TED UNIVERSITY

CMPE 491 Analysis Report

EcoFriends Application

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1.Introduction

Our gamified app named EcoFriends aims to make the world more livable and better while people are having fun and competing. Thanks to this app, people will be directed into recycling, reducing their carbon footprint and waste. Depending on the activity that they inserted, they will earn some points and coins to customize their avatars. We plan that the competitive feeling humans have will help to make our world greener, and more friendly.

2. Current System

Depending on our research there are a few apps that aim to recycle in the stores. However, some of them have outdated and some of them incomplete and some of them have lack features that encourage people. If there is nothing to encourage people to use the application, people do not use these applications for a long time, they get bored. As we mentioned before, our aim is to do something positive for the world by driving the competitiveness and love of the game in people. That's the main and the most essential difference that distinct our app from others. Making recycling attractive to people can make it stand out from the existing systems. We think that the reward system we have created with the customization the app has will achieve this.

3. Proposed System

3.1 Overview

EcoFriends is a mobile application created to support and encourage sustainable behavior by decreasing carbon footprint through moral recycling methods. With the help of the app, users earn coins for recycling different materials including paper, plastic bottles, and metal cans. Users can manually enter information to add their recycling activity to the app. Users can compete with peers using the app's competitive element, which is based on recycling activity and currency balance. An additional motivation for users to recycle is the ability to modify their avatar with the app's coin balance. This feature makes the app more game-like.

Additionally, EcoFriends was created with user privacy and security in mind, safeguarding private information from online threats. Due to the app's scalability and availability on both IOS and Android operating systems, users can access it from any location at any time using their mobile devices. The app has a simple, easy-to-use design that attempts to attract users and engage them while also promoting sustainability. In conclusion, EcoFriends is a user-friendly, approachable, and entertaining app that motivates users to recycle responsibly while rewarding them for their efforts.

3.2 Functional Requirements

Functional Requirements	Description
User registration and login	Users should be able to register for accounts and log in safely using the app.
Recycling activity logging	Users should be able to enter information manually to contribute their recycling activity to the app. The accuracy of the data entered should also be checked by the app.
Reward system	The app should give users coins and points as a reward for recycling, with the number of coins gained corresponding to the quantity and kind of recyclables.
Coin balance and transaction history	Users should be able to examine their coin balance and transaction history on the app, which should include the date, time, and coins gained or spent.
Competition feature	The app should allow users to compete with their friends based on their recycling activity and coin balance, and the leaderboard should be updated in real-time.
Avatar personalization	The app needs a feature that allows users to switch their avatars using coins and the option to select from a selection of avatars.
Accessibility	The app should be created with accessibility in mind to make it simple for people with impairments to use.

3.3 Nonfunctional Requirements

Nonfunctional Requirements	Description
Performance	With no latency or lag, the program should be responsive and load quickly.
Security	To protect user data and stop illegal access, the app should be created with strong security features.
Reliability	There shouldn't be any major disruptions or downtime, and the app should always be accessible.
Usability	The app should have a simple, modern look that is simple to browse, and it should be user-friendly and intuitive.
Compatibility	The app should work with a variety of hardware and operating systems, including the iOS and Android platforms.
Localization	The application should to support numerous languages and be easily adaptable to various geographic and cultural contexts.
Privacy	The app should be made with user privacy in mind, safeguarding sensitive information against hacker assaults and unauthorized access.
Sustainability	The app's design and operation shouldn't have a harmful effect on the environment, and it should promote sustainability and environmental responsibility.

3.4 Pseudo Requirements

1) Users of a variety of ages and backgrounds should find the app entertaining and interesting.
2) Animations and music effects that make recycling more fun for users should be included in the app.
3) Users should be able to establish recycling objectives and track their progress toward those targets using a feature in the app.
4) The app should offer a function informing users of the advantages of recycling and how their recycling habits affect the environment.
5) The app ought to offer a function enabling users to gain more coins by passing challenges.
6) The app should contain a feature like streaks or loyalty awards that honors users for consistently recycling over an extended period of time.
7) Users should be able to connect with neighborhood recycling programs or volunteer organizations through the app in order to learn more about sustainable practices and support local environmental initiatives.

3.5 System Models

3.5.1 Scenarios

- Scenario 1: User opens app and is prompted to enter username and password that he/she created previously or sign up if the account is not created.
- Scenario 2: User navigates to the home page which he can see his daily, weekly objectives, menu bar and also add recycling activities he completed.
- Scenario 3: User navigates to the add recycling activities part and chooses a material from the list and its' amount. This way user successfully adds a recycling activity and gain both EcoPoints and EcoCoins.
- Scenario 3: User navigates to the menu bar and the user sees home, profile, shop, leaderboard, logout, settings and about tabs.
- Scenario 4: User navigates to the profile tab and sees his total EcoPoints, EcoCoins, his avatar, customization, shop and leaderboard.
- Scenario 5: User navigates to the customization screen and changes his avatars' appearance.
- Scenario 6: User navigates to the shop screen and buys stuff for himself.
- Scenario 7: User navigates to the leaderboard and sees his friends EcoPoints, their rankings according to it. Moreover the ranking of those who use the application worldwide according to the EcoPoints they have.
- Scenario 8: User navigates to the settings tab and changes preferences about the app.
- Scenario 9: User logs off from the app.

3.5.2 Use Case Model

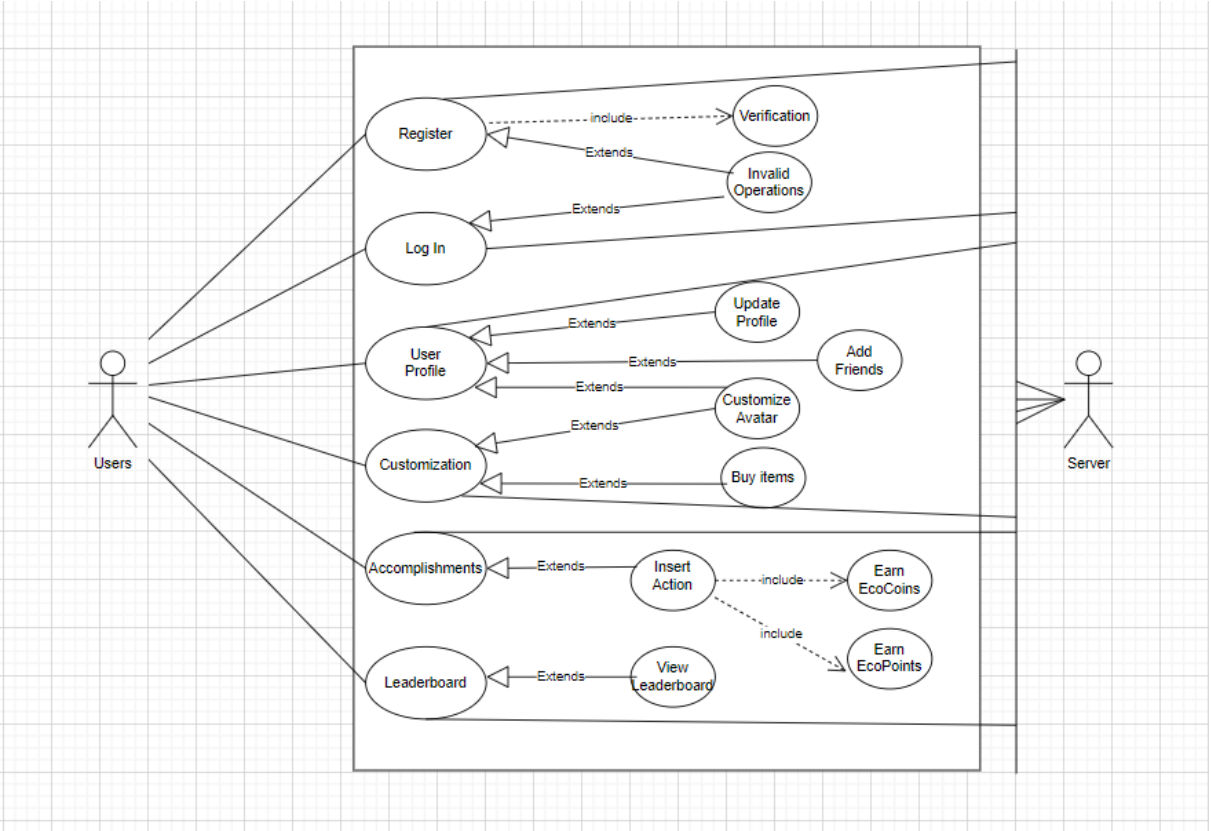


Figure 1:Use Case Model

3.5.3 Object and Class Model

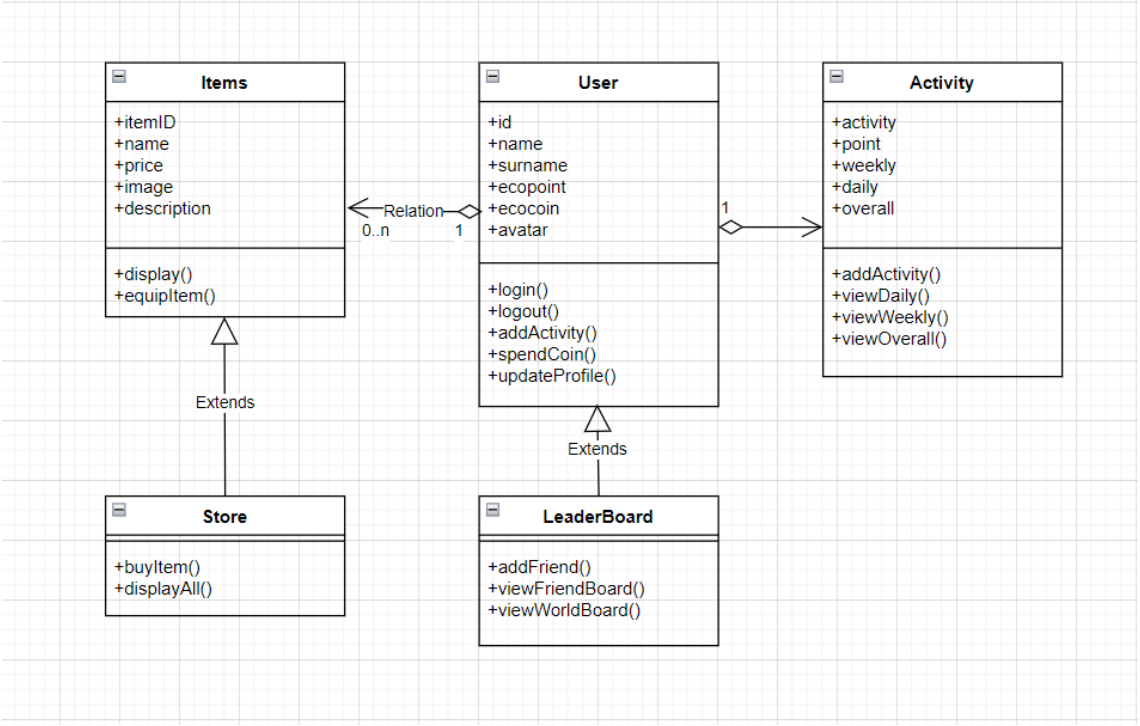
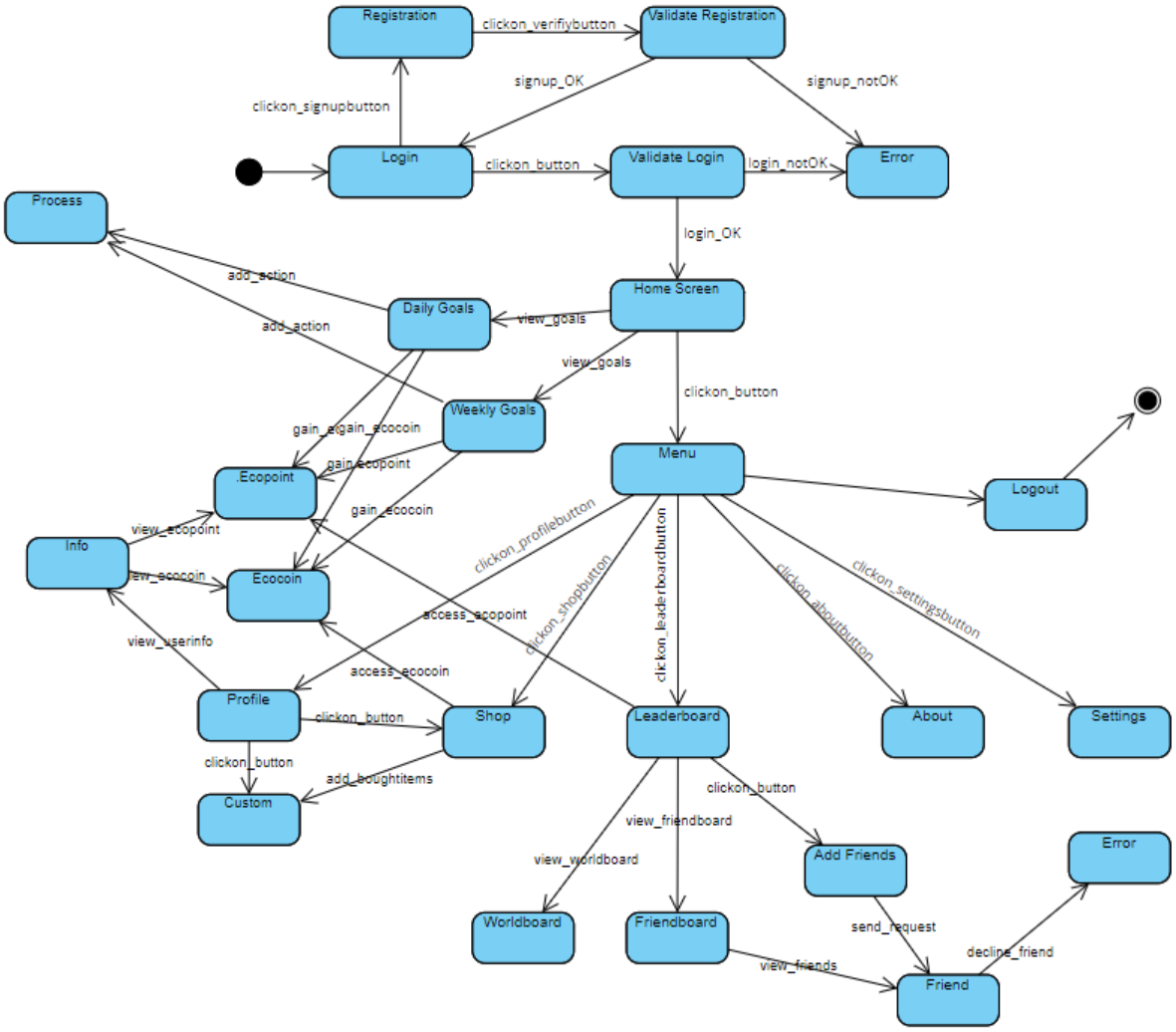


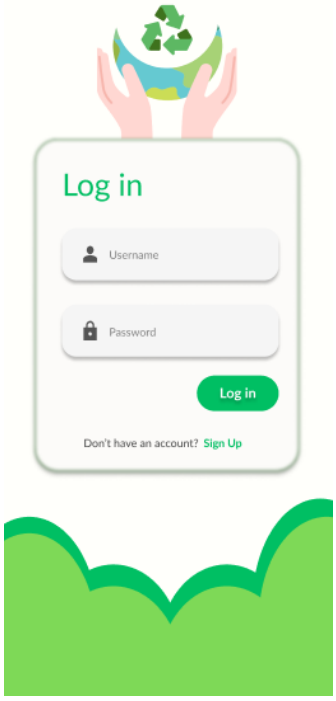
Figure 2:Class Diagram

3.5.4 Dynamic Models



3.5.5 User Interface – navigational paths and screen mock-ups

You can find our first prototype in the figures below.



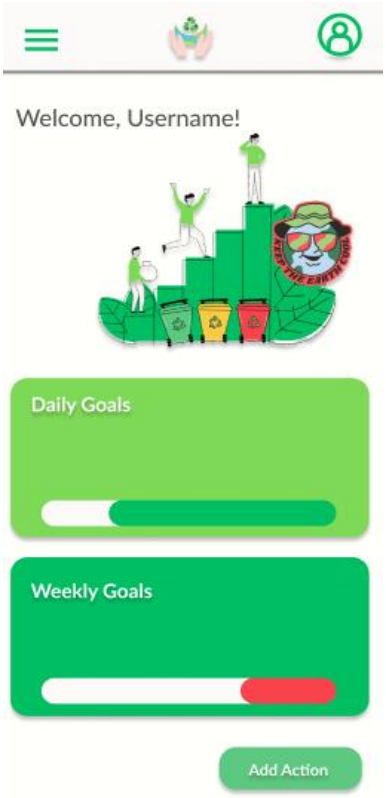


Figure 4:Main Page

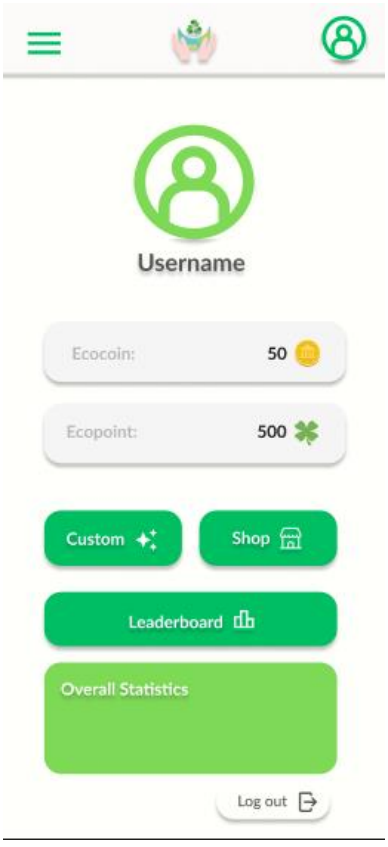


Figure 5:User Profile

Figure 6:Leaderboard Page

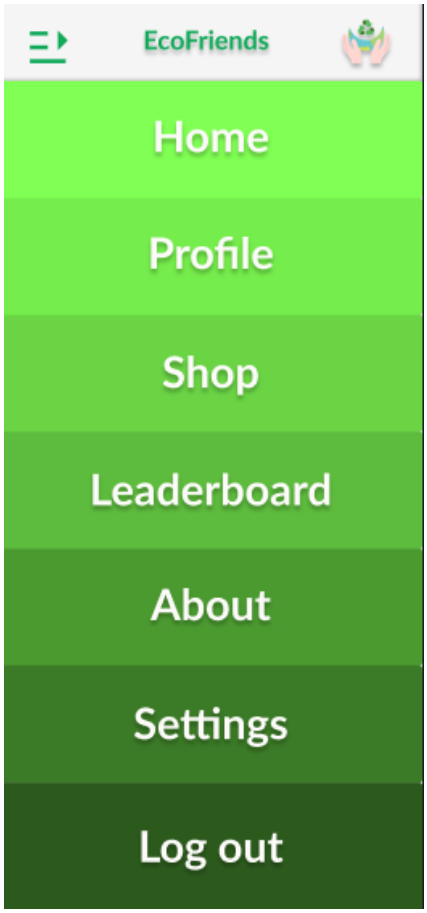


Figure 7:Contents of Hamburger Menu

4. Glossary

There are not much terms that we're using specifically. However, all the users should discriminate these two terms:

EcoPoint is the point where you can earn when you insert an action. After you insert an action you'll earn EcoPoint. With these EcoPoints you can see your overall status and compete with your friends.

EcoCoins is the coin where you can also earn with inserting an action. The difference is you can purchase items for you avatar's customization with EcoCoins.

In short, EcoPoint is for competition and EcoCoins is for purchasing operations.

5. References

- https://powerapps.microsoft.com/en-us/what-makes-a-good-app/
- https://www.makeuseof.com/5-key-qualities-that-every-mobile-app-should-have/