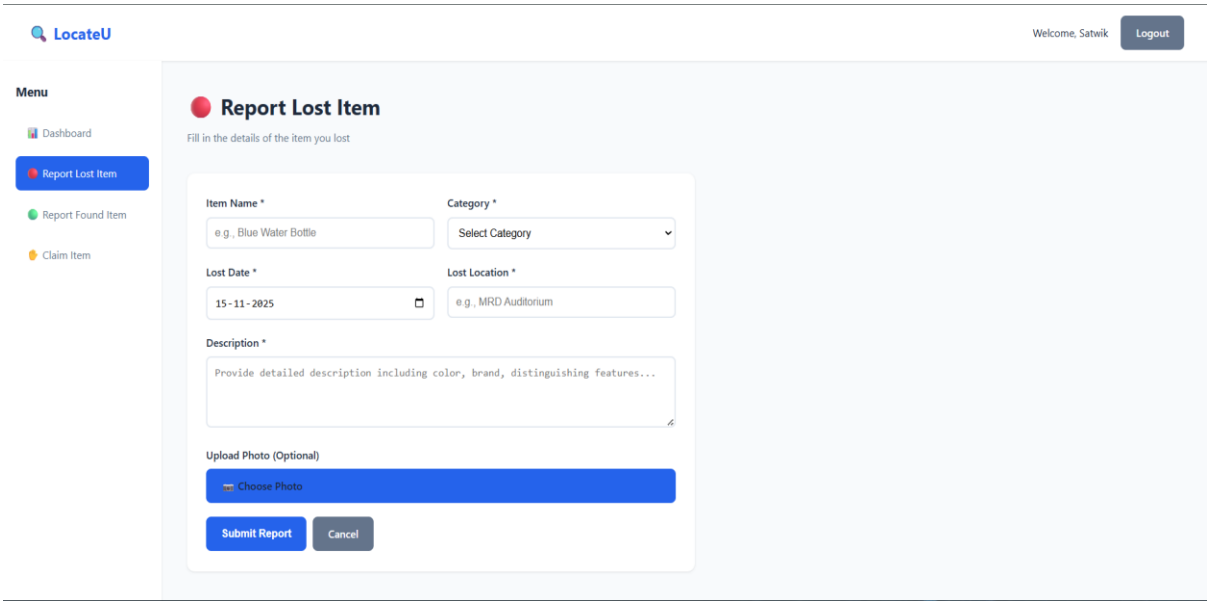
- **Staff registration page**



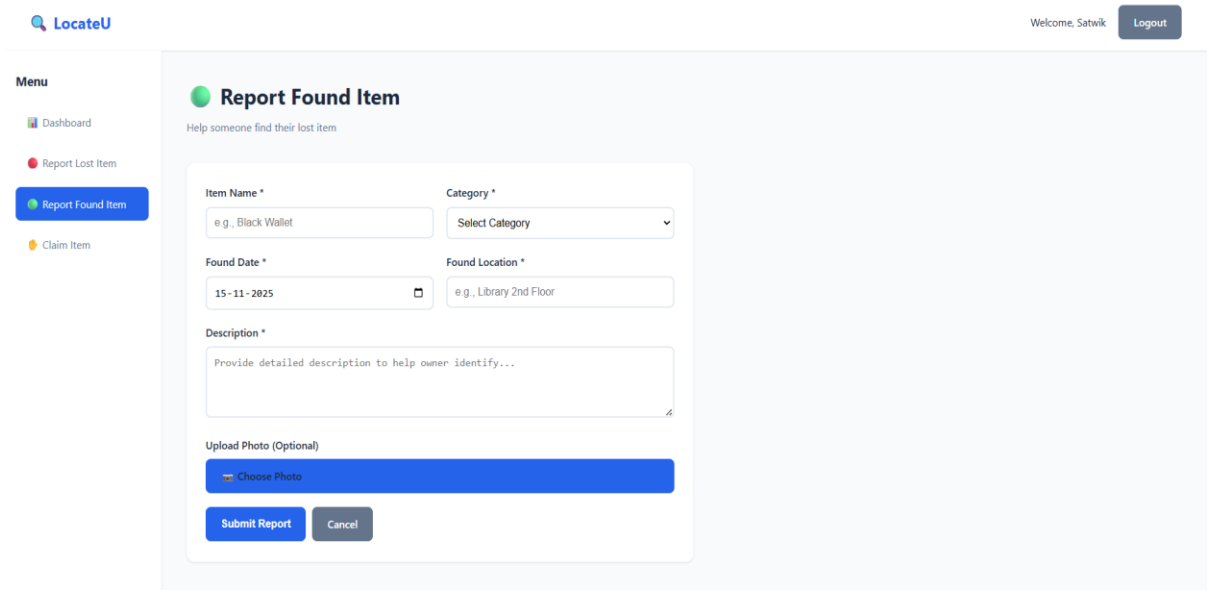
- ## Student Dashboard



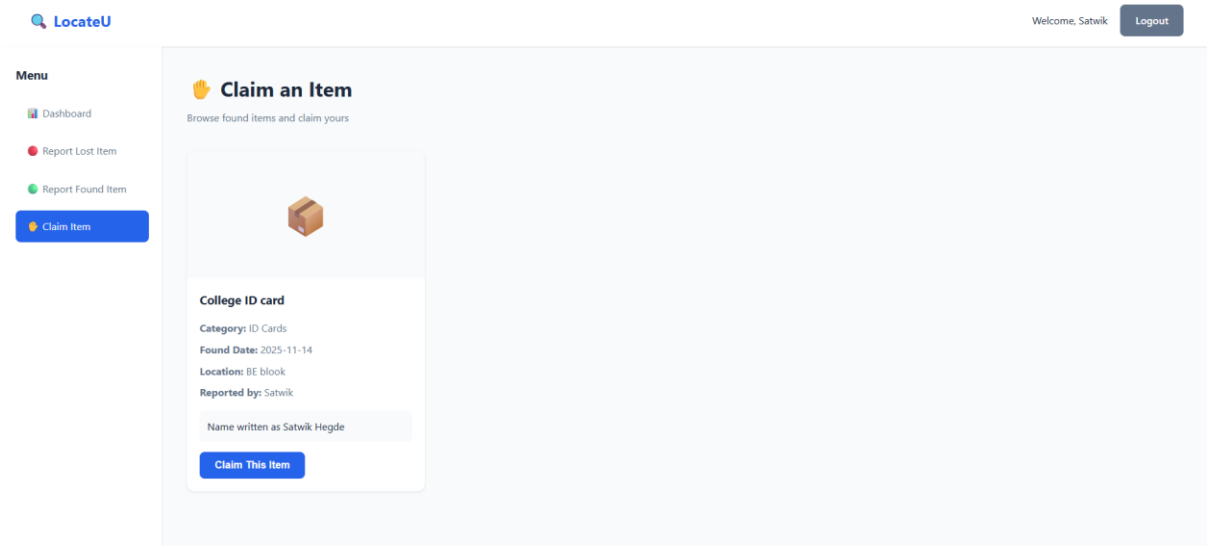
- ## Report Lost Item form



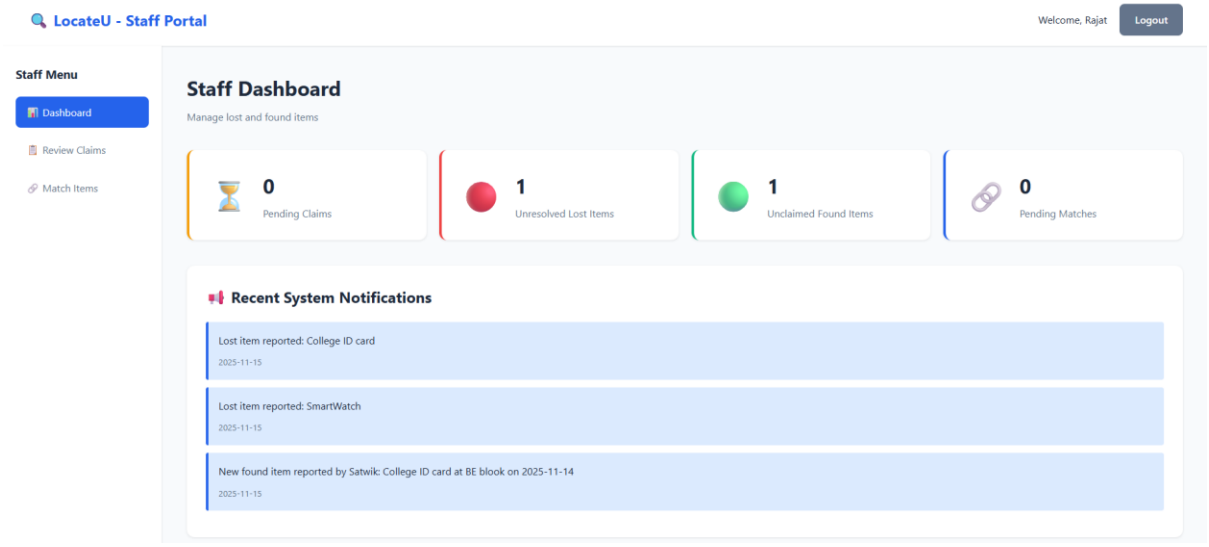
- ## Report Found Item form



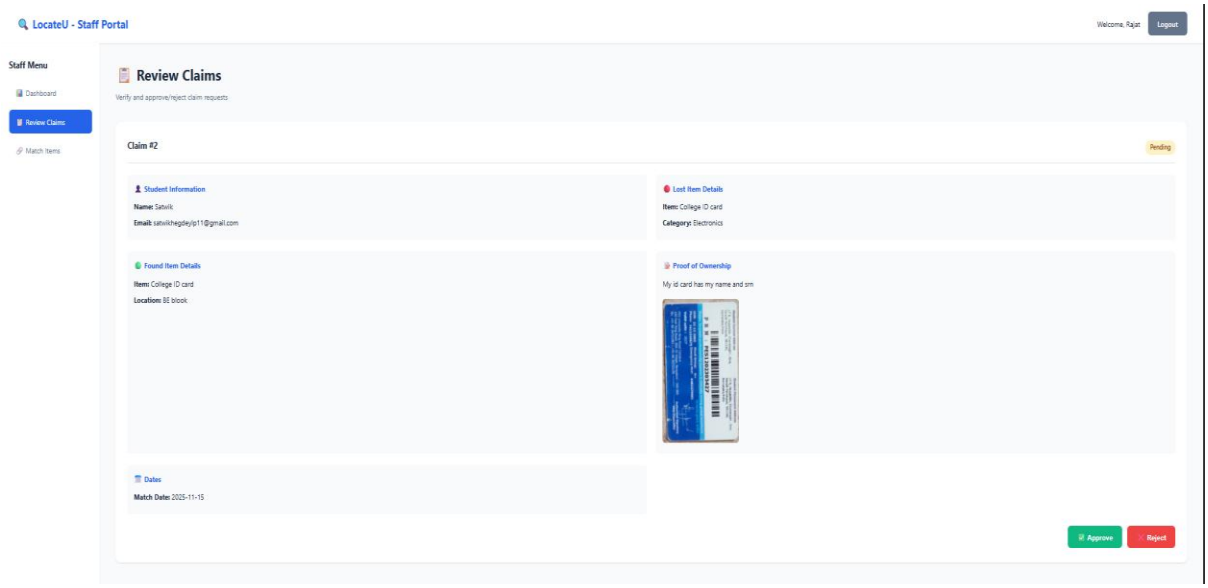
- ## Claim Item page



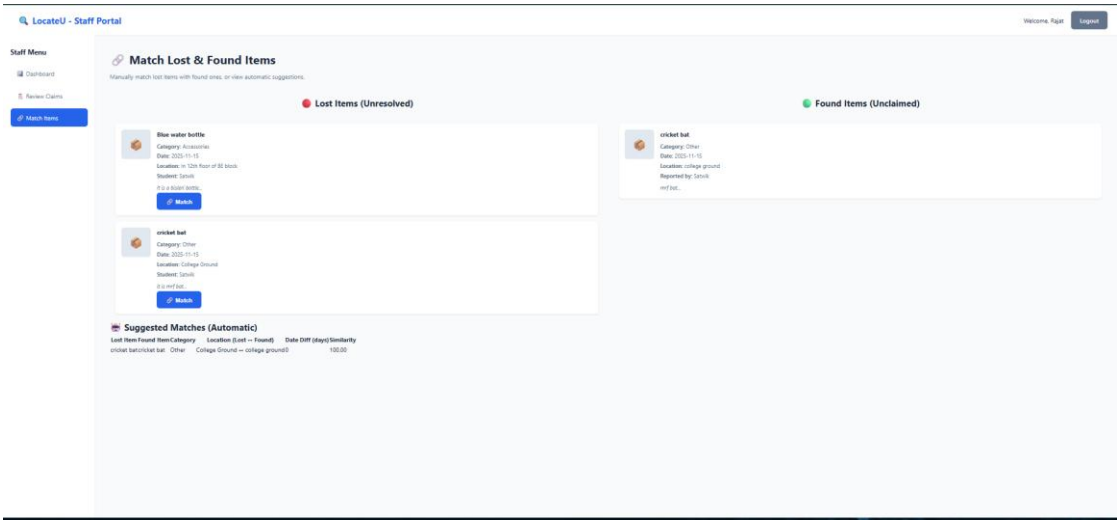
- ## Staff Dashboard

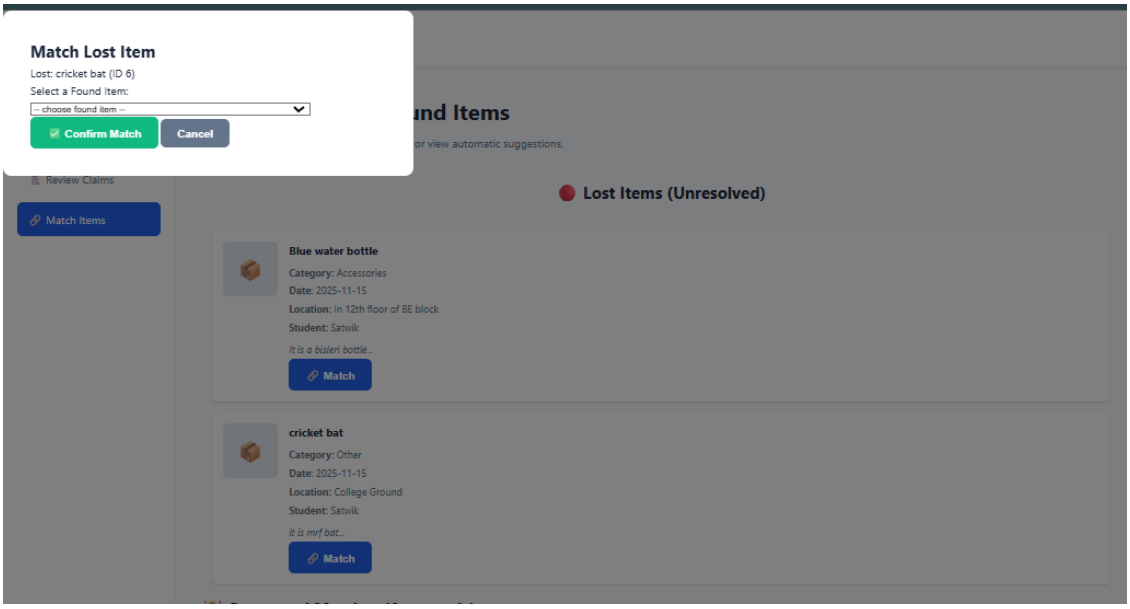


- **Staff Claims Management page**

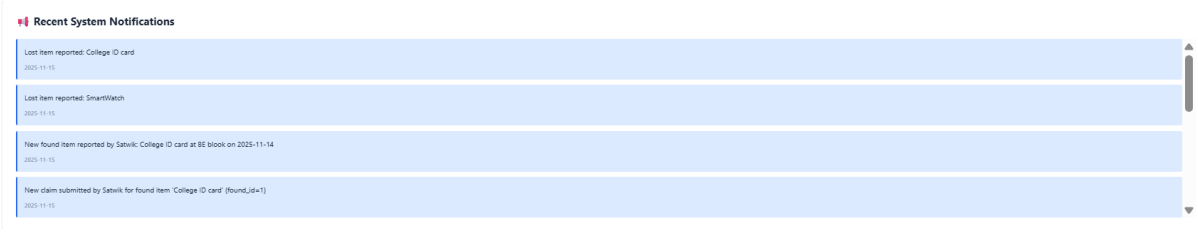


- **Staff Match Items page with suggestions**





- **Notifications panel**



Code snippets for invoking the Procedures/Functions/Trigger :

- **Procedures**

```
DROP PROCEDURE IF EXISTS RegisterLostItem;
DELIMITER //
CREATE PROCEDURE RegisterLostItem(IN p_student_id INT, IN p_category VARCHAR(50), IN p_item_name VARCHAR(100), IN p_description TEXT, IN p_lost_date DATE, IN p_lost_loc VARCHAR(100))
BEGIN
    INSERT INTO lost_items(student_id, category, item_name, description, lost_date, lost_loc, status) VALUES (p_student_id, p_category, p_item_name, p_description, p_lost_date, p_lost_loc, 'Unresolved');
END;
//
DELIMITER ;
DROP PROCEDURE IF EXISTS MatchLostFound;
DELIMITER //
CREATE PROCEDURE MatchLostFound(IN p_lost_id INT, IN p_found_id INT)
BEGIN
    INSERT INTO match_items(lost_item_id, f_i_id, match_date, status) VALUES (p_lost_id, p_found_id, CURDATE(), 'Pending');
    UPDATE lost_items SET status='Matched' WHERE lost_item_id=p_lost_id;
    UPDATE found_items SET status='Matched' WHERE f_i_id=p_found_id;
END;
//
```

- **Functions**

```
DROP FUNCTION IF EXISTS CountLostItems;
DELIMITER //
CREATE FUNCTION CountLostItems(p_student_id INT)
RETURNS INT DETERMINISTIC
BEGIN
    DECLARE lost_count INT;
    SELECT COUNT(*) INTO lost_count FROM lost_items WHERE student_id = p_student_id;
    RETURN lost_count;
END;
//
DELIMITER ;
DROP FUNCTION IF EXISTS GetClaimStatus;
DELIMITER //
CREATE FUNCTION GetClaimStatus(p_claim_id INT)
RETURNS VARCHAR(20) DETERMINISTIC
BEGIN
    DECLARE status_val VARCHAR(20);
    SELECT approval_status INTO status_val FROM claims WHERE claim_id = p_claim_id;
    RETURN status_val;
END;
//
```

- **Trigger**

```
//
DELIMITER ;
DROP TRIGGER IF EXISTS after_lost_item_insert;
DELIMITER //
CREATE TRIGGER after_lost_item_insert AFTER INSERT ON lost_items FOR EACH ROW
BEGIN INSERT INTO notifications (message, date, status) VALUES (CONCAT('Lost item
reported: ', NEW.item_name), CURDATE(), 'Unread'); END;
//
DELIMITER ;
DROP TRIGGER IF EXISTS after_claim_update_notify;
DELIMITER //
CREATE TRIGGER after_claim_update_notify AFTER UPDATE ON claims FOR EACH
ROW BEGIN IF NEW.verified_by_staff_id IS NOT NULL THEN INSERT INTO notifications
(message, date, status) VALUES (CONCAT('Claim ', NEW.claim_id, ' ',
NEW.approval_status), CURDATE(), 'Unread'); END IF; END;
//
DELIMITER ;
```

Triggers, Procedures/Functions, Nested query, Join, Aggregate queries:

Triggers :- here trigger update the notification after lost item inserting

```
7   -- Check triggers
8 • SHOW TRIGGERS FROM lostandfounddb;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Trigger	Event	Table	Statement	Timing	Created	sql_mode	Definer	character_set_client	collation_connection	Database Collation
after_claim_update_notify	UPDATE	claims	BEGIN IF NEW.verified_by_staff_id IS NOT NUL...	AFTER	2025-11-15 14:21:55.60	ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLE...	root@localhost	utf8mb4	utf8mb4_0900_ai_ci	utf8mb4_0900_ai_ci
after_lost_item_insert	INSERT	lost_items	BEGIN INSERT INTO notifications (message, dat...	AFTER	2025-11-15 14:21:55.57	ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLE...	root@localhost	utf8mb4	utf8mb4_0900_ai_ci	utf8mb4_0900_ai_ci

Before inserting lost item the count of notification

```
14 • SELECT COUNT(*) as notification_count FROM notifications;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

notification_count
27

after inserting lost item:

```
• INSERT INTO lost_items (student_id, category, lost_date, lost_loc, status, item_name, description)
  VALUES (1, 'Electronics', '2025-11-15', 'Library 3rd Floor', 'Unresolved', 'Apple Watch Series 8', 'Silver watch');
```

The notification goes to 27 to 28 after inserting

```
21 • SELECT * FROM notifications ORDER BY notification_id DESC LIMIT 5;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

notification_id	message	date	status
28	Lost item reported: Apple Watch Series 8	2025-11-15	Unread
27	[satwikhegdeylp11@gmail.com] @ Potential ma...	2025-11-15	Unread
26	Staff Rajat matched Lost 'cricket bat' with Foun...	2025-11-15	Unread
25	[satwikhegdeylp11@gmail.com] ☑ Great news!...	2025-11-15	Unread
24	[satwikhegdeylp11@gmail.com] @ Potential ma...	2025-11-15	Unread
NULL	NULL	NULL	NULL

Procedures :-

There is two procedure , one is MatchLostFound and another is RegisterLostItem

```
6    -- Check procedures
7 •  SHOW PROCEDURE STATUS WHERE Db='lostandfounddb';
8
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Db	Name	Type	Definer	Modified	Created	Security_type	Comment	character_set_client	collation_connection	Database Collation
lostandfounddb	MatchLostFound	PROCEDURE	root@localhost	2025-11-15 14:21:55	2025-11-15 14:21:55	DEFINER		utf8mb4	utf8mb4_0900_ai_ci	utf8mb4_0900_ai_ci
lostandfounddb	RegisterLostItem	PROCEDURE	root@localhost	2025-11-15 14:21:55	2025-11-15 14:21:55	DEFINER		utf8mb4	utf8mb4_0900_ai_ci	utf8mb4_0900_ai_ci

For example I show RegisterLostItem working.

Before calling the RegisterLostItem procedure , the number of lostitem

```
38 •  SELECT COUNT(*) AS after_count FROM lost_items;
39
40
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

after_count
6

Call the RegisterLostItem procedure

```
29 •  CALL RegisterLostItem(
30        1,
31        'Electronics',
32        'iPhone 17 pro max',
33        'Orange Colour with three camera and profile photo has virat kohli',
34        '2025-11-10',
35        'Canteen'
36    );
```

67 17:33:20 CALL RegisterLostItem(1, 'Electronics', 'iPhone 17 pro max', 'Orange Colour with three camera and profile photo has virat k... 1 row(s) affected 0.016 sec

After calling the procedure it trigger the number of lost item increased by 1

```
38 •  SELECT COUNT(*) AS after_count FROM lost_items;
39
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

after_count
7

Functions:-

There is two function is there

```
-- Check functions
SHOW FUNCTION STATUS WHERE Db='lostandfounddb';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Db	Name	Type	Definer	Modified	Created	Security_type	Comment	character_set_client	collation_connection	Database Collation
lostandfounddb	CountLostItems	FUNCTION	root@localhost	2025-11-15 14:21:55	2025-11-15 14:21:55	DEFINER		utf8mb4	utf8mb4_0900_ai_ci	utf8mb4_0900_ai_ci
lostandfounddb	GetClaimStatus	FUNCTION	root@localhost	2025-11-15 14:21:55	2025-11-15 14:21:55	DEFINER		utf8mb4	utf8mb4_0900_ai_ci	utf8mb4_0900_ai_ci

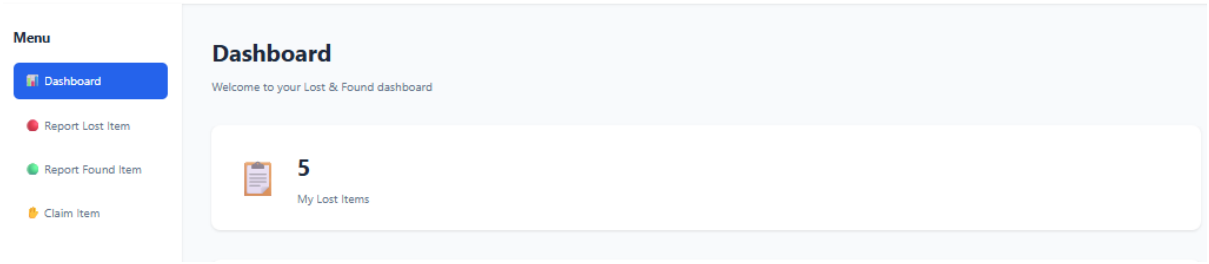
One is counting the lost item which gives total number of lost item

```
SELECT CountLostItems(1) AS total_lost_items;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

total_lost_items
5

You can see in the website too.



Second is the to know the claim status

```
SELECT GetClaimStatus(1) AS claim_status;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

claim_status
NULL

Nested query

This query help to find Find students who have reported more than 1 lost item

```
SELECT s.student_id, s.name
FROM student s
WHERE (SELECT COUNT(*) FROM lost_items li WHERE li.student_id = s.student_id) > 1;
```

Result Grid | Filter Rows:

student_id	name
1	Satwik
NULL	NULL

This nested query shows the found items that were reported by students who are in the CSE department.

```
5  SELECT f.f_i_id, f.item_name, f.found_loc
6  FROM found_items f
7  WHERE f.report_student_id IN (
8      SELECT s.student_id FROM student s WHERE s.department = 'CSE'
9  );
10
```

esult Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Conten

f_i_id	item_name	found_loc
1	College ID card	BE blook
2	College ID card	BE blook
3	Blue water bottle	BE blook
4	cricket bat	college ground
NULL	NULL	NULL

Join quries

This is the inner join help to display claims with student name, lost item, found item, and claim status

```
12  -- Join
13  -- Inner join
14  SELECT c.claim_id, s.name AS student_name,
15         li.item_name AS lost_item, fi.item_name AS found_item,
16         c.approval_status
17  FROM claims c
18  JOIN student s ON c.student_id = s.student_id
19  JOIN match_items m ON c.match_id = m.match_id
20  JOIN lost_items li ON m.lost_item_id = li.lost_item_id
21  JOIN found_items fi ON m.f_i_id = fi.f_i_id
22  ORDER BY c.claim_id DESC
23  LIMIT 10;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

claim_id	student_name	lost_item	found_item	approval_status
3	Satwik	SmartWatch	Blue water bottle	Pending
2	Satwik	College ID card	College ID card	Approved

This is the outer join which helps to list the found items with match info if it exists (shows unclaimed/unmatched too).

```
25      -- Outer join
26 •    SELECT f.f_i_id, f.item_name, f.found_loc, m.match_id, m.status AS match_status
27      FROM found_items f
28      LEFT JOIN match_items m ON f.f_i_id = m.f_i_id
29      ORDER BY f.found_date DESC
30      LIMIT 20;
31
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

f_i_id	item_name	found_loc	match_id	match_status
2	College ID card	BE block	2	Approved
3	Blue water bottle	BE block	3	Pending
4	cricket bat	college ground	4	Pending
4	cricket bat	college ground	5	Pending
1	College ID card	BE block	1	Rejected
1	College ID card	BE block	6	Pending

Aggregate queries:-

This queries helps to count lost items per category

```
32      -- Aggregate query
33 •    SELECT category, COUNT(*) AS total_lost
34      FROM lost_items
35      GROUP BY category
36      ORDER BY total_lost DESC;
37
```

Result Grid | Filter Rows: | Export: | Wrap C

category	total_lost
Electronics	5
Other	2
Accessories	1
Clothing	1

This query helps to count found items per day (time-based aggregation)

```
38 •    SELECT found_date, COUNT(*) AS found_count
39      FROM found_items
40      GROUP BY found_date
41      ORDER BY found_date DESC
42      LIMIT 30;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Conte

found_date	found_count
2025-11-15	3
2025-11-14	1

SQL queries(Create, Insert, Triggers, Procedures/Functions, Nested query, Join, Aggregate queries) used in the project in the form of .sql file :

```
DROP DATABASE IF EXISTS LostUDB;
CREATE DATABASE LostUDB;
USE LostUDB;

-- CREATE TABLES
CREATE TABLE student (
    student_id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL,
    phone_number VARCHAR(15) UNIQUE NOT NULL,
    department VARCHAR(50) NOT NULL,
    year_of_study INT CHECK (year_of_study BETWEEN 1 AND 5),
    password VARCHAR(255) NOT NULL
);

CREATE TABLE staff (
    staff_id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL,
    phone_number VARCHAR(15) UNIQUE NOT NULL,
    role VARCHAR(50) NOT NULL,
    department VARCHAR(50) NOT NULL,
    password VARCHAR(255) NOT NULL
);

CREATE TABLE lost_items (
    lost_item_id INT PRIMARY KEY AUTO_INCREMENT,
```

```
    student_id INT,
    category VARCHAR(50) NOT NULL,
    lost_date DATE NOT NULL,
    lost_loc VARCHAR(100) NOT NULL,
    status VARCHAR(20) DEFAULT 'Unresolved',
    item_name VARCHAR(100) NOT NULL,
    photo LONGBLOB NULL,
    description TEXT,
    FOREIGN KEY (student_id) REFERENCES student(student_id) ON DELETE CASCADE
);

CREATE TABLE found_items (
    f_i_id INT PRIMARY KEY AUTO_INCREMENT,
    report_student_id INT NULL,
    report_staff_id INT NULL,
    item_name VARCHAR(100) NOT NULL,
    description TEXT,
    category VARCHAR(50) NOT NULL,
    found_date DATE NOT NULL,
    found_loc VARCHAR(100) NOT NULL,
    status VARCHAR(20) DEFAULT 'Unclaimed',
    photo LONGBLOB NULL,
    FOREIGN KEY (report_student_id) REFERENCES student(student_id) ON DELETE SET NULL,
    FOREIGN KEY (report_staff_id) REFERENCES staff(staff_id) ON DELETE SET NULL
);

CREATE TABLE match_items (
    match_id INT PRIMARY KEY AUTO_INCREMENT,
    lost_item_id INT NOT NULL,
```

```
    f_i_id INT NOT NULL,
    match_date DATE NOT NULL,
    status VARCHAR(20) DEFAULT 'Pending',
    FOREIGN KEY (lost_item_id) REFERENCES lost_items(lost_item_id) ON DELETE CASCADE,
    FOREIGN KEY (f_i_id) REFERENCES found_items(f_i_id) ON DELETE CASCADE
);

CREATE TABLE claims (
    claim_id INT PRIMARY KEY AUTO_INCREMENT,
    match_id INT NOT NULL,
    student_id INT NOT NULL,
    proof_text TEXT NOT NULL,
    proof_file LONGBLOB NOT NULL,
    approval_status VARCHAR(20) DEFAULT 'Pending',
    verified_by_staff_id INT,
    FOREIGN KEY (match_id) REFERENCES match_items(match_id) ON DELETE CASCADE,
    FOREIGN KEY (student_id) REFERENCES student(student_id) ON DELETE CASCADE,
    FOREIGN KEY (verified_by_staff_id) REFERENCES staff(staff_id) ON DELETE SET NULL
);

CREATE TABLE notifications (
    notification_id INT PRIMARY KEY AUTO_INCREMENT,
    message TEXT NOT NULL,
    date DATE NOT NULL,
    status VARCHAR(20) DEFAULT 'Sent'
);



-- REQUIRED INSERTS
```

```
INSERT INTO student (name, email, phone_number, department, year_of_study, password)
VALUES
('Rajat Bhat', 'rajat@example.com', '9999999991', 'CSE', 2, 'pwdhash1'),
('Alice Kumar', 'alice@example.com', '9999999992', 'ECE', 3, 'pwdhash2'),
('Bob Sharma', 'bob@example.com', '9999999993', 'CSE', 2, 'pwdhash3');

INSERT INTO staff (name, email, phone_number, role, department, password)
VALUES
('S. Patel', 'patel@example.com', '8888888801', 'Security', 'Admin', 'pwdhashs1'),
('M. Singh', 'msingh@example.com', '8888888802', 'Helper', 'Admin', 'pwdhashs2');

INSERT INTO lost_items (student_id, category, lost_date, lost_loc, status, item_name, description)
VALUES
(1, 'Electronics', '2025-11-10', 'Library 1st Floor', 'Unresolved', 'Apple Watch Series 8', 'Silver watch'),
(2, 'Stationery', '2025-11-12', 'Block A Corridor', 'Unresolved', 'Calculator', 'Casio fx-991'),
(1, 'Electronics', '2025-11-11', 'Cafeteria', 'Unresolved', 'AirPods Pro', 'White case');

INSERT INTO found_items (report_student_id, report_staff_id, item_name, description, category, found_date, found_loc, status)
VALUES
(NULL, 1, 'Smartwatch', 'Found near library desk', 'Electronics', '2025-11-10', 'Library 1st Floor', 'Unclaimed'),
(3, NULL, 'Calculator', 'Found near Block A', 'Stationery', '2025-11-12', 'Block A Corridor', 'Unclaimed'),
(NULL, 2, 'Earbuds', 'White earbuds in case', 'Electronics', '2025-11-11', 'Cafeteria', 'Unclaimed');



-- FUNCTIONS
```

```
USE LostAndFoundDB;

DROP FUNCTION IF EXISTS CountLostItems;
DELIMITER //
CREATE FUNCTION CountLostItems(p_student_id INT)
RETURNS INT DETERMINISTIC
BEGIN
   DECLARE lost_count INT;
   SELECT COUNT(*) INTO lost_count FROM lost_items WHERE student_id = p_student_id;
   RETURN lost_count;
END;
//
DELIMITER ;

DROP FUNCTION IF EXISTS GetClaimStatus;
DELIMITER //
CREATE FUNCTION GetClaimStatus(p_claim_id INT)
RETURNS VARCHAR(20) DETERMINISTIC
BEGIN
   DECLARE status_val VARCHAR(20);
   SELECT approval_status INTO status_val FROM claims WHERE claim_id = p_claim_id;
   RETURN status_val;
END;
//
DELIMITER ;


-- PROCEDURES
DROP PROCEDURE IF EXISTS RegisterLostItem;
```

```
DELIMITER //
CREATE PROCEDURE RegisterLostItem(
   IN p_student_id INT,
   IN p_category VARCHAR(50),
   IN p_item_name VARCHAR(100),
   IN p_description TEXT,
   IN p_lost_date DATE,
   IN p_lost_loc VARCHAR(100))
BEGIN
   INSERT INTO lost_items(student_id, category, item_name, description, lost_date, lost_loc, status)
   VALUES (p_student_id, p_category, p_item_name, p_description, p_lost_date, p_lost_loc, 'Unresolved');
END;
//
DELIMITER ;

DROP PROCEDURE IF EXISTS MatchLostFound;
DELIMITER //
CREATE PROCEDURE MatchLostFound(IN p_lost_id INT, IN p_found_id INT)
BEGIN
   INSERT INTO match_items(lost_item_id, f_i_id, match_date, status)
   VALUES (p_lost_id, p_found_id, CURDATE(), 'Pending');

   UPDATE lost_items SET status='Matched' WHERE lost_item_id=p_lost_id;
   UPDATE found_items SET status='Matched' WHERE f_i_id=p_found_id;
END;
//
DELIMITER ;
```

```
-- TRIGGERS
DROP TRIGGER IF EXISTS after_lost_item_insert;
DELIMITER //
CREATE TRIGGER after_lost_item_insert
AFTER INSERT ON lost_items
FOR EACH ROW
BEGIN
   INSERT INTO notifications (message, date, status)
   VALUES (CONCAT('Lost item reported: ', NEW.item_name), CURDATE(), 'Unread');
END;
//
DELIMITER ;

DROP TRIGGER IF EXISTS after_claim_update_notify;
DELIMITER //
CREATE TRIGGER after_claim_update_notify
AFTER UPDATE ON claims
FOR EACH ROW
BEGIN
   IF NEW.verified_by_staff_id IS NOT NULL THEN
      INSERT INTO notifications (message, date, status)
      VALUES (CONCAT('Claim ', NEW.claim_id, ' ', NEW.approval_status), CURDATE(),
'Unread');
   END IF;
END;
//
DELIMITER ;
```

```
-- NESTED QUERIES
SELECT s.student_id, s.name
FROM student s
WHERE (SELECT COUNT(*) FROM lost_items li WHERE li.student_id = s.student_id) > 1;

SELECT f.f_i_id, f.item_name, f.found_loc
FROM found_items f
WHERE f.report_student_id IN (
   SELECT s.student_id FROM student s WHERE s.department = 'CSE'
);

-- JOIN QUERIES
-- Inner join
SELECT c.claim_id, s.name AS student_name,
      li.item_name AS lost_item, fi.item_name AS found_item,
      c.approval_status
FROM claims c
JOIN student s ON c.student_id = s.student_id
JOIN match_items m ON c.match_id = m.match_id
JOIN lost_items li ON m.lost_item_id = li.lost_item_id
JOIN found_items fi ON m.f_i_id = fi.f_i_id
ORDER BY c.claim_id DESC
LIMIT 10;

-- Outer join
SELECT f.f_i_id, f.item_name, f.found_loc, m.match_id, m.status AS match_status
FROM found_items f
LEFT JOIN match_items m ON f.f_i_id = m.f_i_id
ORDER BY f.found_date DESC
```

```
LIMIT 20;


-- AGGREGATE QUERIES
SELECT category, COUNT(*) AS total_lost
FROM lost_items
GROUP BY category
ORDER BY total_lost DESC;

SELECT found_date, COUNT(*) AS found_count
FROM found_items
GROUP BY found_date
ORDER BY found_date DESC
LIMIT 30;
```

Github repo link :

https://github.com/Pratheek22/LocateU-Lost-And-Found-System.git