

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING  
THE UNIVERSITY OF TEXAS AT ARLINGTON**

**SYSTEM REQUIREMENTS SPECIFICATION  
CSE 4316: SENIOR DESIGN I  
FALL 2022**



**TEAM CORPS CATCH  
CORPS CATCH**

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## REVISION HISTORY

Revision	Date	Author(s)	Description
0.1	9.28.2022	KL	Document Creation
0.2	10.05.2022	KL, OK, BS	Completed a few sections
0.3	10.17.2022	KL, OK, BS, KB, JL	Draft 1 completed
0.4	12.13.2022	KL	V2 completed

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# 1 PRODUCT CONCEPT

This section describes the purpose, use, and intended user audience for the Corps Catch application.

## 1.1 PURPOSE AND USE

The Corps Catch application would make exploring the outdoor trails in a Corps facility more fun. Its goal, to provide entertainment and education to its users, is achieved by asking increasingly difficult questions based on the current subject of choice during the hiking trail. When enough correct questions are answered correctly, and the player gains sufficient experience points, they are awarded a digital Corps Coin which they can view in their collection. This reward system is based on the actual coins that outstanding personnel receive in the Corps. The aim is to collect as many coins as possible along the hiking trail by answering questions correctly.

## 1.2 INTENDED AUDIENCE

This application is designed for the families and visitors of the Corps Trail facilities. Questions would be roughly grouped by age so that the game is not too easy for older players but is still challenging for younger players.

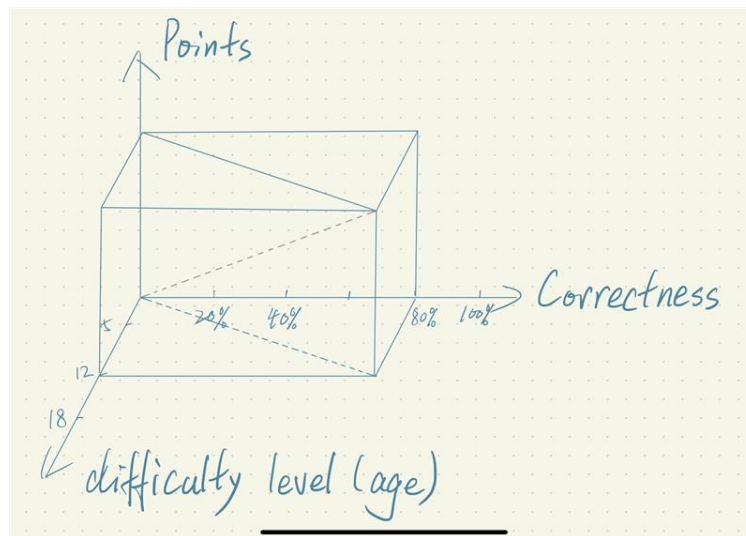


Figure 1: Question difficulty varies with age and experience points



## 2 PRODUCT DESCRIPTION

This section provides the reader with an overview of Corps Catch. The primary operational aspects of the product, from the perspective of end users, maintainers, and administrators, are defined here. The key features and functions found in the product, as well as critical user interactions and user interfaces are described in detail.

### 2.1 FEATURES & FUNCTIONS

As the user walks along the trail the app will keep track of their location as seen in figure 2a, and whenever the user gets within the radius of the question, the question will pop up on the app as seen in figure 2b. As of now, the app will not be able to keep track of the user's location if the user has no access to the internet. This application will also have a sign-up and log-in functionality. Prior to using the main function of the app, the user will provide their name, email, and password to create an account. In each of the four trails, there will be multiple questions, and if the user gets enough questions right on the trail, they are awarded a Corp Coin. We would have a rich bank of questions to prevent the user from getting repeated questions. The user will also be able to view their collected coins through the profile page as seen in figure 2c.

### 2.2 EXTERNAL INPUTS & OUTPUTS

Element	Description	Use
User email	User inputs email	Account creation / login
User name	User inputs name	Account creation / login
User password	User inputs password	Account creation / login
Answer selection	Users selects question they see best fit	Question
Answer Response	App will show a response that indicates if the user got the answer correct or incorrect	Question
Location	The application will use GPS to keep track of the user's current location	User tracking

Table 2: Overview of Inputs and Outputs

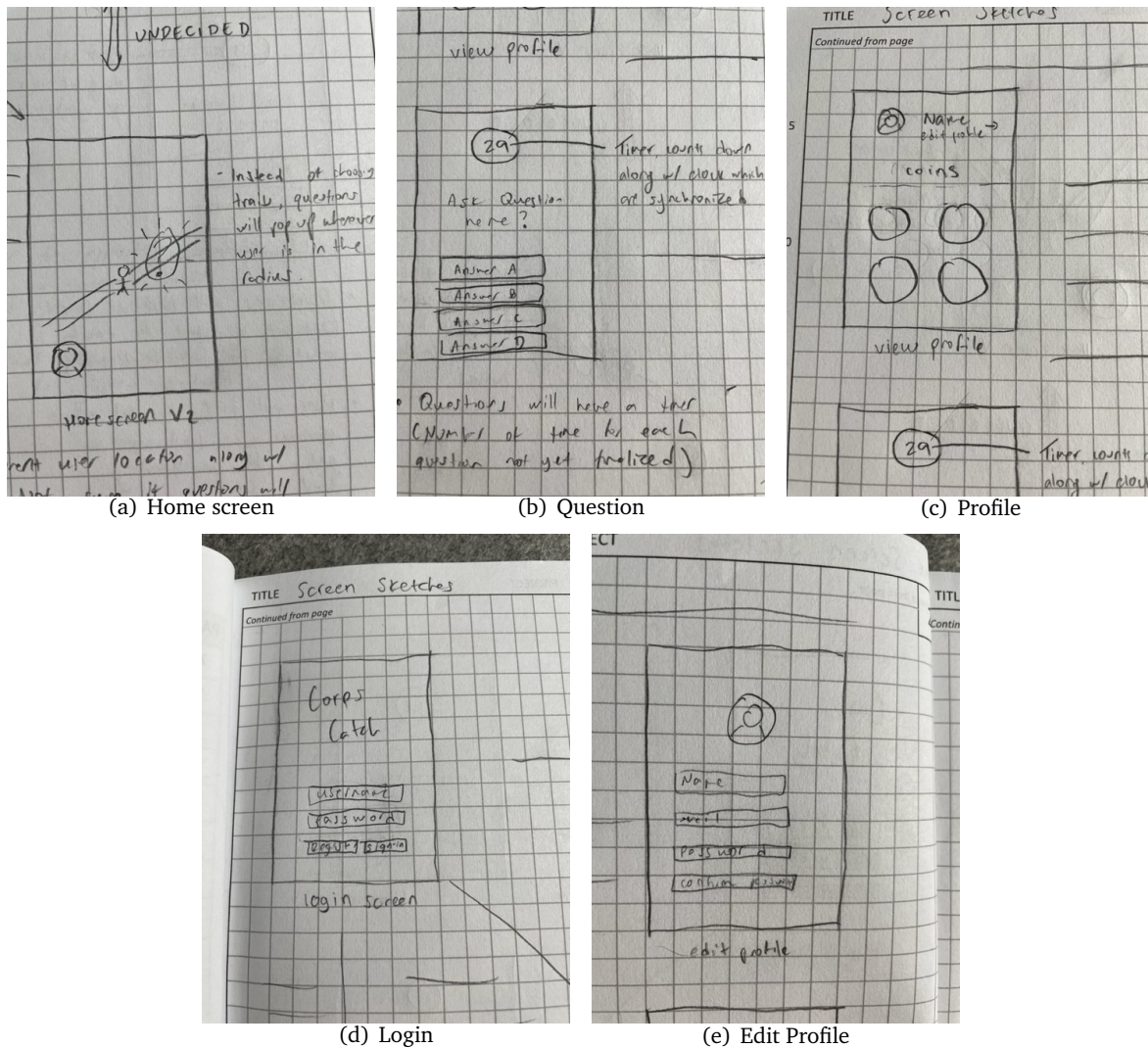


Figure 2: UI Drawings

## 2.3 PRODUCT INTERFACES

The application will start at the login page (Figure 2d) then the user can create a profile which sends you to create account page or the user logs in and is navigated to the home screen (Figure 2a). Users can view their profile by clicking the profile icon at the bottom left of the screen. On the profile page (Figure 2c) the user can view their corp coins, or edit their profile (Figure 2e) by clicking edit profile. During the trail, the questions will pop up as shown in Figure 2a, and when the user clicks the question, the user is navigated to the question screen (Figure 2b). The question screen shows a timer, the question, and the answers. When clicking an answer the answer will turn green or red depending on if the user gets the correct answer or not.

### **3 CUSTOMER REQUIREMENTS**

The product should engage customers to use the app and have a fruitful experience with the application. The app should be pleasing in look aligned with the US-ARMY theme. The product should automatically log in to the existing user in the app when used on the same device. The user should be able to select a trail and the app should also give questions when expected by the user. The progress of the customer should be saved in the database automatically.

#### **3.1 CORP COINS**

##### **3.1.1 DESCRIPTION**

If the user gets every question correct on the trail they will be awarded the corp coin that is unique to that specific trail.

##### **3.1.2 SOURCE**

Sponsor (Nikisha)

##### **3.1.3 CONSTRAINTS**

The user must get every question correct.

##### **3.1.4 STANDARDS**

There should be three corp coins that can be earned each specific to the three trails at the park site.

##### **3.1.5 PRIORITY**

Critical Priority

#### **3.2 QUESTION DIFFICULTY**

##### **3.2.1 DESCRIPTION**

The difficulty of each question will be vary based on the age of the user. This ensures that each user is engaged, and so the application includes all age groups.

##### **3.2.2 SOURCE**

Sponsor (Nikisha)

##### **3.2.3 CONSTRAINTS**

The user will have to be able to read and answer questions.

##### **3.2.4 STANDARDS**

There will be three difficulties based on the age of the user: easy, medium, and hard. Easy would cater towards kids, medium aims towards teens, and hard is for adults.

##### **3.2.5 PRIORITY**

Critical Priority

#### **3.3 TRACK USER LOCATION**

##### **3.3.1 DESCRIPTION**

Application will track user location to ensure question pops up at the current location.

##### **3.3.2 SOURCE**

Sponsor (Nikisha)

### **3.3.3 CONSTRAINTS**

The user will have to have stable internet connection.

### **3.3.4 STANDARDS**

Application will track user location using the user's latitude and longitude from their phone.

### **3.3.5 PRIORITY**

Critical Priority

## **3.4 DATA STORAGE**

### **3.4.1 DESCRIPTION**

The data including trail questions, and user information will be stored inside a database.

### **3.4.2 SOURCE**

Sponsor (Nikisha)

### **3.4.3 CONSTRAINTS**

The user enters correct information.

### **3.4.4 STANDARDS**

Database will store user's username, password, corp coins earned, trail question, trail question difficulty, which trail the question belongs to, and the answer to the trail question.

### **3.4.5 PRIORITY**

Critical Priority

## **3.5 FRIENDS**

### **3.5.1 DESCRIPTION**

Feature which allows users within the application to add each other as friends. This feature allows friends to view each others corp coins.

### **3.5.2 SOURCE**

Team member (Kevin)

### **3.5.3 CONSTRAINTS**

User will have to have created an account, as well as the person they want to add. They will also have to have two separate accounts.

### **3.5.4 STANDARDS**

Users should be able to add each other by clicking an add friend button and inputting a valid email.

### **3.5.5 PRIORITY**

Future priority

## **3.6 CUSTOM TRAIL**

### **3.6.1 DESCRIPTION**

Feature which allows each park that is part of the army to customize their own trails and curate their own questions. This feature will only be available for verified park rangers or military personnel.

### **3.6.2 SOURCE**

Team member (Kevin)

### **3.6.3 CONSTRAINTS**

User will have to verify that they are a part of the military, which is another future requirement.

### **3.6.4 STANDARDS**

User will decide where each question in each trail will be, and the difficulty of the question.

### **3.6.5 PRIORITY**

Future priority

## **4 PACKAGING REQUIREMENTS**

The product will be delivered over the web, the package will be available in google play or the app store. The product will run on any version of android and devices with IOS 14. No, external or additional files need to be installed alongside the main application on customers' devices.

### **4.1 WEB DELIVERY**

#### **4.1.1 DESCRIPTION**

The product shall be delivered over the web. The customer, US-ARMY, will oversee adding the final product launching for android and IOS devices. The application should be available on the App Store and Google Play Store.

#### **4.1.2 SOURCE**

Team (everyone) and sponsor (Nikisha)

#### **4.1.3 CONSTRAINTS**

All android versions should be no later than android 12 (Snow cone) and all IOS devices should be no later than IOS 14.

#### **4.1.4 STANDARDS**

The product will be free to download across all platforms and instructions on the fame will be laid out on the download site.

#### **4.1.5 PRIORITY**

Critical Priority.

## **5 PERFORMANCE REQUIREMENTS**

The product should be able to store data in the database and seamlessly pop questions when the destination is reached and award rewards according to the answers. Also, the GPS location should be accurate and should respond to the movement of the phone within 0.1s of the response time.

### **5.1 RESPONSE TIME**

#### **5.1.1 DESCRIPTION**

The product shall have a quick response time and should refresh periodically and have a response time of 0.1s.

#### **5.1.2 SOURCE**

Team (Bijan)

#### **5.1.3 CONSTRAINTS**

The product should have a good internet connection and should have a good amount of RAM to run smoothly. Moreover, the user should have their device software updated with the required version.

#### **5.1.4 STANDARDS**

The product will take 0.1s to respond to any action within the application. The further app refresh rate of 0.1s should also be applied to the GPS location refresh rate of the player as they move through the trail.

#### **5.1.5 PRIORITY**

High Priority. The priority level is determined with the regular refresh for the GPS maps and the exact location of the customer.

### **5.2 GPS LOCATION**

#### **5.2.1 DESCRIPTION**

The product should be able to track the movements of the person from GPS and also the location of the trail that should be taken.

#### **5.2.2 SOURCE**

Team (everyone)

#### **5.2.3 CONSTRAINS**

The user should enable the GPS location tracking feature of the app from settings.

For Android- settings-> apps-> Corps Catch -> Enable location.

For IOS- settings-> scroll down -> Corps Catch -> Enable location.

#### **5.2.4 STANDARDS**

The GPS location of the device should be aligned with the trail and map location on the device.

#### **5.2.5 PRIORITY**

Critical Priority.

The priority of the GPS is critical for its most use in the game and use of its to move along the trails.

## 6 SAFETY REQUIREMENTS

Corps Catch is subject to many of the same dangers as any other outdoor activity including hiking, biking, or playing sports in a park. Users should remain aware of their environment and possible hazards, including other pedestrians, traffic and obstacles. As with any mobile app, Corps Catch should not be operated while driving a vehicle. This will be reinforced by warnings and behaviors within the app. Parents should direct and monitor their children's use of the product, including how to use a mobile phone app safely. To help remind players of the risks and to encourage everyone to play safely, the Corps Catch app will caution users about safety and awareness each time it is launched.

### 6.1 WEATHER

#### 6.1.1 DESCRIPTION

Users in the outdoors need to keep an eye out for poor weather conditions such as thunderstorms, torrential rain, lightning forks and flooding.

#### 6.1.2 SOURCE

National Weather Service

#### 6.1.3 CONSTRAINTS

N/A

#### 6.1.4 STANDARDS

National Weather Service Safety tips

#### 6.1.5 PRIORITY

Critical

### 6.2 TRAFFIC

#### 6.2.1 DESCRIPTION

Corps Catch users must keep their wits about them by keeping a watch out for traffic, which includes not just automobiles but also bikes and other pedestrians. They should make sure to raise their head from the display as often as possible while walking around with their nose stuck into the GPS to find the locations of the trivia facts and questions.

#### 6.2.2 SOURCE

Team

#### 6.2.3 CONSTRAINTS

N/A

#### 6.2.4 STANDARDS

N/A

#### 6.2.5 PRIORITY

Moderate



## **6.3 PARENTAL CONSENT NECESSARY FOR CHILDREN**

### **6.3.1 DESCRIPTION**

Corps Catch will be available for adult and child players. Some players may need to get parental consent by creating an account before playing the game. Furthermore, we recommend parents to keep an eye on their children at all times to avoid losing them or exposing them to potential risks in a state park.

### **6.3.2 SOURCE**

Team

### **6.3.3 CONSTRAINTS**

Guests must be over 18 or have a guardian present during the trial.

### **6.3.4 STANDARDS**

USACE Trail and Park Guidelines.

### **6.3.5 PRIORITY**

Critical

## **7 SECURITY REQUIREMENTS**

To ensure that user data is kept secure, and to prevent cheating we are utilizing a database in which the user will have no access to as it holds the data of all user and trail questions and answers.

### **7.1 DATABASE SECURITY**

#### **7.1.1 DESCRIPTION**

Application will make sure database is not accessible / visible to user to ensure that user information is not leaked.

#### **7.1.2 SOURCE**

Team (Kevin)

#### **7.1.3 CONSTRAINTS**

Database will have to be created and code will have to ensure that database information is never leaked. Only developers will have access to database.

#### **7.1.4 STANDARDS**

User will only be able to see their information on their profile page.

#### **7.1.5 PRIORITY**

Medium Priority

## **8 MAINTENANCE & SUPPORT REQUIREMENTS**

We support a manual that includes some basic operations for users. In the application, there is a demo for new users and our team's contact information.

### **8.1 DEMO AND MANUAL**

#### **8.1.1 DESCRIPTION**

Users can read the manual and see a demo when they are not familiar with the application. We are welcome to be contacted with any questions and bugs found.

#### **8.1.2 SOURCE**

Teams Corp Catch.

#### **8.1.3 CONSTRAINTS**

Making the product easy for users of any age. All functions work as expected.

#### **8.1.4 STANDARDS**

Demo will be in video form, and manual will be a written document.

#### **8.1.5 PRIORITY**

High

## **9 OTHER REQUIREMENTS**

The system shall remind the user to take a trail once a week and remind them of the new trails to explore. In addition, trials that are not taken before also will be notified.

### **9.1 REMINDER**

#### **9.1.1 DESCRIPTION**

The system shall be able to remind players once a week to take a trail in the location that they have not trailed before.

#### **9.1.2 SOURCE**

Team (Bijan)

#### **9.1.3 CONSTRAINTS**

The user has to enable notifications for the app within the setting menu.

For Android- Settings -> apps -> Corps Catch -> Enable notification

For IOS - Settings -> Scroll to the location of app -> Corp Catch -> Enable notification

#### **9.1.4 STANDARDS**

The notification shall be once a week and also notification of the achievements for that trial.

#### **9.1.5 PRIORITY**

Low priority.

Because of its engaging nature with the customer, it is labeled high priority.

## **10 FUTURE ITEMS**

This section contains all performance requirements as well as features that may be released in the future.

### **10.1 FRIENDS**

#### **10.1.1 DESCRIPTION**

Feature which allows users within the application to add each other as friends. This feature allows friends to view each others corp coins.

#### **10.1.2 SOURCE**

Team member (Kevin)

#### **10.1.3 CONSTRAINTS**

User will have to have created an account, as well as the person they want to add. They will also have to have two separate accounts.

#### **10.1.4 STANDARDS**

Users should be able to add each other by clicking an add friend button and inputting a valid email.

#### **10.1.5 PRIORITY**

Future priority

### **10.2 CUSTOM TRAIL**

#### **10.2.1 DESCRIPTION**

Feature which allows each park that is part of the army to customize their own trails and curate their own questions. This feature will only be available for verified park rangers or military personnel.

#### **10.2.2 SOURCE**

Team member (Kevin)

#### **10.2.3 CONSTRAINTS**

User will have to verify that they are a part of the military, which is another future requirement.

#### **10.2.4 STANDARDS**

User will decide where each question in each trail will be, and the difficulty of the question.

#### **10.2.5 PRIORITY**

Future priority

## REFERENCES