# THE KELKAR EDUCATION TRUST’S VINAYAK GANESH VAZE COLLEGE OF ARTS, SCIENCE AND COMMERCE

**(Autonomous)**

**MULUND, MAHARASHTRA, 400081**

# DEPARTMENT OF INFORMATION TECHNOLOGY



**CERTIFICATE**

This is to certify that the project entitled," ", is bonafide work of bearing Roll No: submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY.

**Internal Guide Head Of Department**

**External Guide**

**Date: College Seal**

DECLARATION

I here by declare that the project entitled, done at, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university. The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name :

Signature :

The Kelkar Education Trust’s

V G Vaze College of Arts, Science and Commerce

(Autonomous)

**Find My Stuff**

**A Project Report**

Submitted in partial fulfilment of the Requirements for the award of the Degree of

**BACHELOR OF SCIENCE**

**(INFORMATION TECHNOLOGY)**

**By**

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**Under The Esteemed Guidance of**

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**DEPARTMENT OF INFORMATION TECHNOLOGY**

**V G VAZE COLLEGE OF ARTS, SCIENCE AND COMMERCE (AUTONOMOUS)**

***(Affiliated to University of Mumbai)***

**Mulund,** **400080 MAHARASHTRA**

**2023-2024**

FIND

MY STUFF

A Lost and Found Application

**Synopsis of the project**

**Title of the project**

Find My Stuff

**Statement about the problem**

To develop an android application that will help the college students and faculty find their lost goods. Also, they can report any lost items that are found. The various functions provided are reporting lost goods, posting and listing the found items, etc.

**Why this topic?**

Finding lost items proves to be very difficult and requires plenty of enquiring throughout the college premises, which requires a lot of hard work. There is no way or medium to contact someone who might potentially posses the lost item. Also, if someone does manage to find an item, they can’t report it or are unable to reach out to the owner. Hence, the aim is to connect the owner and the potential student or faculty possessing the item.

**Objective and Scope**

The scope of the project is Vaze College and the students and faculty currently a part of the college.

**Objectives :-**

1. To reduce the efforts required to enquire multiple people throughout the college.
2. To find and return the goods to the owner.
3. To provide a platform to list found items and to find its owner.
4. To reduce the time and effort required in the process.
5. To connect the owner and potential student or faculty possessing the item.
6. To increase the probability of finding valuable items.
7. To help the reported item listing to reach a large number of people

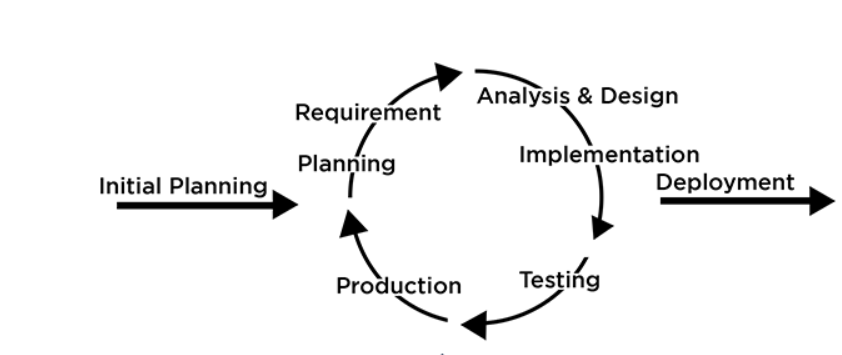
Methodology

For this system, I would use an iterative approach. The advantages of this approach are :-

1. Feedback from one interaction may improve the other iteration
2. Increments are delivered and developed.

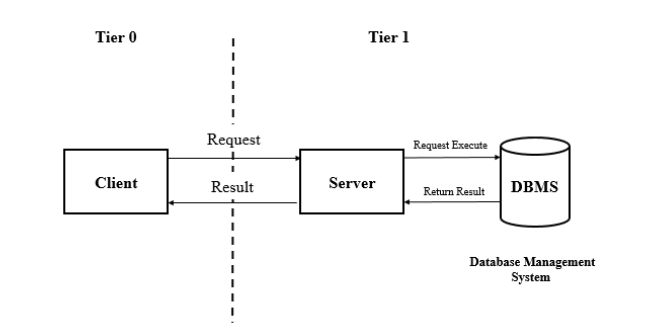
Disadvantages are :-

1. Later, increments may require modifications to earlier increments.

[](https://artoftesting.com/iterative-model)

**Proposed Architecture**

The application would be developed using a client -server 2 tier architecture.

[](https://www.collegenote.net/curriculum/web-technology-csit/84/468/)

**Requirements**

1. Software Requirements
   1. Operating system: 64-bit Windows 8 or higher
   2. Database: MySQL
   3. PHP
   4. XML
   5. Java
2. Hardware Requirements
   1. Processor: Intel Core Duo 2.0 GHZ or AMD Athlon CPU or newer
   2. Ram: minimum 8GB
   3. Hard-Disk: 256 GB SSD, 8GB of available disk space
   4. Monitor: 1200 x 800 minimum screen resolution
3. Platform
   1. Android Studio

**Contribution**

Locating and finding items becomes very stressful and difficult as it involves enquiring a bunch of students and staff. These students and staff might not always be the right people to help in finding the items. This app helps simplify this stressful process. It would reach out to a large number of students and hence the chances of finding the items increases , saving time and efforts in doing so.

**Conclusion**

The application aims to streamline the difficulty of finding and reporting a lost item. By doing do, it saves a lot of time and efforts in locating the lost item by connecting and reaching out to a large number of students.

**Chapter 1**

**Introduction**

* 1. **Background**  
     Losing items around a college campus is a common phenomenon. Although, a physical lost and found department is in place which is helpful, but it presents a number of problems. The major issue is that there is no way of informing the owners that their items have been found. The students have to frequently visit the office and enquire about the lost items. Also, students circulate Whatsapp messages around groups enquiring about their items, but it is unable to reach a massive audience. If someone does manage to find a lost item, they have no means to find the owner and the lost and found department has no way to notify the owner about it. There is no system that facilitates a communication between all the parties. Facilitating a communication and a connection while making the process simpler and effective between the concerned students and the department, is the main goal of the system.
  2. **Objectives**

1. To provide a platform for students and faculty to report lost and found items.
2. To help students and faculty to locate and search for missing items within the college premises.
3. To reduce the time and efforts put to report and look for lost or found items.
4. To increase the chances of recovering the misplaced items by providing a common platform for listing lost or found items.
5. To make it easier to connect the owner and the potential person who might have the item in his possession.
6. To provide a reliable system to manage lost and found items.  
   1. **Scope Purpose and Applicability**
      1. **Purpose**The major purpose that the system servers is that it provides a common platform for all the students and faculty to report lost or found items and to streamline the process by making it convenient and easy for owners to recover their lost items. The need for the system arises as there is no such system in place and the process to find a lost item is very time-consuming and tiresome.
      2. **Scope**The system is developed for students and faculty members currently a part of the V.G. Vaze College. The app will deal with lost items such as personal belongings, clothing, jewellery, books, gadgets and would exclude basic stationary items such pens, pencils.

Some limitations that might occur could be the type of images uploaded and data privacy of faculty members.

* + 1. **Applicability**

The application though specific to the college, it ca be used in various other places as like :-

* Hotels – Guests can find their personal belongings that have been misplaced.
* Airports – Can be used to find luggage and other belongings such as electronic gadgets, passports, etc.
* Malls – People can use it to find their bags, etc.
* Offices – Electronics such as laptops , mobiles and various other important files are quite oftenly misplaced. The app can be used to find these items.
* Public places – Hospitals, Parks, Societies, etc can also use this app.

**Chapter 2**

**Survey of Technologies**

1. **IDEs**
2. **Android Studio**

It is the official integrated development environment (IDE) for developing android apps built on JetBrains’s IntelliJ IDE. It uses a Gradle-based build system, Android Emulator, code templates and GitHub integration. It is a one-stop place for development of android apps. It supports various programming languages such as Java, Kotlin or C++, while also supporting various frameworks. It receives the latest updates directly from Google keeping it up-to-date with the trends. It also has support for a large array of third-party plugins. Superior android development, project structure, code completion and refactoring, emulation, etc are some of the many advantages and features of Android Studio.

1. **Eclipse**

It is an IDE used primarily for Java development. However, it supports various other languages like C, C++, JavaScript to name a few. For several years, a version of Eclipse with an Android plug-in was recommended, But Google ceased support for this plug-in, causing developers to shift to Android Studio for Android development.

1. **NetBeans**

It was originally developed by a student of Prague University. It is similar to Eclipse and is primarily known as Java IDE. Android development is supported using plug-ins which are not supported to a large extent today.

1. **Visual Studio Code**

Very commonly referred to as VS Code, it is an open-source code editor made by Microsoft with the Electron Framework for Windows, Linux and MaxOS. It includes vast number of features such as support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring and embedded Git. Users can change the theme, customize keyboard shortcuts and preferences and install extensions that add functionality. A notable feature is the ability to create extensions that add support for new languages, themes, debuggers, etc via plugins such as the Dart plugin which VS Code utilizes when used to develop Dart apps for which the Flutter framework is used. Good and extensive plugin library is also a very prominent feature of VS Code.

**Why have I selected Android Studio?**

Currently, I chose Android Studio as it the official IDE, hence receiving continuous recent updates to the IDE as well as the plugins. It provides all the necessary features while being highly feature rich and offers an extensive way of debugging and optimizing the application.

1. **Frameworks**
2. **React Native**

It is an open-source cross-platform development framework developed and maintained by Facebook. It uses React, a flexible JavaScript Library to build apps for both Android and iOS. It makes app development much easier and faster by having a single codebase and uses native platform specific built-in components and APIs that give great performance. Having a single codebase reduces development time and cost while having elegant interface across platforms.

1. **Flutter**

Developed by Google, it is also a free, open-source mobile framework for developing applications. It simplifies the multi-platform development process to craft excellent native interfaces. Flutter is written in Dart language and is a method to implement hybrid app development. Using a single codebase, it uses Google’s rendering engine called Skia to develop visuals. It boasts a hot reload functionality which allows for continuous testing without having to restart applications. It is used to develop fast, high- quality applications for iOS and Android in record time from a single codebase.

1. **Xamarin**

It is also an open-source platform for building modern applications for iOS, Android and Windows applications with .NET. It features a friendly development environment with an abstraction layer that manages communication of shared code with underlying platform code. It allows developers to write all the business logic in a single language while achieving native performance, look and feel on each platform. Its major unique feature is that it uses .NET and C# for cross-platform applications.

1. **Ionic**

It is designed for developers who are familiar with web development and want to develop hybrid and interactive mobile apps. Its rich and complete set of elements, gestures, animations and software tools enable the developers to develop high quality mobile, desktop and Progressive Web Apps from a single codebase. It is easily integrable with Angular JS and utilizes functionalities like Bluetooth, fingerprint authentication, etc and also uses emulators, live reload and logging to offer amazing performance. It also uses Cordova plugins to access camera, GPS, etc in an easy manner. It is the most developer-friendly framework and uses HTML, CSS and JavaScript.

1. **Apache Cordova**

It makes use of HTML, CSS and JavaScript for building mobile applications. The open-source platform consists of a set of pre-defined plugins that provide access to the device’s camera, GPS, file system, etc. The developers can develop apps that are compatible for more than one platform without re-implementing it with the language of each platform. The resulting applications are hybrid, ie they are neither truly native nor purely web-based. This causes the applications to run slower than native applications. They are not Web apps because they are not packaged as apps for distribution. The slow or reduced performance is a major drawback however it allows developers to add more functionality using JavaScript.

1. **Databases**
2. **MySQL**

It is the most popular open-source relational database management system. Its relational nature helps to organize the data into one or more data tables. The structured data can be inserted, extracted and modified. Its major features are its ability to manage users, allow for network access, facilitating testing and creation of backups. Query caching, Unicode support, multiple storage engines, SQL support are some of its prominent features.

1. **PostgreSQL**

It is an advanced, enterprise class open-source relational database that supports both SQL (relational) and JSON (non-relational) querying. It is highly stable, backed by more than 20 years of community development which has contributed to its high levels of resilience, integrity and correction. It also has a rich support for advanced data types and performance optimization. However, it is more power-hungry and performs slower when compared to MySQL.

1. **SQLite**It is an embedded, file-based RDMS. The application does not run under a separate server process. The serverless architecture enables the database to be cross-platform compatible. The SQLite adheres to ACID properties to safeguard transactions against memory allocation failures. Its compact libraries and small footprint make it fit for applications that do not require a heavy database and because it is stores locally, it can cache data quickly and easily without delaying.
2. **Firebase**It is a backend-as-a-service. It is backed by Google and is an application development software that enables developers to develop iOS, Android and Web Apps. The cloud computing services include hosting databases, services, authentication, and integration of applications, including Android, iOS, JavaScript, PHP, C++, etc. It uses NoSQL (not only SQL) as a real-time database. Its blazing speed, cloud-based nature and its ability to handle large sets of data along with numerous features make it a viable option.
3. **AWS Dynamo DB**

As part of a larger ecosystem of Amazon Web Services (AWS), this database is a NoSQL database that is known for its speed and efficiency when it comes to retrieval of information and data from the system. It is a key-value database, so there are variety of data types that can be stored within this system. It is a highly scalable and a complex database system for developers that are working with the applications that need to manage big user data and constant engagement.

1. **MongoDB**

It is the most popular NoSQL database and offers many features geared towards the development of mobile applications. As a document-based database, it is proficient with the JSON data-interchange format, making the storage of web pages and other documents like chat logs and messages. It is also highly scalable and has the capacity to grow with the changing needs of the application.

**Why I am using MySQL for my application?**

I will be using MySQL database for its widespread popularity, its speed and its relational nature. It can be accessed via a server and can be stored or hosted remotely easily which ensures the availability of the app at any given time. The data is stored in a relational manner, ie it is easier to understand as it is stored in a structured format.

1. **Other**
2. **PHP**

PHP stands for Hypertext Pre-processor and is a widely used open-source general purpose scripting language. The server-side scripting language is used to perform operations and access databases with the most popular one being MySQL. Using PHP, the data can be inserted and also fetched from the databases making the applications dynamic.

1. **Room Library**

It is a persistent library that allows fluent access to the database by creating an abstract layer over SQLite. It simplifies the process of adding a structured SQL database to the application.

1. **Firebase**

This backend-as-a- service includes many features like authentication of email, phone numbers by sending OTP to the users. Also, firebase offers services to send messages to other users as well as send push notifications when required. It offers a vast library of devices on which the application can be simulated and hence perform testing of the applications.

**Why will I be using PHP?**

I will be using PHP as a server-side scripting language, due to its platform independent nature. It also supports major web servers and performs its operations with greater speed and is also commonly used along with MySQL database, hence making it easier to troubleshoot any issues related to the availability of forums due to its popularity.

**Why Firebase?**

I would Firebase Services to send push notifications, authenticating users via email and phone number, etc. Firebase is developed by Google and hence integrates smoothly with Android Studio IDE.

**Chapter 3**

**Requirements and its Analysis**

* 1. **Problem Definition**

The process of locating and trying to reunite a lost item with its rightful owner is quite frustrating, tiresome and time-consuming. To overcome this, the lost and found application will be put to use. The users of the system mainly include students and the faculty, both of whom can report lost items and post, if they happen to lose an item. The system will revolutionize the process by simplifying and speeding up the process. The users can contact the owner of the item, keep track of the progress of their lost / reported item, view the lost items in an organized manner, etc. The administrator, for eg the lost and found department, would be the authority responsible for the application’s management. The communication feature among two users of the application would be an important step in verifying the owner of the item. All these functionalities would allow a large number of students to connect and create a community, increasing the chances of locating an item effortlessly.

**Sub-Systems**

1. Login/Registration:
   1. The users would have to register for the first time.
   2. Once the users are registered successfully and authenticated, they can access the rest of the app.
   3. Once logged in, the users don’t need to log in every time they wish to use the app, i.e they remain logged in unless they explicitly log out.
2. Posting/Reporting a lost item:
   1. This sub-system is concerned with users being able to post or report a lost item by filling out and providing the item’s description and the contact information along with the item’s image as well.
3. Item viewing:
   1. This sub-system displays all the lost items as well the reported items to the user in an organized manner.
   2. It filters the items according to various categories, date, etc.
   3. The uses can also view items that they have posted and also track its status.
4. Profile management:
   1. The users can view their information and also edit their contact details.
5. Communication:
   1. The users, for eg: the owner of a lost item and its finder can communicate with each other through the in-app messaging.
   2. The users will be notified about important updates, matches or messages via in-app notifications and emails wherever necessary.
6. Verification and matching:
   1. Once a new item is reported as lost, it is checked if any user has already found that item and the user will be alerted accordingly.
   2. If a user claims to be the owner of an item or claims to have possession of an item, they need to answer a few questions regarding the item in order to verify their ownership.
7. Administration
   1. The admin can manage users, monitor reported/ lost items and answer queries.
8. User Assistance
   1. This sub-system would allow the users to contact the administrator to overcome any difficulties or issues that they are encountering.
   2. **Requirement Specification**
      1. **Requirement Gathering**

The various ways to gather requirements are:-

1. **Survey/Questionnaire:**

Questionnaires and surveys are basically a set of questions that are distributed among the stakeholders in order to get an understanding of the system. The questionnaires can be distributed to multiple stakeholders at the same time hence saving time and reducing the efforts required to gather requirements. One disadvantage of this method is the lack of flexibility to change the questions or add follow-up questions based on the response received.

1. **Interviews:**

Interviews are usually conducted one-on-one. Interviews provide the flexibility of asking follow-up questions which can help gather more specific and detailed information. But the interviews can be time-consuming and the interviewee must have in-depth knowledge of the current system.

1. **Brainstorming:**

In this method, the system is approached from every point of view and all the possible scenarios and their outcomes are thought of which include what-if scenarios and blue-sky ideas. The general idea is to break away from the existing convention and to figure out the various situations that take place in the systems to gather detailed requirements of the system. Role-play is an extension of brainstorming where various roles are enacted to replicate the situations and scenarios that take place which can help to develop a better understanding of the system.

1. **User Observation:**

User Observation is one of the best to fully understand and discover how people and technology in the current system operate and behave. It gives us a realistic idea of how things actually work. It can be categorized into active and passive. Active observation takes place when the people being observed are questioned about the actions that they carry out to gain a better understanding of the process. Passive observations are better at getting feedback without any communication involved.

1. **Prototyping:**

This method gives the users a chance to try out how their system would look and feel. This results in continuous feedback and based on the feedback, continuous changes and improvements are made, making it an iterative process. The prototypes are reverse engineered to discover the requirements along with the various other features and functionalities that would satisfy the stakeholders.

**Method I used and why?**

I have used surveys /questionnaires to gather the requirements from the students of the college who constitute the majority of the user base. Apart from that brainstorming was used to figure out other possible scenarios and to think of their possible outcomes. I used Google forms to distribute the questionnaire. I also used interviews, asking questions about the current system in place and how things in the college operate. These interviews were answered by my guide and an administrative staff.

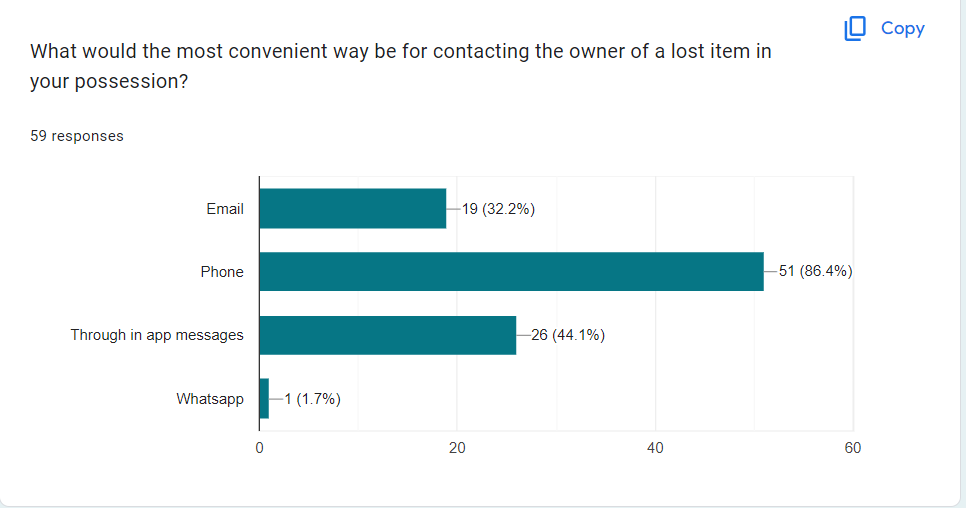
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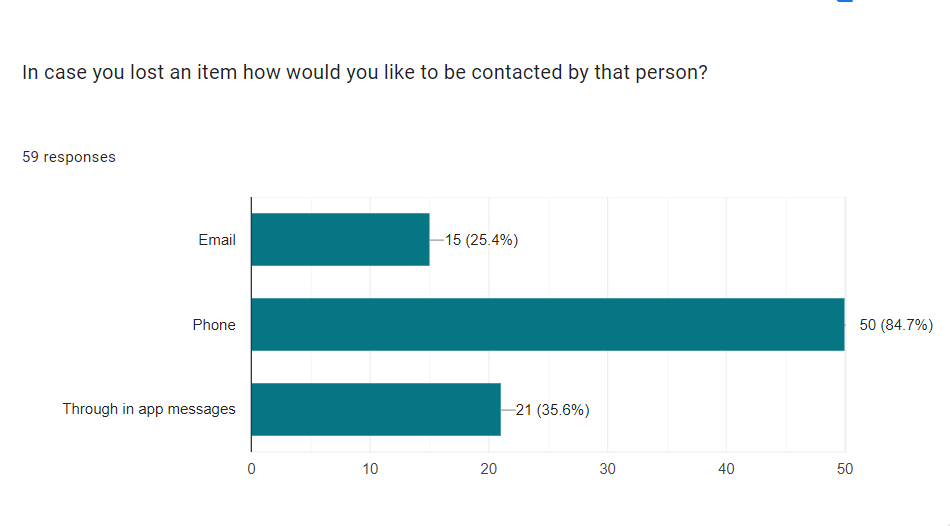
* How does the current lost and found department operate?
* Who can be the admin for the app?
* How AI can be integrated in the app?

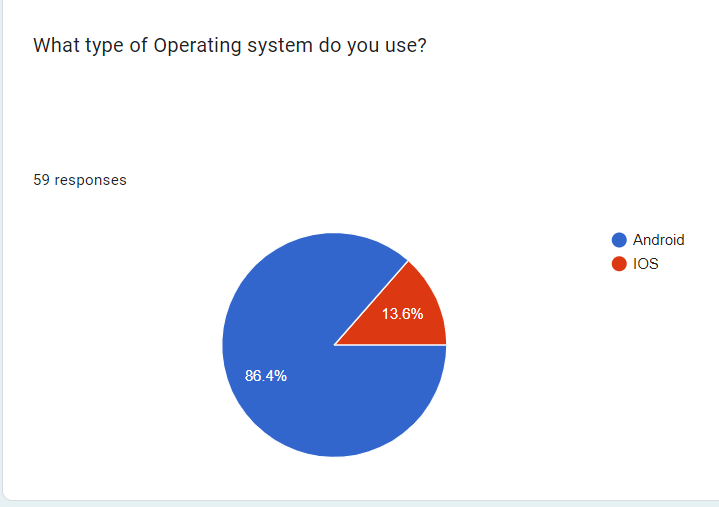
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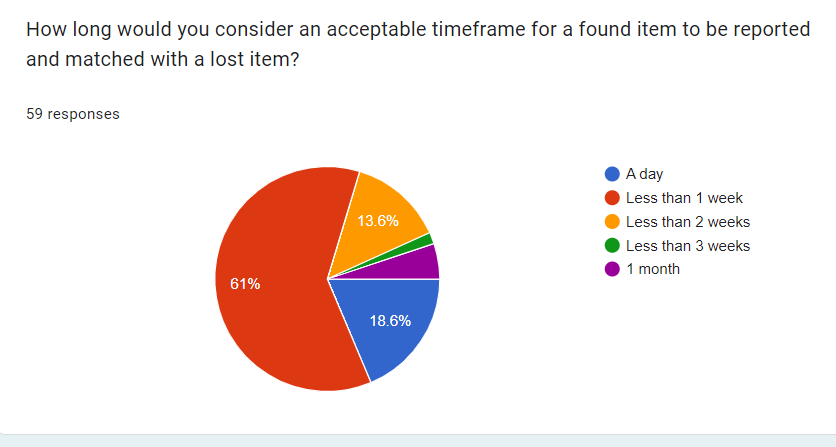
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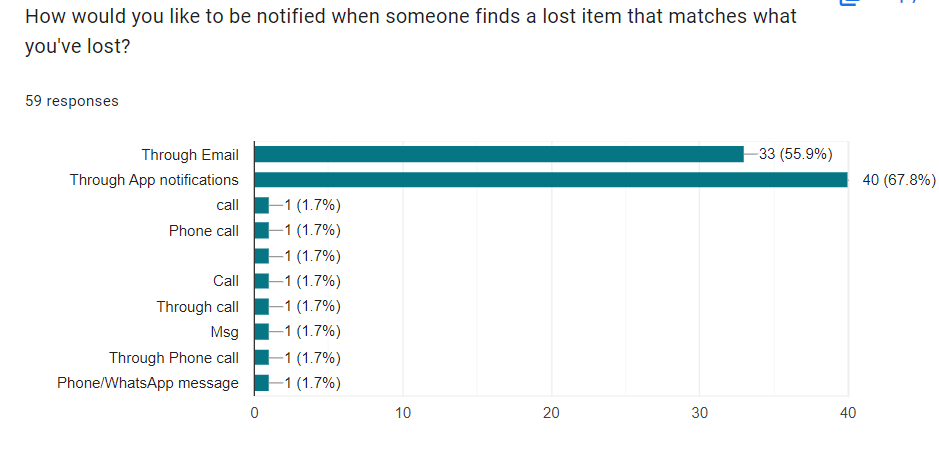
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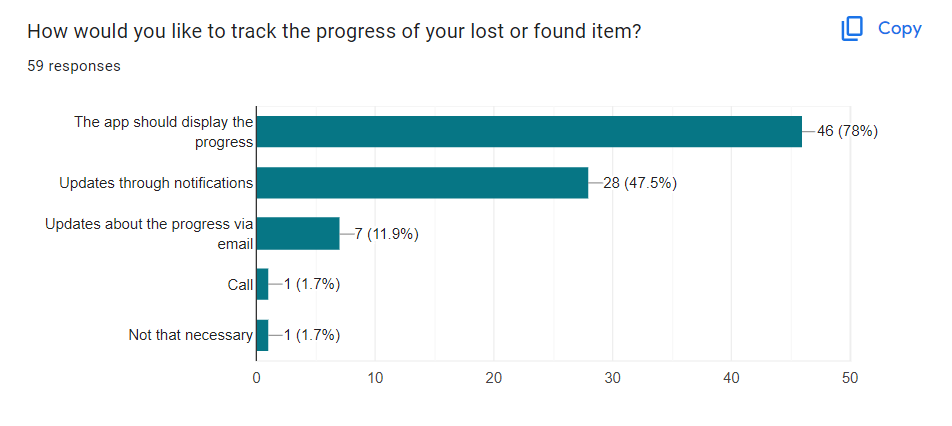


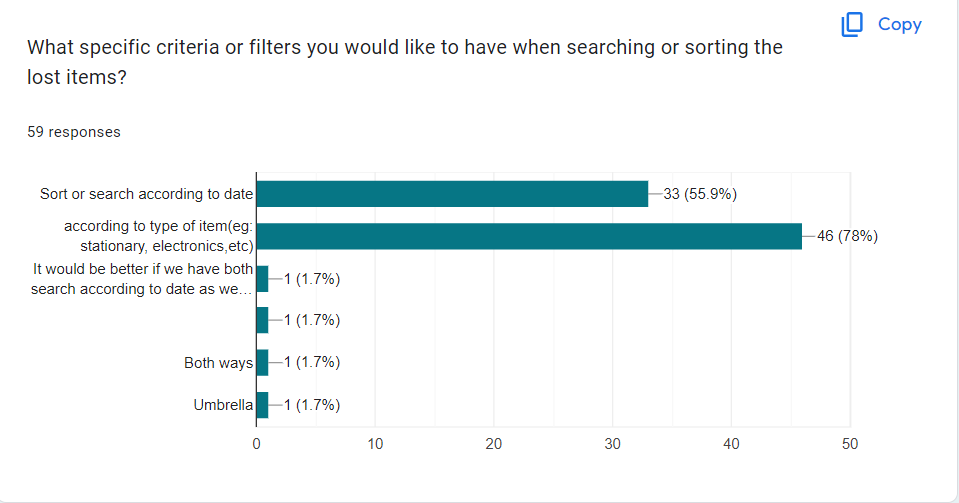


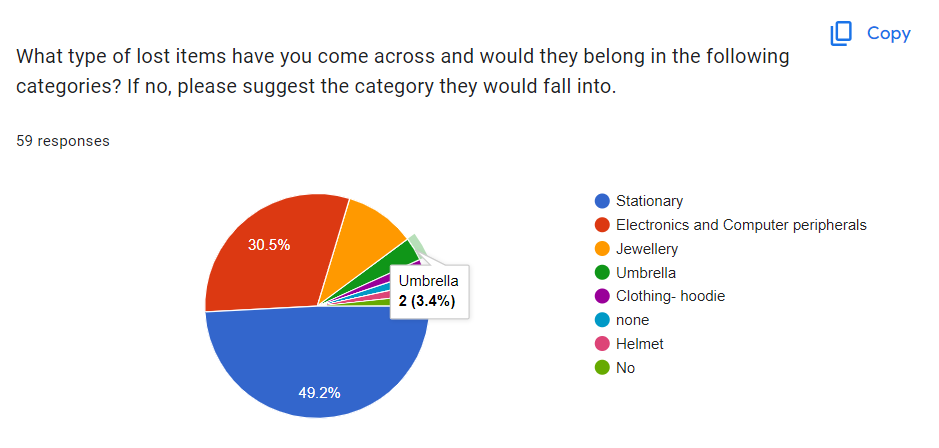


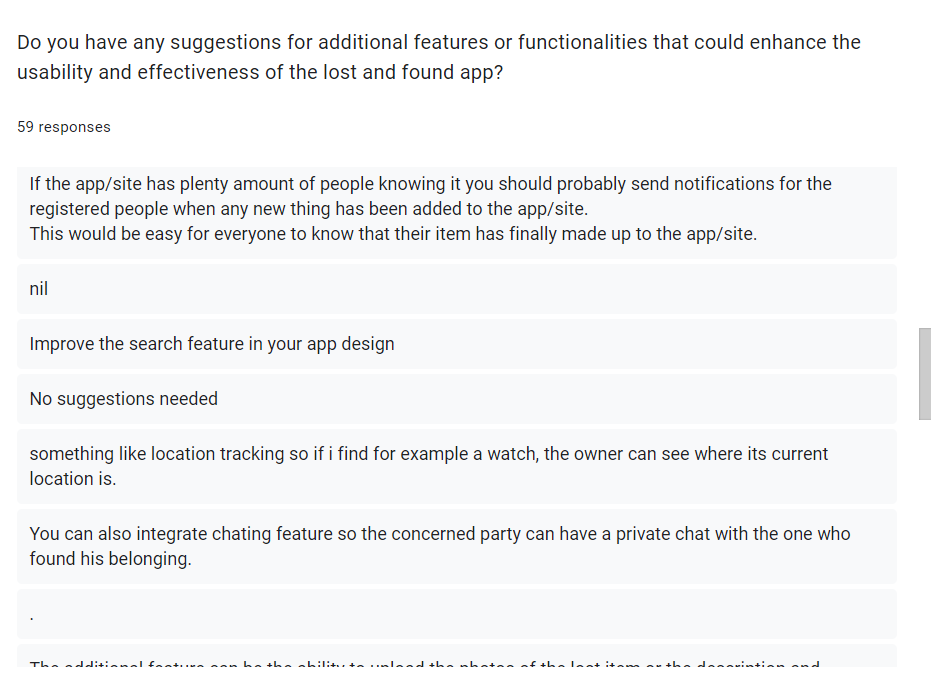


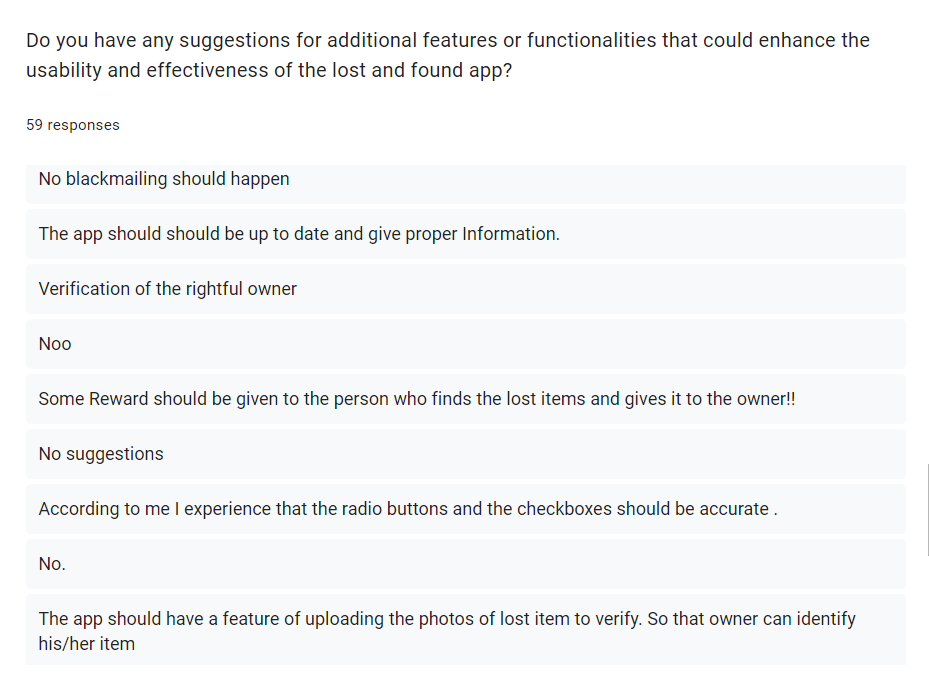


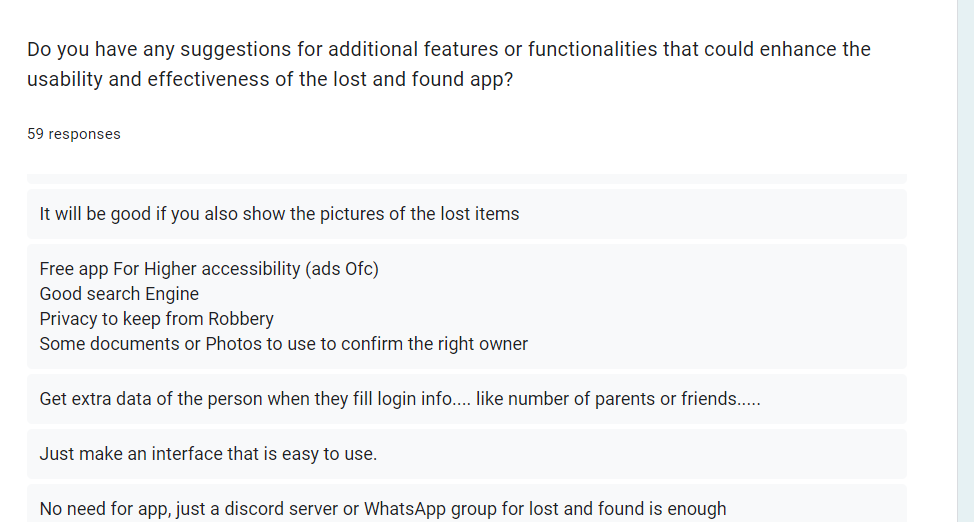












**Requirement Analysis**

All the requirements gathered are stated in simple English statements :

1. The users of the system should include the students who are currently pursuing 11th, 12th or a degree from the college or a faculty of the college. One user from the office would be the admin for the application.
2. User Registration
   1. The users if they are students should be able to register using their control id.
   2. Administrator would not need to register as they will be managed from the admin section
   3. The faculty members would have to register using their email which is unique and contains ‘@vazecollege.net’.
   4. The registration page should provide a way to distinguish between the student registration and faculty registration.
   5. The password should be minimum 8 characters containing at least one digit and one character.
   6. The username of the students would be optional and control id would be used to identify them uniquely, but email would be used as the username for the faculty.
3. User Login
   1. The user will have to enter their credentials like registered email or control id depending whether there are a faculty or a student respectively.
   2. The user should be displayed an appropriate message when the authentication fails.
   3. The user need not login every time they visit the app until they explicitly log out.
   4. The user should also have the option of “forget password”.
4. Posting/Reporting a lost Item
   * + 1. **Functional Requirements**
       2. **Non-functional Requirements**
       3. **System Requirements**