



# CIU Lost & Found System

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Course: Software Design & Architecture — Cyprus International University



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# Problem We Observed (Starting observation)

- We found headphones in the dorm
- Reception had them, but couldn't identify the owner
- There was no single official place to report or search
- People use many different messaging platforms

## **Conclusion:**

- Returning lost items at CIU is unclear, fragmented, and unreliable.

# Idea (solution)

- We believed a **simple web-based system** could solve this problem
- **One official place** instead of many chats
- **Accessible** to everyone with just a link
- No need to install apps or join groups

## **Result:**

- We decided to explore this idea further by understanding **who is involved.**

# Stakeholders We Identified

- Students – lose and find items on campus
- Teachers & staff – also lose personal belongings  
(for example, losing flash drives)
- Dorm reception – currently keep or receive found items
- Security staff – deal with valuable or sensitive item

## **Important decision:**

- The problem is not limited to students, so the system should work for **anyone at CIU.**

# Choosing Requirement Elicitation Methods

<u>Method</u>	<u>Reason</u>
Interviews	Allows real experiences and open discussion
Observation	Shows how lost items are handled in reality
Questionnaires	Too early, users may not know what they want
Workshops	Hard to organize, too formal
Brainstorming	Risk of unrealistic ideas
Prototyping	No clear requirements yet
Background Reading	No existing system at CIU

# What We Learned (input for FR, NFR)

- **Simple access is crucial**
  - If reporting is difficult, people won't report found items
- **Ownership verification is a major concern**
  - People are afraid that someone may falsely claim an item
- **Anonymity is important for finders**
  - Many people prefer to report items without being personally involved
- **Some people don't want to touch or move found items**
  - They prefer reporting the location instead of taking responsibility
- **Lost items affect different groups**
  - Students, teachers, and staff all face this problem

# Example structure (NOT final requirements yet):

## [F1] Simple access is crucial

- ├→ Requirement about easy reporting
- └→ Requirement about no registration

## [F2] Ownership verification is a concern

- └→ Requirement about verification process

## [F3] Anonymity is important

- └→ Requirement about anonymous reporting

## [F4] People don't want to move items

- └→ Requirement about reporting location only

## [F5] Many groups lose items

- └→ Requirement about open access for all CIU members

# Locked Findings → Derived Requirements

## F1. Simple access is crucial

- FR-1: The system shall allow **reporting a found item using a simple web link.**
- FR-2: The system shall allow **reporting without mandatory registration.**

# Locked Findings → Derived Requirements

## **F2. Ownership verification is a serious concern**

- FR-3: The system shall support an ownership verification process before an item is returned.
- NFR-1 (Security): The system shall reduce the risk of false ownership claims.

# Locked Findings → Derived Requirements

## F3. Anonymity is important for finders

- FR-4: The system shall allow users to report found items anonymously.
- NFR-2 (Privacy): The system shall protect the identity of users who choose to remain anonymous

# Locked Findings → Derived Requirements

## **F4. Some people do not want to touch or move found items**

- FR-5: The system shall allow reporting the location of a found item without taking possession of it.

# Locked Findings → Derived Requirements

## F5. Lost items affect different groups

- FR-6: The system shall be usable by any **member** of the CIU community.
- NFR-3 (Accessibility): The system shall be accessible through a standard web browser.

# Functional Requirements (FR)

## (What the system must do)

- FR-1: The system shall **allow users to report a found item using a simple web link.**
- FR-2: The system shall **allow users to report found items without mandatory registration.**
- FR-3: The system shall **support an ownership verification process before an item is returned.**
- FR-4: The system shall **allow users to report found items anonymously.**
- FR-5: The system shall **allow reporting the location of a found item without taking possession of it.**
- FR-6: The system shall **be usable by any member of the CIU community.**

# Non-Functional Requirements (NFR) (How the system should behave)

- NFR-1 – Security

The system shall **reduce the risk of false ownership claims.**

- NFR-2 – Privacy

The system shall **protect the identity of users who choose to remain anonymous.**

- NFR-3 – Accessibility

The system shall **be accessible through a standard web browser.**

# From Functional Requirements to Product Backlog

Backlog Item	Related FRs	Priority	Reason
Report Found Item	FR-1, FR-2, FR-4	High	Core action; must be easy & anonymous
Report Item Location Only	FR-5	High	Many people don't want responsibility
Public View of Items	(crucial for reporting)	High	Helps owners search
Ownership Verification	FR-3	Medium	Prevents false claims
Open Access for CIU Members	FR-6	Medium	Supports all user groups

# Sprint Planning Assumptions

To keep things realistic and simple:

- Sprint duration: 2 weeks
- Team size: 4 members
- Goal: Deliver working features per sprint

# Sprint 1 Backlog (it's gonna be revised later)

## Sprint Goal

Enable basic reporting of found items with minimal effort

## Sprint 1 Features:

- Report Found Item
- Report Item Location Only
- Public View of Items

# Sprint 2 Backlog (it's gonna be revised later)

## Sprint Goal

Make the system trustworthy and safe.

## Sprint 2 Features

- Ownership Verification
- Anonymous Reporting
- Open Access for CIU Members

# Scrum Team

Member	Role	Responsibilities
Majd Bannoura	Product Owner	Defines requirements, prioritizes product backlog
Nikita Mavrodiy	Scrum Master	Guides Scrum process, ensures workflow
Ali Anas	Developer	Supports implementation planning & documentation
Ramez Saad	Developer	Supports implementation planning & documentation

# Inputs to Architecture Decisions (our NFR)

Security	Privacy	Accessibility
NFR1: The system shall <b>reduce the risk of false ownership claims.</b>	NFR2: The system shall <b>protect the identity of users who choose to remain anonymous</b>	The system shall <b>be accessible through a standard web browser.</b>
<b>Influence on architecture:</b>		
Need for controlled workflows	Careful handling of user data	Web-oriented architecture
Verification logic separated from basic reporting	Separation between public data and private data	Simple client–server interaction

# What We Do NOT Prioritize (Yet)

- ~~High scalability~~
- ~~High performance~~
- ~~Complex integrations~~
- ~~Distributed systems~~

We considered three common architectures taught in software architecture courses:

### ~~Monolithic Architecture~~

harder to manage security and privacy logic.

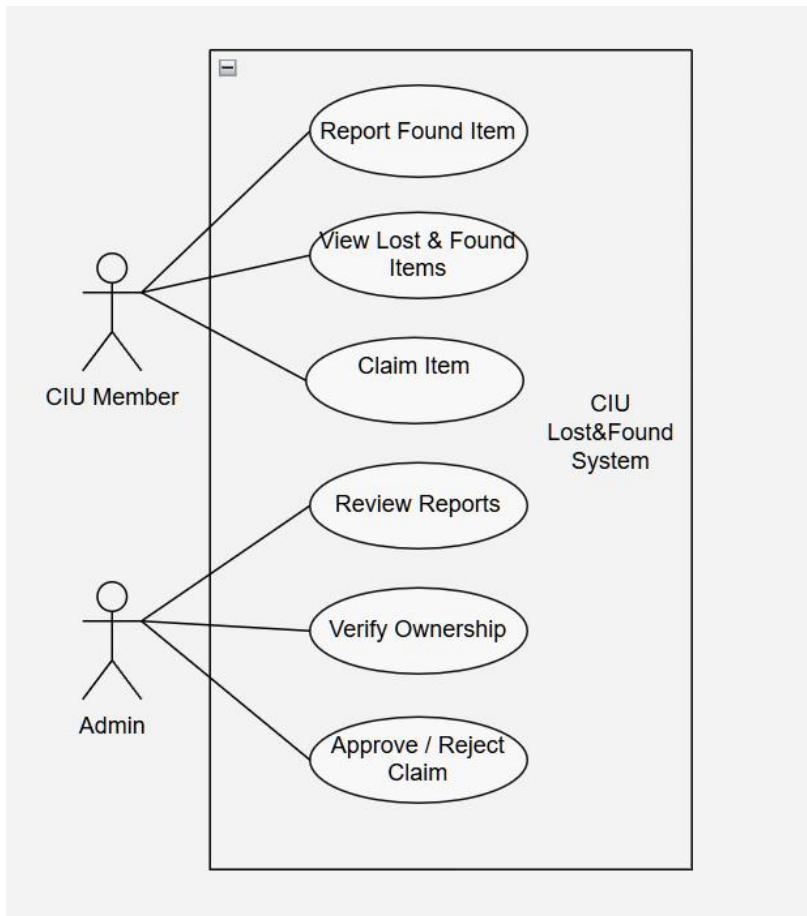
No layers-> mixed. Less maintainable

### ~~Microservices Architecture - too complex~~

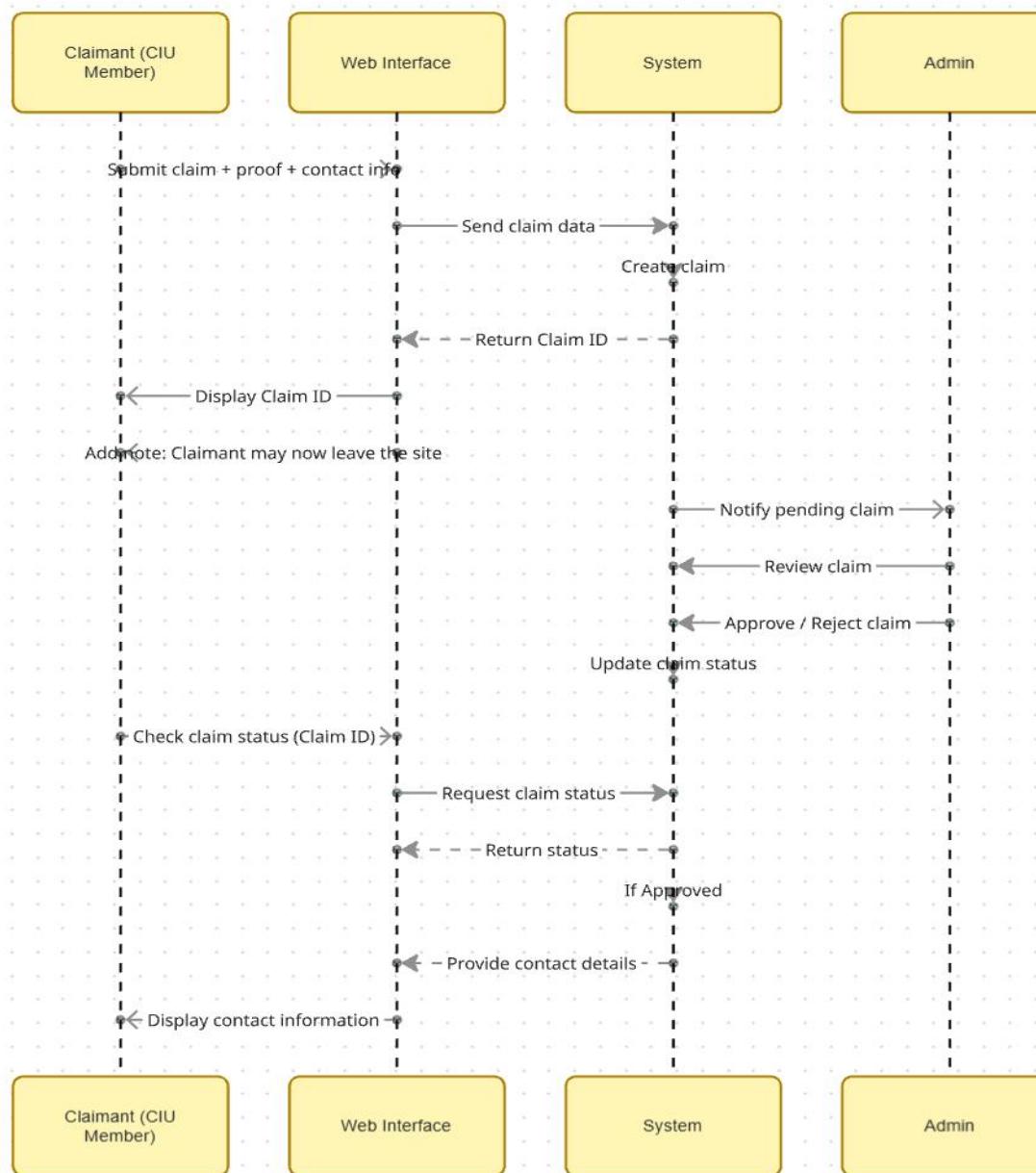
### **Layered Architecture (our choice):**

We propose: presentation - application - business - data layers

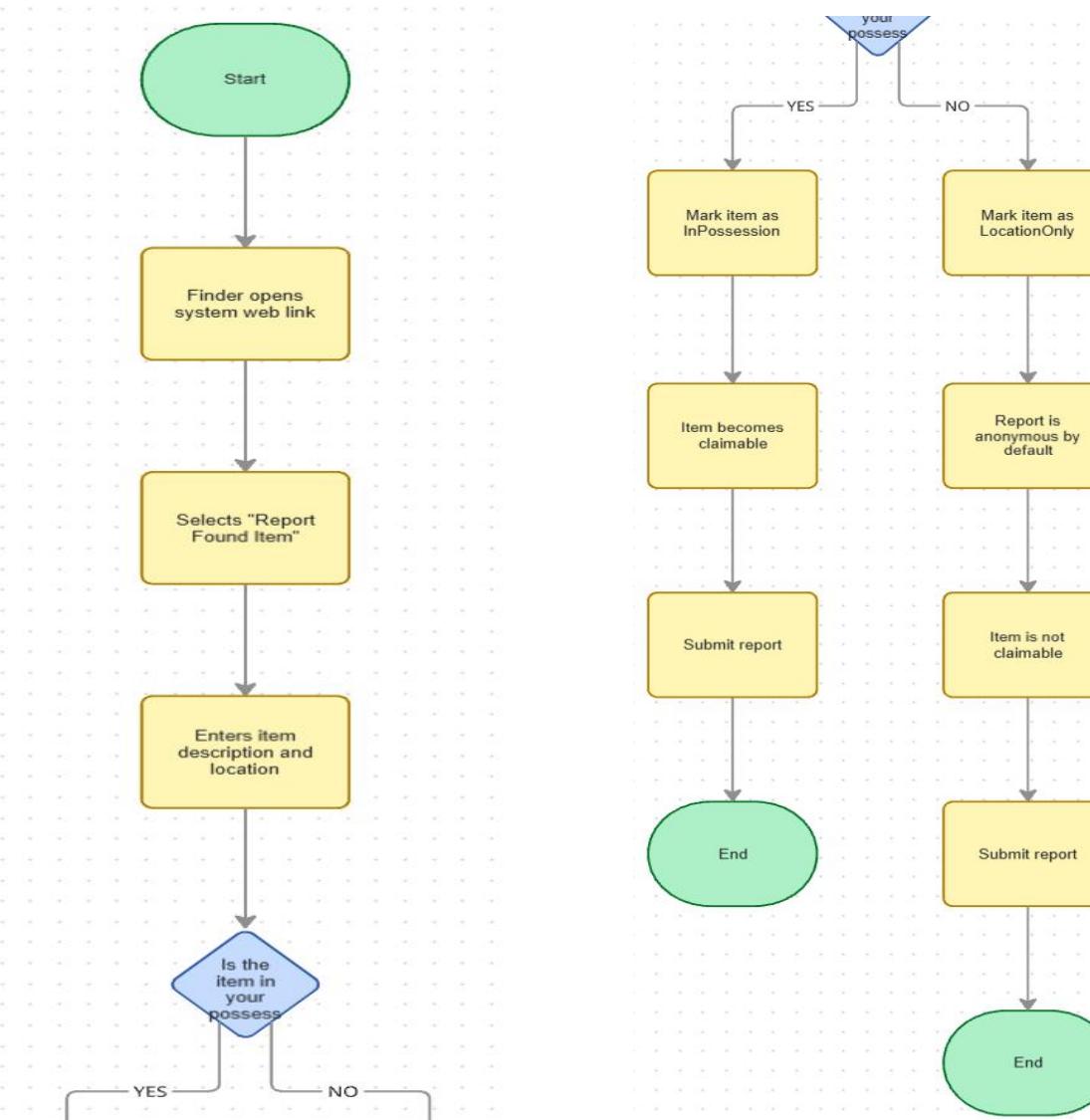
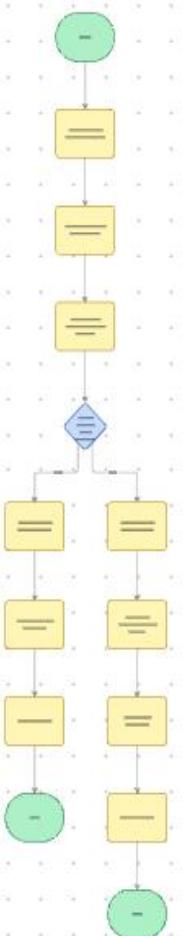
# USE CASE DIAGRAM



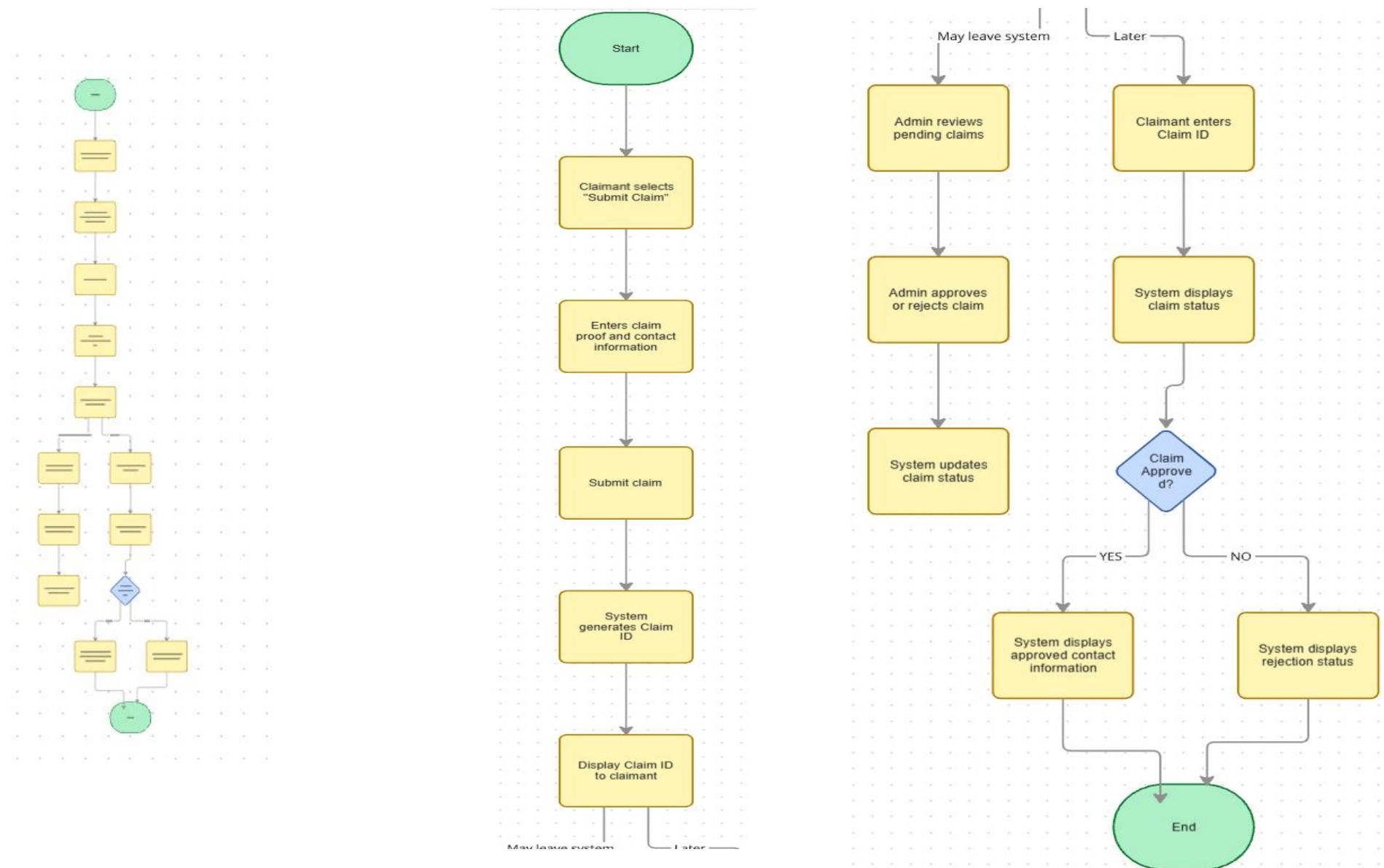
# SEQUENCE DIAGRAM



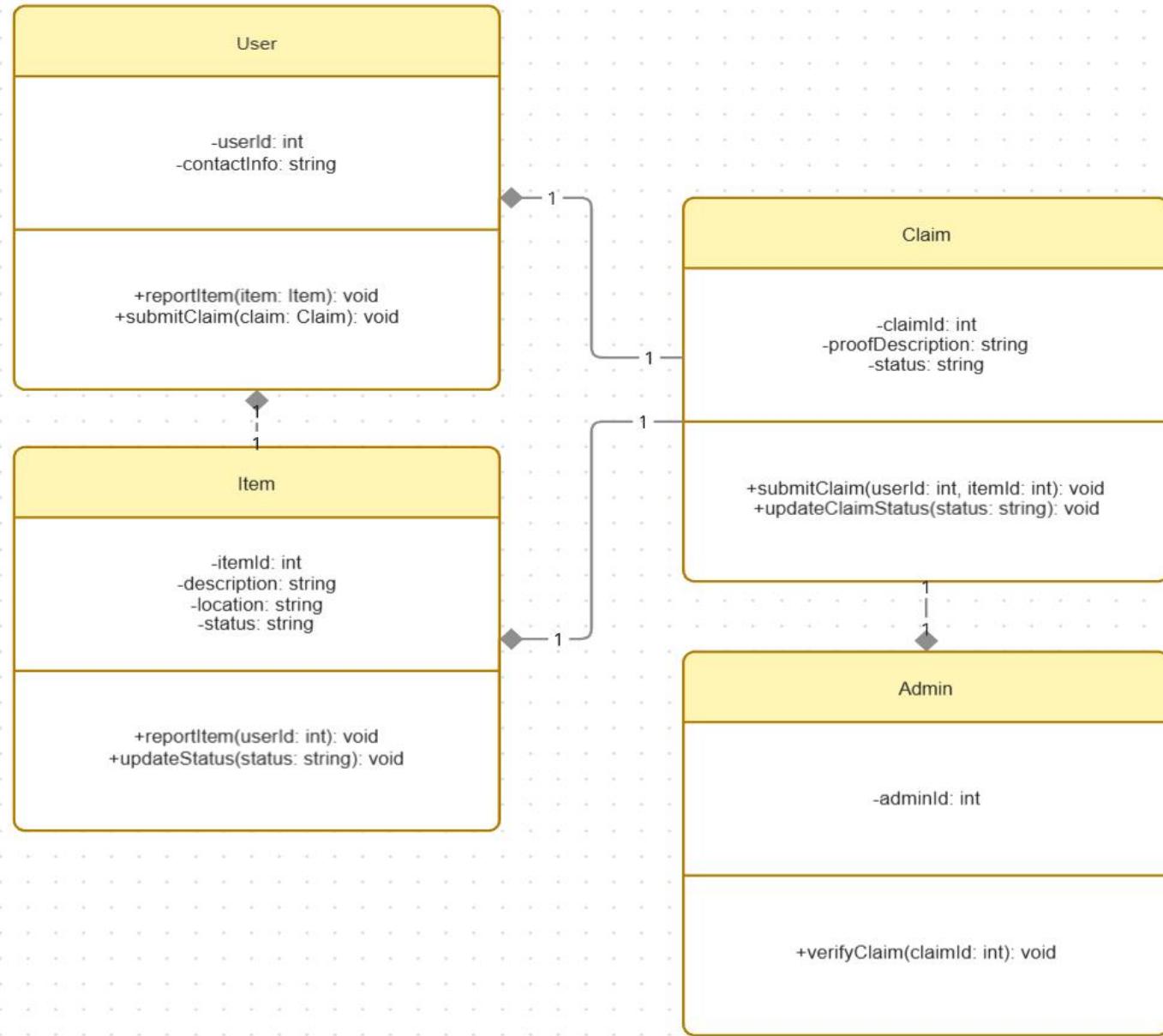
# Activity Diagram 1 – Reporting a Found Item



# Activity Diagram 2 – Claiming an Item



# CLASS DIAGRAM



## **Sprint 1 – Core Flow**

- Report lost/found item
- View item list
- Basic item details & status

## **Sprint 2 – Claim & Verification**

- Submit claim with description
- Admin review & decision
- Claim status tracking

## **Sprint 3 – Control & Quality**

- Release contact info after approval
- Basic usability & reliability requirements
- Minor improvements based on feedback

**While creating diagrams, we revised some requirements and adjusted the sprint backlog**

We grouped features by dependency and risk