CEN 4010 Principles of Software Engineering, Fall 2021

Milestone 1 Project Proposal and High-level description

Group Number 5

Habits and Habitats

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# Executive Summary

Gamification of life is an area of business that there is a lot of interest in but is not something many have mastered despite their best attempts. One area that lacks a good, gamified product for teens to young adults is a tool to help manage and encourage self-improvement and health. Recent events aside, mental health and self-improvement has been something many struggles with, which Covid-19 only worsened driving the need for such a tool. Enter, Habitmon.

Habitmon allows a user to gamify their self-improvement journey by themselves and with others. The user upon signing up can pick preset goals, tasks and habits or make their own which earns them their first critter. Upon being introduced to their latest companion the user then may choose a few of the development team run groups or user based one based off their interests. Here they can share or view other’s progress, send their critter into competitions and challenge other users. From here that can help their critter grow by completing tasks and habits or gain gacha spins by completing goals and milestones, which can then be used to get a randomly selected critter.

Users can compete against each other via Lodge and Club made competitions or by challenging each other. This is done by submitting a Beastie and seeing who makes the most progress, improves the most and who can meet goal posts first. They may also compete in monthly tournaments like a normal game to earn rare items but are limited in how many times a day they can play.

Besides using their Beasties with others, the user may also customize their Beasties habitats through what their Beasties find or what the user wins. Beasties can find crafting materials by being sent foraging, but their success will be determined by their skills and experience which can only be earned via the user completing their tasks. Users can assign tasks and habits to a certain Beastie, increasing that individual Beastie’s gains in their overall level and individual skills depending on the category of the task or habit completed.

Ultimately Habits and Habitats is a game where your characters improve with you.

# Competitive Analysis

|  |  |  |  |
| --- | --- | --- | --- |
|  | Habitica | Habit Hunter | Habitmon |
| Chat/Guild/Party system implemented | x | x | x |
| Add, edit and complete tasks | x | x | x |
| Use preset tasks | x |  | x |
| Character Customization | x | x |  |
| Gem System | x | x |  |
| Separate Battle System |  | x | x |
| Public groups |  |  | x |
| Completing tasks, habits and goals gives in game currency | x | x |  |
| Completing tasks, habits and goals gives in game items | x |  | x |
| Intuitive User Interface |  |  | X |

While on the surface Habitmon may be lacking some features compared to competitors, but those removals serve a purpose and those added more than make up for any loss. Most competitors are not user friendly for those unfamiliar with them, as they lack a balance between self-help apps and mobile games creating an interface that is an imperfect confusing  algamagination. Some even allow the user to pay coins and gems, which are used to earn in-game content, like pay-to-play games which defeat the purpose of tasks and goals. The mechanics also suffer from this, with either the gameplay being completely separate and feeling as if two programs were shoved together or so focused on the self-improvement it is not actually enjoyable.

Habitmon hopes to fix this by having the growth and collection of the creature tied to one’s own growth, while keeping their use to mainly fun activities. To be better at the game, one must better themselves at the same time, without using real money. Which at the end allows the user to enjoy the fruits of their labor.

Another issue Habitmon hopes to address is the lack of social interaction if one does not have friends and family to join them. While it is common for a mobile app to have server wide chat, actually talking to anyone on one is near impossible. Habitmon, by having its individual groups and user made subgroups, breaks down these chats and give the user a social media like experience where they can talk and share with others about their improvement.

Habitmon also hopes to address social problems in the world through one of the developers run group which will be structured around events and problems in the world. This group will run special events with custom rewards to encourage people to stay active in the world at large.

# Data Definition

**Game Title:**

* Betterment Beasties
* Motivational Monsters
* Task Monsters
* Taskmasters
* Habits and Habitats

**Creature Names:**

* Beasties
* Critters
* Monsters
* Deviants

**User:**

* Does not have a character, can pick image avatar
* Can pick from custom and premade tasks, habits, and goals
* Is given 1 creature after do so
* Can choose which dev run groups to join which have several weekly challenges
* Can assign tasks and habits to a certain creature, if not assigned benefit is assigned among all who can use it
* Can use creatures in battles

**Goals:**

* Long term projects broken down into milestones
* Completion gifts a random critter
* Can be used as a challenge to other users, where you can complete and compare progress together

**Habits:**

* Nondaily, recurring events users wish to incorporate into their life more
* Single entity, no milestones
* Gifts…….benefits to monsters? In game currency?

**Tasks**

* Daily events users need to do each day
* Gifts xp to one or all monsters
* Not completing can cause health use
* Can be put into categories to increase certain creature traits

**Challenges**

* Need to enter 1 creature to join
* User or group run
* Users compare tasks, habits and milestones completed within a week
* Will gift prizes based on progress

**Creatures**

* Have different rarities
* Can only level up and strengthen by completing benefits(?) and tasks
* Can be used to join challenges or battles
* Have habitats
* Have several traits that can be improved with xp

**Habitats**

* Homes of creatures
* Can be decorated and upgraded by user
* Upgrades and decorations come from battles and crafting

**Battles**

* General turn-based battles
* Limited times to battle per day
* Gifts upgrades and decorations

**Crafting**

* Habitat decorations and upgrades can be made here
* Certain number of materials are needed for crafting
* Materials earned by forging

**Forging**

* Creatures can be sent out to gather wood, ores and other materials
* This uses idle game mechanics
* Various traits creatures have and can increase with increase the amount found

**User:** individual who uses product

**Dev Team:** The developers who work front end and back end of product

**Team Member:** A single person of the team

**Game:** The product from users’ view

**Goal**: Long term desire with steps and an endpoint **ex.** Saving up for a game, completing a craft, doing a marathon

**Milestones:** Step to reach end of goal

**Task**: Daily event that is to better the individual, should be basic and simple, **ex.** Brush teeth, Do Homework, Cleaning

**Habit**: A non-daily event that user is trying to incorporate into their routine ex. Spend 30 minutes on hobby,

**Beasties:** The characters the user can earn, level up and battle with

**Gacha**: Random draw that gifts user with critter or other game items

**Lodges:** A Dev team run club that gives out tasks to users who are members

**Club**: A user made club that falls under one of the main groups, is user run

**Battle**: Two or more users challenge each other via a turn-based system

**Challenge:** Event where users play against each other within their group

**Forging:** Tasks Beasties can be sent on to find materials

**Crafting:** Creating in game items with materials

**Habitats:** Customizable homes for Beasties

**XP:** Experience Points, determines strength and skills of Beasties

**HP:** Health of Beasties.

# Overview, Scenarios and Use Cases

This project will be a game where people can play and enjoy and benefit from regardless of their skill level. The whole point of this game is to help them be productive in their daily lives and feel good about themselves and be mentally well. The game is meant for them to track progress of their daily tasks in which their ‘beasties’ will increase in experience, and they will be rewarded in game. It helps users not have to deal with the anxiety of being looked down upon from other people after not being able to be productive.

It's very useful for someone who is stuck at home with their job/school being remote and then not having too much face-to-face interaction with other people, so having something to keep them motivated and self-assured will in return keep them feeling good about themselves and productive. It also allows for friendly competition between users but in their own path and ways. They won’t have to do the same thing someone else is doing, but rather they’re competing against their own selves with how much they can get done while thinking they are competing against their fellow game players.

At the same time, it's a very fun and enjoyable way of interacting with other people virtually. While texting is the most straightforward method of virtual communication, Habits and Habitats is more of an enjoyable and motivational way to interact with others. For someone who might see one of their friends in person only 2-4 times a month due to their remote living style, it won’t be as awkward for them to ask and know what their friend has been up to lately and how they’ve been feeling lately.

This game is especially for those high school students who are dealing with not knowing who they are, or those people who are struggling with depression and not being able to feel any sense of satisfaction from life or purpose from going down their own road. For example, someone who has depression might find comfort with a pet, and for those who don’t have a pet they might find their comfort with a virtual one. For them completing tasks and leveling up their beasties and unlocking better materials by completing tasks in the real world not only helps them feel like they have done something today and were productive, but it also helps them feel as if they have a being there for them. This game isn’t an escape from reality like other video games, it's a route to better reality for them.

# Initial list of high-level functional requirements

The following is a list of functional requirements that we plan the implement for our project. This is the initial list and additional functional requirements will be provided later.

**User Story:** As a new user would like to create an account

**Functional requirements:**

1. The system/application must allow the user to create an account with a username and password
2. The system/application must allow the user to create an account with Google or Facebook accounts
3. The system/application must display message if username is already in use

**User Story:** As an existing user, I would like to be able to log into my account

**Functional requirements:**

1. The system/application must allow user to log into account by entering their email and password
2. The system/application must allow user to log into account with Google or Facebook accounts
3. The system/application must allow user to change/ reset password

**User Story:** As a user, I would like to create an avatar

**Functional Requirement:**

1. The system/application must allow user to select a gender
2. The system/application must allow user to select a body
3. The system/application must allow user to select hair
4. The system/application must allow user to select clothing

**User Story:** As a user, I would like to read messages for general updates, world events, game events and donations

**Function Requirement:**

1. The system/application must allow the user to read messages (updates, world events, game events and donation)

**User Story:** As a user, I would like to receive a reward for completing goal(s)

**Function Requirement:**

1. The system/application must provide the user with a reward

**User Story:** As a user, I would like to choose my main group

**Function Requirement:**

1. The system/application must provide a mechanism to choose the main group

**User Story:** As a user I would like to make purchases, payments and/or donations

**Function Requirement:**

1. The system/application must provide a mechanism to make purchases, payments or donations
2. The system/application must provide secure means to make purchase

# List of non-function requirements

The following is a list of non-functional requirements that we plan the implement for our project. This is the initial list and additional non-functional requirements will be provided later.

**Non-function requirement:**

The system/application shall provide a user login page

**Non-function requirement:**

The system/application shall provide the user the ability to enter a username and password

**Non-function requirement:**

The system/application shall provide the user the ability to login with a Google or Facebook account

**Non-function requirement:**

The system/application shall provide the user the ability to create a new account with a username and password

**Non-function requirement:**

The system/application shall provide the user the ability to create a new account with an existing Google or Facebook account

**Non-function requirement:**

The system/application shall identify user at login

**Non-function requirement:**

The system/application shall create a unique ID for new users

**Non-function requirement:**

The system/application shall user the ability to create an avatar

**Non-function requirement:**

The system/application shall allow the user to pick gender, body, hair, clothing for avatar

**Non-function requirement:**

The system/application shall provide the user a reward method

**Non-function requirement:**

The system/application shall provide the user a secure method of making payments

**Non-function requirement:**

The system/application shall be responsive

# High-level system architecture

The following is the list of the high-level system architecture

Programming Language:

* C++
* Java Script
* Java

Database:

* MySQL

APIs:

* **Vulkan** – which is a graphics and compute API the provides high-efficiency cross-platform access to modern GPUs used in variety of devices
* **OpenGL|ES** – royalty-free cross-platform API for rendering 2D and 3D graphics which include consoles and phones
* **OpenCL** – royalty-free standard for cross-platform, parallel programming

# Team

## Initial roles:

**Product owner** **& Team lead** - Chelsea Morgan

**Scrum master** **& Back End Developer** - Evgeniia Maksimova

**Back End Leader & GitHub master -** Sesel Brown

**Front End Leader** - Omar Azad

**Front & Back End developer** - Saad Bhullar

# Checklist

a)   Team decided on basic means of communications - DONE

b)   Team found a time slot to meet outside of the class - ON TRACK

c)   Front and back-end team leads chosen - DONE

d)   GitHub master chosen - DONE

e)   Team ready and able to use the chosen back and front-end frameworks - ON TRACK

f)    Skills of each team member defined and known to all - DONE

g)   Team   lead   ensured   that   all   team   members   read   the   final   M1   and

agree/understand it before submission - ON TRACK

# Resources

* https://yukaichou.com/
* <https://yukaichou.com/gamification-examples/#.WvItuFSpnyU>
* https://riseapps.co/gamification-in-learning-apps/