

Tien Le
System Proposal Part 1 + 2
CSC 3150: Systems Design
Professor Andy Cameron
May 21, 2024



FOCUS CRITTERS APP

Table Of Contents

Executive Summary	3
1.0 Introduction and Overview	3
Problem Statement	3
Project Vision and Scope	4
Requirements Summary	4
Stakeholders and Their Interests	4
Expected Costs and Benefits	5
Constraints	6
Recommendation	6
Document Overview	7
Project Initiation Request (PIR)	8
3.0 Feasibility Assessment	14
Introduction	14
Feasibility Analysis	14
Conclusion	16
4.0 Requirements Definition	16
Introduction	16
Functional Requirements	16
Data Requirements	18
Non-functional Requirements	18
5.0 Requirements Model	18
Introduction	18
Use-Case Diagram	20
Use-Case Descriptions	21
6.0 System Evolution	38
7.0 Conclusions and Recommendations	38
Appendices	40
Glossary	41
Bibliography	42

Executive Summary

Tien Le and her team designed the Focus Critters mobile application, a groundbreaking tool to transform study habits through gamification and collaboration. As a team of aspiring developers and innovators, we are excited to embark on this journey to create a dynamic and engaging platform for users seeking to enhance their productivity and focus during study sessions.

The Focus Critters app will offer a range of innovative features, including customizable virtual pets, focus timers, shared study rooms, and music playlists. These functionalities are strategically designed to promote user engagement, improve study habits, and foster a sense of community among learners. A strong emphasis on user feedback, continuous improvement, and adherence to industry best practices guides our project.

We will conduct comprehensive testing throughout development, gather user feedback, and iterate on the app's features to ensure a seamless and enjoyable user experience. Additionally, we will prioritize data security, privacy, and accessibility to create a safe and inclusive environment for all users.

As a senior project team, we are committed to delivering a high-quality and impactful solution that addresses the evolving needs of modern learners. We believe that the Focus Critters app has the potential to make a significant contribution to the educational technology landscape and empower users to achieve their academic and professional goals effectively.

1.0 Introduction and Overview

This document provides an overview of Focus Critters, a mobile application designed to gamify the study process and enhance productivity for students and professionals. The app offers a unique and engaging way to stay focused by integrating virtual pets that thrive alongside users' study sessions. Focus Critters include various gamification elements, collaborative learning features, and personalized recommendations to motivate users and reinforce positive working habits. Available on both iOS and Android platforms, the app ensures a comprehensive and accessible experience for users. Supported by a dedicated team of developers and customer service representatives, Focus Critters aims to transform studying into a fun, interactive, and effective activity.

Problem Statement

The prevalence of digital distractions, such as smartphones and social media, makes it challenging to stay focused while studying or working, especially for younger people. According to a 2017 AARP study, smartphones nearby can lead to worse task performance even when not actively used. This presents an opportunity for a product to help people stay focused. Instead of fighting against technology, this app will use these aspects to create a more engaging and practical study experience. A 2016 Frontiers in Human Neuroscience study suggests visual cues signaling progress can increase motivation and engagement. By integrating a system that rewards progress, we can leverage the brain's reward system to motivate users and help them stay focused on their tasks. A visual progression within the app will provide a sense of accomplishment and trigger dopamine release, reinforcing positive study habits.

If traditional study apps can feel isolating and monotonous, music and friend collaboration can address this by allowing users to focus and regulate their mood with their preferred tunes. By integrating

music and collaboration features, users can feel more motivated. Combined with the existing gamification elements, these features can create a more well-rounded work experience, leading to better outcomes.

Project Vision and Scope

In response to this vision, we will build a mobile application (iOS and Android) called "Focus Critters" that gamifies the study process. Focus Critters will include a virtual pet that thrives alongside focused study sessions. Users can collaborate with friends and share music playlists to create a more engaging and social learning environment. The app will track progress, offer personalized recommendations, and use gamification elements to motivate users and reinforce positive working habits.

Requirements Summary

A summary of key requirements for the Focus Critters app project is shown below.

- Core functionality:
 - The app must provide a timer functionality to set study session durations.
 - It needs to implement a virtual pet that visually grows and evolves based on focused study time.
 - Users should be able to choose their pet and join/host a room with their friends.
 - The app should have a curated music library that users can play for everyone in the study sessions.
 - Basic analytics of users' focus time should be provided.
- User experience:
 - The app should offer a user-friendly and engaging interface with gamification that motivates users to focus on their studies.
- Technical requirements:
 - The app will be developed for iOS and Android platforms to ensure broad accessibility.
 - The system should function independently without requiring additional hardware or software.
- Brand building:
 - The app should foster a strong brand presence in the educational and productivity app market.
 - A clear, engaging brand identity targeting students and young adults is crucial.

Stakeholders and Their Interests

Below are the primary stakeholders involved in the Focus Critters mobile application project and details of their specific interests and expectations regarding the development and success of the application:

- Students (Target Users): Wants an engaging and effective tool to improve focus, productivity, and academic performance. Features that make studying more enjoyable and social are desirable (e.g., a virtual pet, or collaborative features like shared music playlists).
- Working Professionals: Interested in a tool to enhance productivity, time management skills, and focus during work sessions.
- Investors and Business Partners: Interested in a commercially successful app with a solid and diverse user base with the potential for revenue generation through subscriptions, in-app purchases, and strategic partnerships.

- Development Team and Designers: Interested in developing a successful app that can generate revenue for the company.
- App Stores (Apple App Store, Google Play Store): Interested in approving and distributing high-quality apps that meet their guidelines and provide a positive user experience.
- Music Streaming Partner (e.g., Spotify, Apple Music): Interested in expanding their user base by integrating their service into a popular productivity app. Potential for revenue sharing or co-branding opportunities. They might also be interested in user data insights for their music recommendation algorithms.

Expected Costs and Benefits

This section outlines the expected intangible benefits and associated costs of developing and maintaining the Focus Critters mobile application:

- Expected Benefits (Intangible):
 - Improved User Engagement and Retention: The app can keep users engaged by incorporating game-like features and social interaction, ultimately building a loyal community with higher long-term value.
 - Enhanced Brand Recognition: A well-defined brand and smart marketing will position Focus Critters as a go-to app in the educational and productivity, attracting partnerships and solidifying its competitive edge.
 - Increased User Base and Market Share: A user-friendly app for a wide range of people fosters a large and diverse user base, unlocking new revenue opportunities through advertising, subscriptions, or in-app purchases.
 - Improved Learning Outcomes (Indirect): By promoting focused study habits and personalized learning techniques, Focus Critters can indirectly contribute to improved user learning outcomes.
 - Potential for Future Partnerships: Focus Critter's success can attract partnerships with educational institutions, productivity tools, or music streaming services, expanding its functionality and reach. The app will help diversify the revenue streams and enhance the company's value proposition.
- Expected Cost:
 - Onetime Costs:
 - App Development: This includes costs for programmers, designers, quality assurance testers, and project management.
 - Marketing and User Acquisition: Initial marketing campaigns, influenced outreach, and potential app store optimization costs.
 - Music Streaming Integration (if applicable): Licensing fees or development costs associated with integrating the music streaming service.
 - Ongoing Costs:
 - Server Maintenance and infrastructure: Costs associated with maintaining the servers hosting the app and storing user data.
 - Customer Support: Providing ongoing customer support through various channels (e.g., email, chat) will incur personnel or service costs.
 - Marketing and User Retention: Ongoing marketing efforts to keep existing users and attract new ones.

- **Security Updates and Maintenance:** Regular updates to address security vulnerabilities and ensure app stability.

Constraints

Below are highlights of the potential risks and challenges associated with the development and launch of the Focus Critters mobile application:

- **Development Resources and Time:** Limited resources and time may restrict the complexity of features and overall polish of the first release. We will prioritize core functionalities, including a focus timer, virtual pets, and basic social features. A phased development approach will allow future iterations to introduce more advanced features based on user feedback and market demands.
- **User Acquisition and Engagement:** Building a user base and keeping users engaged in a competitive app market can be challenging. We will focus on a solid brand identity that resonates with students and young adults.
- **Balancing Gamification and User Experience:** Overly complex or intrusive gamification mechanics can detract from the core focus and learning experience. We will conduct user research to understand user preferences and design gamification elements that are motivating and complement the study process. The focus will be on clear visuals and positive reinforcement through the virtual pet system.
- **Device Compatibility:** The compatibility of different devices may require more research and testing. We will focus on iOS and Android development and implement extensive testing if needed.
- **Privacy and Security:** If the app collects user data, we will ensure it is done securely and under relevant privacy regulations.
- **Music Streaming Integration (if applicable):** Integrating a music streaming service requires attention to user authentication, data security, and potential limitations of the chosen partner's API. We will carefully plan around user authentication protocols and robust security measures, and conduct thorough API compatibility testing to ensure a smooth integration.

Recommendation

Upon reviewing this document, we advise you to undertake specific steps to move forward with the Focus Critters mobile application project. First, it is crucial to evaluate the overall feasibility of the project. This includes assessing the technical requirements, resource allocation, and potential benefits to ensure the project aligns with your company's current capabilities and strategic goals. This evaluation allows the team to identify potential challenges and effectively develop strategies to address them.

Second, starting collaborative discussions with the project team and stakeholders is essential. These discussions should focus on clarifying questions, addressing concerns, and ensuring a mutual understanding of the project's objectives and expected outcomes. Scheduling meetings or workshops can facilitate productive engagements, promoting informed decision-making and fostering a collaborative environment. Performing a detailed cost-benefit analysis is recommended to weigh the development and maintenance expenses against the expected benefits. This analysis should consider factors such as user engagement, market potential, and

projected revenue, providing valuable insights into the project's financial viability. By following these steps, you can make informed decisions regarding developing and implementing the Focus Critters app, ensuring a thorough evaluation of the project's viability and fostering a collaborative environment for successful execution.

Document Overview

This document provides a comprehensive overview of the Focus Critters mobile application project. It is divided into several parts to ensure a clear understanding of the project from initiation to implementation:

- System Initiation: This segment includes a PIR, which outlines the foundational elements of the project, ensuring a clear understanding of its goals, scope, and management. This report serves as a comprehensive guide for all stakeholders, detailing the key aspects required to start and develop the Focus Critters' mobile application successfully.
- Feasibility Assessment: This segment evaluates the feasibility of the Focus Critters project, including technical, resource, schedule, organizational, and legal & contractual feasibility. It identifies potential challenges during development and implementation and outlines strategies to mitigate them, ensuring a smooth and successful project execution.
- Requirement Definitions: This segment specifies the essential functionalities of the Focus Critters mobile application and how they should be implemented. It is divided into two main categories: functional requirements and non-functional requirements.
- Requirements Model: This segment includes a use case diagram and detailed descriptions for each use case. The use case diagram visually represents the interactions between users and the app, while the use case descriptions provide in-depth details on how each functionality should be performed, ensuring a clear and comprehensive understanding of the app's operational requirements.
- System Evolution: This segment addresses the future direction of the Focus Critters application. It discusses desired system features that will not be part of the Minimum Viable Product (MVP) initial version, including advanced analytics, expanded virtual pet customization options, and additional social features. It also outlines any planned or recommended upgrades to hardware and software to support continued system use and potential expansion, ensuring the app remains relevant and effective in enhancing user productivity and engagement.

2.0 System Initiation

Project Initiation Request (PIR)

PIR-00000 [PIR Number to be assigned by the Project Office]
v6.0

Project Initiation Request (PIR)–Level1

Project Name: Focus Critters App

Student Name: Tien Le

This Project Initiation Request (PIR) is to be completed for all requests expected to require over 40 hours of effort or over 4 weeks of total duration. For larger requests requiring over 40 person-days or estimated project costs greater than \$5,000, this template is used to assess the product's feasibility and get approval to scope and plan the proposed project.

If approved, the Level 2 template (System Proposal: Part 1 and Part 2) must be completed.

NOTE: Sections 0-4 are required. Section 5 is optional, but any ideas on estimating costs should be included. **Replace the italic prompts with your answers/information.** [Expand each section in this template as needed.]

0. General Project Information

Project Name:	<i>Focus Critters App</i>
Two Sentence Request Description:	<i>Creates an app that sets a timer for a task and has a virtual pet that grows as users stay focused and complete the task, as well as a collaborative feature where users can choose their pet, join with their friends, and share music. Ultimately, the business result of this project is to establish a successful app that generates revenue through user subscriptions, in-app purchases, and potential partnerships while also building a strong brand presence in the educational and productivity app market.</i>
Requested Launch Date(s):	<i>12/16/2024</i>
Department(s) Affected By Project:	<i>Design, Software Development, Quality Assurance, Project Management, Sales and Marketing, Human Resources, Accounts and Finance</i>
Project's Customers:	<i>The customers for this project include students of all levels (from K-12 to higher education), working professionals looking to enhance their productivity and time management skills, and anyone else seeking a fun and effective way to stay focused on tasks and goals.</i>
Date Request Submitted:	<i>4/16/2024</i>

Project Sponsor and Manager

Project Sponsor

Name:	Andy Cameron
Title:	Professor
Department:	Computer Science - SPU
eMail:	acameron@spu.edu

Business Project Manager & Requestor

Name:	<i>Tien Le</i>
Title:	<i>Project Manager</i>
Department:	<i>Project Management</i>
eMail:	<i>len8@spu.edu</i>

Business Problem or Opportunity: The motivation for this request

Describe the problem or opportunity that you would like to solve. Include a simple, high-level description of this request's business problems or opportunities. Focus on the problem or opportunity, not the solution. Be sure to include any date or deadline-related dependencies or needs related to the project.

This app tackles the age-old struggle of staying focused while studying or working with a fresh and engaging approach. Imagine a world where studying or working feels more like nurturing a friendly pet! This app uses gamification to turn studying or working into an interactive experience. By setting a timer for a task, users watch their virtual pet grow and thrive as they stay focused. They can also unlock a new pet when they reach a certain amount of time. The collaborative feature adds another layer of interest. Studying with friends while sharing music fosters a sense of community and shared goals, making the process more enjoyable and potentially more productive. This unique combination of gamification, social connection, and a focus on user success has the potential to make studying a rewarding and engaging experience.

Justification, Impact, and Importance

What is the financial impact and justification for this request? How will the investment of time, resources, and capital be returned to our company? (Please note any contractual or regulatory requirements associated with the request. If you have an NPV, IRR, or ROI calculation, please provide the link(s) in this section.)

Assumptions

- Users are receptive to gamification: This app relies on the idea that users will find the virtual pet and its growth motivating and enjoyable. There's an assumption that this method will be more engaging than traditional study techniques.
- Users value a social aspect of studying: The collaborative feature assumes users will be interested in learning or working with friends and sharing music, finding it more motivating and productive than studying or working alone.
- Smartphone accessibility: The app relies on smartphone usage for accessibility. It assumes that a high percentage of the target student population has smartphone access.
- The app complements existing study habits: It assumes the app won't replace established study methods but enhance them by adding motivation and focus.

Competitive Landscape / Context

- Pomodoro Technique Apps: Apps based on the Pomodoro Technique (focused work intervals with short breaks), such as the Focus To-Do app, offer functionality similar to the timer. "Focus Critters" combines these techniques with gamification and social features.
- Focus-oriented timer apps: Apps like Forest and Flora focus on using timers with gamified elements like growing trees or gardens to encourage users to stay focused on tasks, but they lack the sharing music feature while collaborating with friends.

Tangible Return, Opportunity, or Value

One Time On-Going

- | | | |
|---|------|------|
| ▪ Improved Focus and Productivity: Users can see the progress of their virtual pet growing as they complete tasks and stay focused, providing a visual representation of their productivity. | \$ 0 | \$ 0 |
| ▪ Enhanced Motivation: The gamified elements and the virtual pet can make studying more enjoyable and motivating, potentially encouraging users to dedicate more time to their studies or work. | \$ 0 | \$ 0 |
| ▪ Sense of Community: The collaborative features can foster a sense of connection with friends, potentially making studying less isolating and more enjoyable. | \$ 0 | \$ 0 |

Intangible Benefits

Impact or Value

▪ Sense of Accomplishment: Seeing the virtual pet grow and achieving milestones within the app can provide a sense of accomplishment and satisfaction.	\$ 0
▪ Reduced Stress and Anxiety: The app might help users feel less stressed and anxious about studying by promoting focus and potentially improving study outcomes.	\$ 0
▪ Engagement and Enjoyment: The gamified elements and collaborative features make studying or working more engaging and enjoyable, turning what might feel like a chore into a fun and interactive experience.	\$ 0

Product Requirements

The Project team will gather detailed requirements once the project is approved. Use this section to articulate the critical solution components to help scope the project's size and complexity. Do not describe how the solution will be implemented; instead, only list the functionality or results you expect to receive when the product is complete/delivered.

1.1. Must Haves

1.1.1. Timer: Users should be able to set timers for their study sessions and name the task.
1.1.2. Virtual Pet: The pet should grow and thrive based on the user's focus during a timed session. Users can unlock a new pet when they achieve a certain number of focused hours.
1.1.3. In-app pet accessories purchase: Users can purchase accessories (hats, costumes) for virtual pets or the study room.
1.1.4. Real-time Collaboration: Users should be able to study virtually with friends simultaneously. This feature could involve a shared timer.
1.1.5. Shared Music Playlist: Users should be able to create or choose a collaborative music playlist that plays for everyone in the study session.
1.1.6. Music Integration: The app should have a curated music library (potentially limiting music selection but avoiding external dependencies, including partnerships that might incur additional costs).
1.1.7. Simple Status Updates: Users should be able to set simple status updates such as "focused" or "taking a break" to communicate their availability to their friends within the study session.
1.1.8. Basic Analytics: The app should provide users with essential insights into their focus patterns, including the average focus time of a specific task during a month or their progress over time.

1.2. Could Haves (Nice to Haves)

1.2.1.	Leaderboards: Implement leaderboards where users can see their focus stats compared to friends or a broader community.
1.2.2.	Achievement sharing: Users can share their achievements on social media.
1.2.3.	Music Integration: Partnership with an existing music streaming service.
1.2.4.	Blocking distracting notifications or social media apps.

1.3. Won't Haves (Don't Do's, aka Out of Scope)

1.3.1.	Advanced Collaboration Features: Video calls, screen sharing, file sharing, and text or audio chat will not be included.
1.3.2.	Complex Pet care: Pets won't have virtual needs of hunger, thirst, or cleanliness that require user interaction.

Project Costs (Operating and Capital: Onetime and Recurring) [Optional]

*This section is typically fleshed out after the requestor has submitted a PIR and received approval for the initial scoping effort. It captures the effort estimates, capital expenditures, and other costs associated with performing this work and creating the product/solution. If the submitter has thoughts or estimates on what these costs are or suggestions on how they might be estimated, please include those here. Add brief descriptions as needed. **Include at least 2 comments on your thinking around these items, even if you don't have specifics yet.***

Labor Costs

Type	Team(s) Affected	Low (hrs)	High (hrs)
Analysis & Design		0	0
Development		0	0
Testing and Quality Assurance		0	0
Systems Integration		0	0
Deployment		0	0
Support and Maintenance		0	0
Sales and Marketing		0	0
Total		0	0

Capital Costs (Equipment, Software, Licenses, ...)

Description	Quantity	Cost (\$)
<i>Item 1</i>		\$ 0
<i>Item 2</i>		\$ 0
Total		\$ 0

Maintenance Costs (Costs after the product is live)

Type	Hours / Month Low	Hours / Month High
System / User Support	0	0
Business / Process Support	0	0
Total Support & Maintenance	0	0

3.0 Feasibility Assessment

Introduction

This section examines the viability of the Focus Critters App by considering technical, resource, schedule, organizational, and legal feasibility. We will assess the feasibility level for each factor on a scale from low to high.

Feasibility Analysis

- Technical Feasibility (Moderate)
 - Users' familiarity with the application area is high, showing high feasibility.
 - Smartphones are widely used, and most users are comfortable with basic mobile app functionalities.
 - Timers and social features are common elements in many existing apps.
 - While the gamified aspects and the virtual pet might require some users to get used to, the concept is user-friendly and intuitive. This means minimal training or technical expertise is needed for users to get started and benefit from Focus Critters's core functionalities.
 - The familiarity of analysts with the application area is moderate, showing moderate feasibility.
 - Our development team has experience in mobile app development, but some members are part-time workers.
 - The IT department has never worked on building features that allow collaboration in real-time, but they are gradually learning about it.
 - Even though the development team has little experience, the collaboration feature is built upon existing mobile app concepts and development tools in the marketplace.
 - The project size has medium risk, showing moderate feasibility.
 - The project team is fewer than 10 people.
 - The project timeframe cannot exceed a year because of the holiday season implementation deadline, and it should be much shorter.
 - The project structure has low risk, showing high feasibility.
 - The functionalities and features of the application will be clearly outlined in well-defined requirements documents and are unlikely to change significantly.

- Resource Feasibility (Moderate)

The resource feasibility of developing Focus Critters is moderate. While the core functionalities can likely be designed carefully, some challenges exist regarding resource availability and future scalability.

- People: We do not have enough developers and will need to hire more people experienced in mobile app development. However, finding developers with the exact skill set needed within budget constraints might be challenging.
- Hardware and software: Focus Critters development primarily relies on readily available software (mobile app development tools, potentially music streaming service API), and the development team can access the hardware, including computers and development servers. Depending on the chosen partner, integration with a music streaming service might require additional software development kits (SDKs) or specific hardware

configurations. Future growth and feature expansion will cause additional hardware or software resources.

- Facilities: The development team has adequate physical facilities to accommodate the development process. However, scaling development efforts in the future require additional office space or remote work arrangements for team members.

- Schedule Feasibility (High)

The scheduling feasibility is ideal

- The deadline for this project is winter, and finishing an initial system by this time will not be a problem.
- Deadlines for additional features beyond the core functionalities can be more flexible and adjusted based on development progress, user feedback, and market demands.
- The consequences of minor schedule slippage for the core functionalities are likely minimal.
- A music streaming integration could be delayed if the ideal partner's API is not readily available. However, the app's core functionalities can still be delivered on time.

- Organizational Feasibility (Low)

The organizational feasibility is feasible, with medium risk:

- Uncertain Monetary Benefits: Customer adoption and willingness to make purchases within the app may take time to gain attraction. Therefore, it may take time to generate revenue. However, the profits gained via the product should motivate the organization to continue maintaining and improving the app.
- Initial Launch: With a limited budget and team, providing comprehensive customer support and robust data maintenance will initially be challenging.
- Long-Term Growth: As the user base grows, customer support and data maintenance will require more resources. Therefore, if the user base expands, we will document a long-term plan and estimate the required budget for scaling the team or outsourcing these functions.

- Legal Feasibility (High)

Focus Critters App is legally feasible with low risk.

- Privacy Concerns (Low Risk): Focus Critters will collect user data such as usage patterns or preferences during operation. However, we will get user consent for data collection and implement a clear and concise privacy policy outlining what data is collected, how it is used, and user control options regarding data collection and sharing. The data will be securely stored using industry-standard practices.
- Financial Transactions (Low Risk): There are in-app purchases, and we ensure to partner with a reputable payment processor that adheres to the Payment Card Industry Data Security Standard (PCI-DSS) for secure financial transaction processing and General Data Protection Regulation (GDPR) to ensure the application adheres to relevant data privacy regulations.
- Copyright and Intellectual Property (Low Risk): Focus Critters are unlikely to infringe on existing copyrights or patents.
- Fair employment, accounting, and tax requirements (Low Risk): In order to ensure fair treatment of our employees, we follow the Fair Labor Standards Act (FLSA) for wages and working conditions. As a for-profit company, we also adhere to accounting standards set by FASB and follow IRS regulations, including filing tax returns and paying estimated taxes.

Conclusion

In conclusion, the Focus Critters project shows feasibility with moderate risk levels across several areas.

Technical feasibility is moderate because of users' familiarity with mobile apps, though the development team's limited experience with real-time collaboration features and part-time members present challenges. Resource feasibility is also moderate, requiring additional skilled developers and future scalability considerations. Scheduling feasibility is high, with a realistic timeline for the initial launch, although integration with a music streaming service may require careful timing. Organizational feasibility shows medium risk, given the uncertain initial revenue and the challenge of providing customer support and data maintenance with a limited team, while legal feasibility is high, with low risk across privacy, financial transactions, intellectual property, and employment practices.

Reservations include the development team's limited experience, hiring challenges, and initial revenue generation. To manage these risks, we will invest in training, prioritize strategic hiring, implement an incremental rollout, establish early partnerships, and develop a long-term resource plan for scaling customer support and data maintenance. By addressing these reservations and implementing the suggested strategies, Focus Critters can navigate potential challenges and achieve its goals of enhancing focus and productivity for its users.

4.0 Requirements Definition

Introduction

This section outlines the essential features and characteristics that the Focus Critters mobile application will offer, catering to both technical and non-technical audiences. It addresses functional, data, and non-functional requirements for the application.

Functional requirements refer to the specific functionalities that the app will provide, such as setting timers, integrating virtual pets, creating shared study rooms, tracking data and analytics, and integrating music playback. These requirements focus on what the app can do and how users interact with its features.

Non-functional requirements show the overall behavior and performance of the app beyond its specific functionalities. This includes aspects like the user interface design for ease of use, security and privacy measures to protect user data, performance standards for speed and reliability, compatibility with different platforms, and scalability to accommodate future growth and enhancements. These requirements ensure the app works as intended and delivers a seamless and satisfying user experience while meeting technical standards and regulatory guidelines.

Functional Requirements

- Must have feature:
 1. **Focus Timer:**
 - **1.1 Set a timer/pet for a task:** Users can set the duration of a focus session with customizable lengths (e.g., 25 minutes, 50 minutes) and choose a pet that thrives along the way.
 - **1.2 Start/Pause Timer:** After setting the timer, users can start, pause, and resume the focus timer during a session.
 - **1.3 Progress Tracking:** The application visually displays the progress of the current focus session.
 - **1.4 End of Session Notification:** Users receive an audio or visual notification when the focus session ends.
 2. **Virtual Pet Integration:**

- **2.1 Virtual Pet Selection:** Users can choose a virtual pet character to accompany them during focus sessions.
- **2.2 Pet Rewards:** Completing focus sessions can unlock rewards for the virtual pet (e.g., new accessories and customizations).

3. Shared Focus Room:

- **3.1 Create Room:** The host user can create a shared focus room with a unique identifier (e.g., room code).
- **3.2 Join Room:** Users can join a shared focus room using the provided room code.
- **3.3 Room Information:** The room displays information about participants (host and joined users).
- **3.4 Synchronized Timer:** All participants in the room share a single focus timer that the host controls.
 - **3.4.1 Start/Pause Timer:** The host can start, pause, and resume the focus timer for all participants in the room.
 - **3.4.2 Timer Visibility:** All participants can see the progress of the shared focus timer.
 - **3.4.3 End of Session Notification:** All participants receive an audio or visual notification when the shared focus session ends.

- Should have features:

1. Data Tracking and Analytics:

- **1.1 Session History:** Users can view a history of their completed focus sessions, including the duration and timestamps of each task.
- **1.2 Progress Reports:** The application generates basic reports on user focus habits (e.g., average session length and total focus time).

2. Music Integration In Shared Focus Room:

- **2.1 Music Selection:** The host user can select background music from an app's library (if it can not partner with a streaming service) to play during the shared focus session.
- **2.2 Music Controls:** The host user can control playback functions (play, pause, skip) for the selected music during the shared focus session.
- **2.3 Individual Volume Control:** Each participant can independently adjust their device's shared music playback volume.

- Could have features:

1. **Leaderboards:** Implement leaderboards where users can see their focus stats compared to friends or a broader community.
2. **Achievement sharing:** Users can share their achievements on social media.
3. Blocking distracting notifications or social media apps.

- Won't:

1. **Advanced Collaboration Features:** Video calls, screen sharing, file sharing, and text or audio chat will not be included.
2. **Complex Pet care:** Pets won't have virtual hunger, thirst, or cleanliness needs that require user interaction.

Data Requirements

1. User data:
 - User Profiles: Information such as username, email, password (encrypted), and user preferences.
 - Details about the virtual pet chosen by the user.
2. Virtual Pet:
 - Type: The species or kind of virtual pet (e.g., dog, cat, dragon).
 - Name: The name given to the virtual pet.
 - Length of maturity: The time it takes for the virtual pet to reach different stages of growth or maturity.
 - Customization Options: Accessories unlocked for the pet.
3. Focus Session Data: Duration, start and end times, and status of each session.
4. Shared Room Data:
 - Room Information: Unique identifier, participants, and timer settings.
 - Shared Timer Data: Status and visibility of the shared timer.
5. Analytics Data:
 - Session History: Records of all completed focus sessions.
 - Progress Reports: Aggregated data on user focus habits.
6. Reward Data:
 - Pet Rewards: Data on rewards earned by users for their virtual pets.

Non-functional Requirements

- Operational Requirements:
 - The application must be compatible with both Android and iOS operating systems.
 - If Focus Critters can collaborate with a music streaming service, it should be interoperable with the music streaming platforms and their APIs.
 - The date in the system should be initially displayed in the format mm.dd.yyyy before users change it in the setting.
- Performance Requirements:
 - The landing page supporting 1,000 users per hour must provide 6 seconds or less response time.
 - The system must be scalable enough to support at least 100,000 visits while maintaining optimal performance simultaneously.
 - The application must be available to users 99 percent of the time and only down for updates or maintenance.
 - The bandwidth usage must be at least 5mbps.
- Security Requirements:
 - The system must be protected from unauthorized access: the user must enter an email address and password to log into the account.
 - The payment process must be PCI DSS compliant.
 - All data must be encrypted.
- Cultural and Political Requirements:

No special cultural and political requirements are anticipated

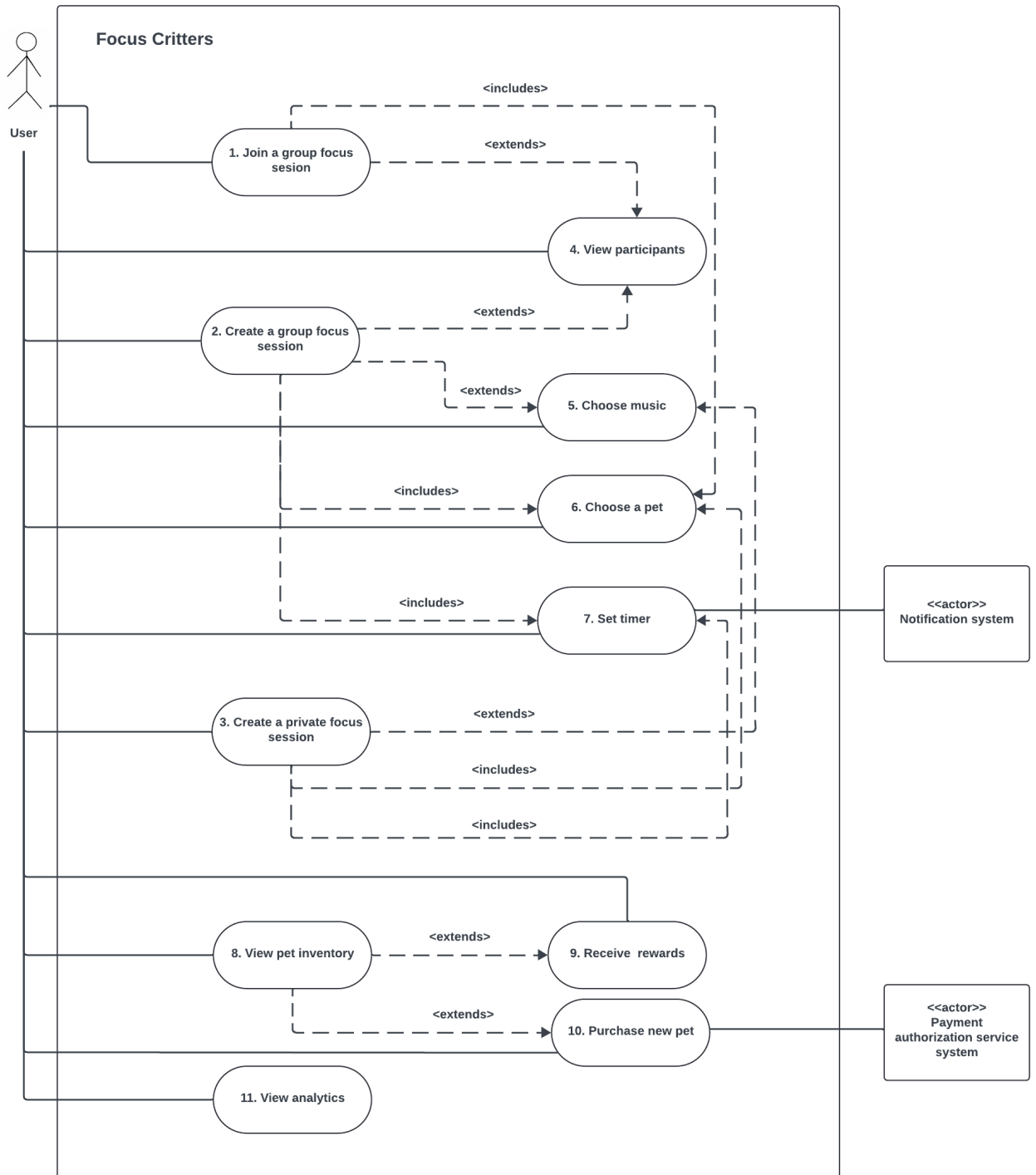
5.0 Requirements Model

Introduction

This section presents the requirements model for the Focus Critters mobile application, which includes a detailed use-case diagram and descriptions for each use-case. The use-case diagram is a visual representation that illustrates the interactions between users (actors) and the system, showcasing the

primary functionalities and features of the app. Each use case description provides a narrative explanation of how users interact with the app to achieve specific tasks or goals, helping both technical and non-technical readers understand the app's functionality in a clear and accessible manner. Through this documentation, readers will gain insights into the user experience and system behavior, aiding in developing and understanding the Focus Critters app.

Use-Case Diagram



Focus Critters App Use Case Diagram

Use-Case Descriptions

Use Case Name: Join a group focus session		ID: UC-001	Importance: Must Have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: N/A			
Stakeholders and Interests: <ul style="list-style-type: none">• User – wants to join a focus session with others for increased motivation.• Focus Critters App Company – wants to facilitate a collaborative experience for users.			
Brief Description: A user joins a group focus session using a room code. This allows them to participate in a synchronized focus timer and listen to the room host's music to increase motivation.			
Trigger: The user launches the Focus Critters app and chooses to join a group focus session.			
Type:		External	
Relationships: <ul style="list-style-type: none">Association: UserInclude: Choose a petExtends: View participants			
The Normal Flow of Events: <ol style="list-style-type: none">1. A user selects the "Join Focus Room" option within the application.2. The application prompts the user to enter a room code.3. The user enters the room code provided by another user (creator of the session).4. The application verifies the room code and grants access to the session if valid.5. The application prompts him to choose a pet from his inventory.6. The user confirms to join the group focus session.7. They can see a list of participants currently in session, along with their chosen virtual pet's companions.8. The synchronized focus timer (controlled by the session creator) becomes visible to the user.9. The user can see the timer's progress and receive notifications when the time ends along with other participants.10. If music integration is available, he can see the music selection chosen by the session host and adjust their individual volume control.11. When the focus session ends, the application displays a summary to the user, including the total focus time achieved and a motivational message. Users can access these summaries again in the "View Analytics" use case (UC-011). The session will transition them back to the "Join a group focus session" page.12. The application stores the focus time of users for future analytics.			
Sub-flows: None			
Alternate/Exceptional Flows:			

- If users enter an invalid room code:
 - The application displays an error message indicating the code is invalid.
 - Users can try entering the correct code again.
- If the room is full:
 - The application informs the user that the room has reached its maximum capacity.
 - Users can search for another session to join.
- If users choose to leave in the middle of the session, the application navigates them back to the "Join a group focus session" page, and no focus time data will be recorded. If the pet has grown past a maturity level, it will be turned back to its shape before joining the room.

Special Requirements:

- The system should securely validate room codes to ensure authorized access.
 - One-time use: The application should verify the code against a database or temporary storage. A valid code should only grant access once to prevent reuse.
 - Error handling: The application should provide clear error messages if the code is invalid and avoid revealing any information about the room's existence based on an invalid code attempt.
- The system should synchronize the focus timer display and notifications for all participants in real time.

To do/Issues:

- Define the maximum capacity for a group focus session.
- Determine the communication method for users to share room codes.

Use Case Name: Create a group focus session		ID: UC-002	Importance: Must Have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: N/A			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to create a collaborative focus session for themselves and others to join.Focus Critters App Company – wants to facilitate a collaborative experience for users.			
Brief Description: Users create a group focus session, define its settings (duration, name), generate a unique code for others to join, and optionally select background music (if it can be integrated with a music streaming service) and choose a virtual pet companion.			
Trigger: The user launches the Focus Critters app and chooses to join a group focus session.			
Type:	External		
Relationships: <ul style="list-style-type: none">Association: UserInclude: Choose a pet and set a timer.Extends: Choose music and view participants.			
The Normal Flow of Events: <ol style="list-style-type: none">Users select the "Create Focus Room" option within the application.The application prompts the user to define the focus session settings:<ul style="list-style-type: none">Session Name: Users can enter a name for their session.Focus Duration: The user sets the desired length of the focus session using the timer functionality.Choose Virtual Pet: The user can select a virtual pet companion to accompany them during the sessionMusic Selection (if integrated): The user (acting as the session host) can choose background music to play during the session.The application generates a unique room code for the session.The user can view the room code and share it with others who want to join the session by using a text message or QR code.The user becomes the session host and can see the list of participants who join using the code.The user can start the focus timer once he is ready.			
Sub-flows: <ul style="list-style-type: none">Choose a Virtual Pet: This sub-flow is triggered when the user chooses to select a virtual pet companion during session creation. Refer to UC-006 for detailed steps.			

Alternate/Exceptional Flows:

- Users can choose to cancel creating the session at any point before finalizing the settings. The applications will navigate them back to the "Create a group focus session" page.

Special Requirements:

- Users can not extend or shorten the focus time after the timer starts.
- The system should securely validate room codes to ensure authorized access.
 - One-time use: The application should verify the code against a database or temporary storage. A valid code should only grant access once to prevent reuse.
 - Error handling: The application should provide clear error messages if the code is invalid such as "Invalid code or" "Room not found" , and avoid revealing any information about the room's existence based on an invalid code attempt.
- The system should synchronize the focus timer display and notifications for all participants in real-time

To do/Issues:

- Define the maximum capacity for a group focus session.
- Determine the communication method for users to share room codes (e.g., text message, QR code).

Use Case Name: Create a private focus session		ID: UC-003	Importance: Must Have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: N/A			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to create a focused work or study environment for themselves without inviting others.Focus Critters App Company – wants to promote individual focus and cater to users who prefer private sessions.			
Brief Description: Users create a group focus session, define its settings (duration, optional name), generate a unique code for others to join, and optionally select background music (if it can be integrated with a music streaming service) and choose a virtual pet companion.			
Trigger: Users select the "Create Private Focus Session" option within the application (a separate option from creating a group session).			
Type:	External		
Relationships: <ul style="list-style-type: none">Association: UserInclude: Choose a pet and set a timer.Extends: Choose music.			
The Normal Flow of Events: <ol style="list-style-type: none">Users select the "Create Private Focus Session" option within the application.The application prompts the user to define the focus session settings:<ul style="list-style-type: none">Session Name: Users can enter a name for the session (e.g., "Study Session for Writing").Focus Duration: Users can set the desired length of the focus session using the timer functionality.Choose Virtual Pet: Users can select a virtual pet companion to accompany them during the sessionMusic Selection (if integrated): The user (acting as the session host) can choose background music from a music streaming service (if applicable) to play during the session.The application starts the focus timer based on the user's chosen duration.The application blocks all the in-app notifications.Upon session completion, the application displays a summary to the user, including the total focus time achieved and a motivational message. Users can access these summaries again in the "View Analytics" use case (UC-011).			
Sub-flows: Choose a Virtual Pet: This sub-flow is triggered when the user chooses to select a virtual pet companion during session creation. Refer to UC-006 for detailed steps.			
Alternate/Exceptional Flows:			

- Users can choose to cancel creating the session at any point before starting the timer. The applications will navigate them back to the "Create private focus session" page.

Special Requirements:

- Users can not extend or shorten the focus time after the timer starts.

To do/Issues: None

Use Case Name: View participants		ID: UC-004	Importance: Should have
Primary Actor: User		Use Case Type: Detail, Supplemental	
Supporting Actors: None			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to view a list of participants who have joined the group focus session.Focus Critters App Company – wants to provide both host and participants with information about session participants to improve the overall collaborative experience.			
Brief Description: Users within a group focus session view a list of usernames for others who have joined the session using the room code.			
Trigger: <ul style="list-style-type: none">Host: The session host is already in their created group focus session (refer to UC-002: Create a Group Focus Session) and select "View participants".Participant: The participant has joined a group focus session using a room code (refer to UC-001: Join a Group Focus Session) and selected "View participants."			
Type:	External		
Relationships: Association: User			
The Normal Flow of Events: <ol style="list-style-type: none">The user is actively participating in a group focus session (either as a host or participant).The user accesses a designated section within the application to view participants such as a participant list or icon.The application displays a list of usernames or nicknames for users who have joined the session using the room code			
Sub-flows: None			
Alternate/Exceptional Flows: <ul style="list-style-type: none">If there are no participants joined (for Host): The application informs the host that no users have joined the session yet.Users leave session: Users' name is removed from the participant list for others.			
Special Requirements: The application should securely retrieve a unique session identifier for the user's current session. This identifier is then sent to the Focus Critters server to verify and retrieve the encrypted participant list associated with that specific session. The user's device decrypts and displays the participant usernames or nicknames for the session.			
To do/Issues: None			

Use Case Name: Choose music		ID: UC-005	Importance: Should have
Primary Actor: User		Use Case Type: Detail, Supplemental	
Supporting Actors: Music Streaming Service			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to personalize their focus experience by selecting background music to play during the session.Focus Critters App – wants to provide an engaging user experience with music integration to promote user retention.Music Streaming Service – wants to expand its user base through integration with Focus Critters and potential revenue stream.			
Brief Description: Users choose background music for their group or private focus session.			
Trigger: <ul style="list-style-type: none">Users create a group or private focus session and click on "Choose music" Type: External			
Relationships: Association: User			
The Normal Flow of Events: <ol style="list-style-type: none">Users are creating a group focus session (UC-002) or a private focus session (UC-003).The application offers an option to "Choose Background Music".If a music streaming service is integrated:<ul style="list-style-type: none">The user authenticates with their music streaming service account.The application displays a selection of music genres, playlists, or browsing options provided by the music service.The user selects the desired background music (genre, playlist, specific song).When the user starts the focus timer, the chosen background music starts playing during the session			
Sub-flows: None			
Alternate/Exceptional Flows: <ul style="list-style-type: none">No Music Selection: Users can proceed with the focus session without choosing background music.Music Streaming Service Unavailable: The application allows users to choose music from the app's curated music library.			
Special Requirements:			

If a music streaming service is available, the application should obtain explicit user consent before integrating with any music streaming service. Users should have the option to decline music integration altogether if they prefer not to link their accounts. Furthermore, the application should clearly disclose what user data (such as music preferences) might be shared with the music service and how it will be used. This transparency allows users to make informed decisions about their privacy and data-sharing practices. Following these steps ensures user privacy is respected and adheres to relevant data privacy regulations.

To do/Issues:

- Determine the specific music streaming service integration approach.
- Decide on the level of music selection options available within the app.

Use Case Name: Choose a pet		ID: UC-006	Importance: Must have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: None			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to select a virtual pet companion to personalize their focus experience.Focus Critters App – wants to promote user engagement and differentiation by offering a virtual pet companion as a core feature.			
Brief Description: Users choose a virtual pet companion from a selection from their pet collection inventory. This use case acts as a mandatory step within the "Join a group focus session" (UC-001), "Create a group focus session" (UC-002), and "Create a private focus session" (UC-003) use cases.			
Trigger: Users trigger one of the use cases: Join a group focus session" (UC-001), "Create a group focus session" (UC-002), or "Create a private focus session" (UC-003) and select "Choose a pet" Type: External			
Relationships: Association: User			
The Normal Flow of Events: 1. Users are joining or creating a group focus session (UC-002) or creating a private focus session (UC-003). 2. The application presents a selection of virtual pets available to the user from their inventory. 3. Users choose their desired virtual pet companion for the focus session. 4. The application displays a visual representation of the chosen pet within the focus session interface.			
Sub-flows: None			
Alternate/Exceptional Flows: None			
Special Requirements: <ul style="list-style-type: none">If users are new users, the default pet will be selected.The chosen pet should grow after a pre-determined maturity time.			
To do/Issues: Determine the design, characteristics, and maturity time of the virtual pets.			

Use Case Name: Set timer		ID: UC-007	Importance: Must have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: None			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to select a desired length of their focus session to manage their time effectively.Focus Critters App – wants to provide a core functionality for setting the focus timer duration to facilitate focused work or study periods.			
Brief Description: Users set a desired duration for their focus session. This use case acts as a mandatory step within the "Create a Group Focus Session" (UC-002) and "Create a Private Focus Session" (UC-003) use cases. Additionally, the system interacts with the notification system to alert the user when the focus timer expires.			
Trigger: Users trigger one of the use cases: "Create a group focus session" (UC-002), or "Create a private focus session" (UC-003) and select "Set timer"			
Type:	External		
Relationships: Association: User, Notification system			
The Normal Flow of Events: <ol style="list-style-type: none">Users are creating a group focus session (UC-002) or creating a private focus session (UC-003).The application displays a timer interface allowing users to set the desired focus session duration (e.g., minutes, hours).Users select the desired duration for their focus session.Users confirm the duration selection.<ol style="list-style-type: none">The application will start the focus timer based on the chosen duration and inform users of the chosen duration and start time.The application sends information about the chosen duration and the desired alert time (when the time expires) to the notification system.When the focus timer reaches the end, the notification system triggers an alert on the user's device.Users receive a vibration and a pop-up message from the device, informing them that their focus session has ended.			
Sub-flows: <ul style="list-style-type: none">If users intentionally exit or close the app while the focus timer is running, it will stop. Upon relaunching the app, users will be informed that the focus session was interrupted and the			

chosen duration was not completed. Users will need to restart the timer if they wish to continue with a focus session.

Alternate/Exceptional Flows:

Special Requirements:

- The system should integrate with the notification system to send timely alerts to the user at the end of the focus session.
- If the phone goes to sleep due to inactivity settings while the timer is running in the background, it should ideally continue running in the background

To do/Issues: None

Use Case Name: View pet inventory		ID: UC-008	Importance: Must have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: None			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to view their collection of virtual pets, receive rewards for completing the tasks, and purchase new pets.Focus Critters App – wants to promote user engagement, increase user retention through the reward system, and increase revenue through in-app purchases.			
Brief Description: The app displays users' collection of virtual pets, pets that haven't been unlocked, and rewards for completing tasks.			
Trigger: Users click on "View inventory"			
Type:	External		
Relationships: <ul style="list-style-type: none">Association: UserExtends: Receive rewardsExtends: Purchase new			
The Normal Flow of Events: <ol style="list-style-type: none">Users click on "View inventory"The app displays a user interface showing their inventory of virtual pets.Users can view each pet in their collection (name, type, and maturity level) and the pets that haven't been unlocked.			
Sub-flows: None			
Alternate/Exceptional Flows: None			
Special Requirements: <ul style="list-style-type: none">The application should offer a user-friendly interface for viewing pet details and interacting with the pet collection.Upon user creation, the system should automatically grant the user a starter pet within their inventory.			
To do/Issues: None			

Use Case Name: Purchase new pets		ID: UC-009	Importance: Should Have
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: Payment authorization service system			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to expand their collection of virtual pets by purchasing new ones or new accessories.Focus Critters App Company – wants to generate revenue through in-app pet purchases while enhancing user engagement by offering a wider variety of virtual pets.			
Brief Description: The app displays locked special virtual pets and accessories, and users click to purchase the desired one. The app then interacts with a secure Payment Authorization Service System to process the financial transaction.			
Trigger: Users access their inventory and click on the pet that they want to purchase Type: External			
Relationships: Association: User			
The Normal Flow of Events: <ol style="list-style-type: none">1. Users access the "View inventory" page (UC-008).2. The app displays users' current pet inventory and the special locked ones.3. The user selects the desired new pet from the available options.4. The application displays the purchase price for the chosen pet, which involves real money.5. The user confirms their purchase using a secure payment method.6. The app starts communication with the Payment Authorization Service System.7. The Payment Authorization Service System securely processes the user's payment information (following relevant security protocols).8. The Payment Authorization Service System transmits a response to the Focus Critters app, showing the success or failure of the transaction.9. The app receives confirmation from the Payment Authorization Service System10. The app adds the new pet to the user's inventory			
Sub-flows: None			
Alternate/Exceptional Flows: <ul style="list-style-type: none">In case of a failed purchase because of payment issues such as insufficient funds or a declined card, the application will notify the user with a clear error message and provide options to retry the purchase or contact customer support.If communication between the app and the Payment Authorization Service System fails, the user will be informed about the technical issue and encouraged to retry the purchase later.			

Special Requirements:

- The application should securely integrate with a reputable Payment Authorization Service System to ensure safe and reliable processing of real-money transactions.
- The application should clearly display the purchase price for each pet and the accepted payment method.
- The timeout limit for communication with the Payment Authorization Service System should be less than 15 seconds. If a response isn't received within the designated timeframe, the system should consider it a communication failure

To do/Issues:

- Determine Payment Authorization Service System to collaborate.

Use Case Name: Receive rewards		ID: UC-010	Importance: Must have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: None			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – motivated to engage in focus sessions and unlock virtual rewards.Focus Critters App Company – aims to increase user engagement through the reward system.			
Brief Description: A user completes focus sessions within the app. Based on the achieved focus time, the app rewards the user with virtual pets or accessories for their virtual companion.			
Trigger: Users complete a focus session Type: Temporal			
Relationships: Association: User			
The Normal Flow of Events: <ol style="list-style-type: none">Users finish a focus session.The application application calculates the total focus time achieved during the session.Based on a pre-defined time set by the app, the application determines the reward the user has earned for their focus time. Rewards may include unlocking a new virtual pet or unlocking a new accessory for an existing virtual pet.The application displays a notification informing the user about the reward they have earned.Users navigate to the "View inventory" page and click on the items to receive rewards.The application adds the items to the inventory.			
Sub-flows: None			
Alternate/Exceptional Flows: None			
Special Requirements: <ul style="list-style-type: none">While guest users can unlock virtual pets/accessories, they have limited pets and accessories to unlock compared to registered users.			
To do/Issues: None			

Use Case Name: View analytics		ID: UC-011	Importance: Must have (MVP)
Primary Actor: User		Use Case Type: Detail, Essential	
Supporting Actors: None			
Stakeholders and Interests: <ul style="list-style-type: none">User (Primary Actor) – wants to understand their focus session habits, time spent on various tasks within the app, and overall app engagement to optimize their focus routines and potentially set personal goals.Focus Critters App – aims to provide valuable data and insights to users to enhance user experience, personalize features, and make data-driven decisions for future development.			
Brief Description: This application displays users' analytic reports. These reports present data about their focus session history, time spent on different tasks within the app, and overall app usage patterns across various timeframes (day, week, month).			
Trigger: Users navigate to the "View Analytics" section within the app's menu Type: External			
Relationships: Association: User			
The Normal Flow of Events: <ol style="list-style-type: none">Users access the "View analytics" section.The application displays an analytics report tailored to the user, including:<ul style="list-style-type: none">History of users' focus sessions, including individual session data and trends over time.Time spent on specific tasks within the appOverall app usage patterns across different timeframes (day, week, month)Users can interact with the report using filters and drill-down options to explore the data in more detail (e.g., focusing on a specific time period or task).			
Sub-flows: None			
Alternate/Exceptional Flows: None			
Special Requirements: <ul style="list-style-type: none">Securely store and process user data used for analytics purposes, adhering to relevant data privacy regulations.Design a clear and user-friendly report that aids users in understanding the data effectively. Consider data visualization best practices and provide guidance or tooltips for interpreting the information.			
To do/Issues: None			

6.0 System Evolution

Focus Critters App is being built to empower users to conquer their focus challenges. While the initial version (MVP) will lay a strong foundation, we are always looking ahead to future possibilities. Here's a glimpse into some exciting features we envision for future improvements:

- **Advanced Focus Analytics:** Providing detailed reports on user focus habits and trends. This could include insights into users' most productive times of day, preferred focus session lengths, and the impact of virtual pet companions on concentration.
- **Integrations:** Expanding Focus Critters' reach through integrations with popular productivity tools and calendars will streamline workflows. Users could seamlessly schedule focus sessions within existing calendars or integrate to-do lists for a comprehensive productivity experience.
- **Focus Challenges and Achievements:** A touch of friendly competition can be a great motivator. Focus Critters envisions introducing focus challenges where users can compete with friends or colleagues, or a system of badges and achievements to celebrate milestones and keep users engaged.
- **App Blocking:** We will investigate the possibility of implementing app-blocking functionalities during focus sessions. Users could choose to block specific apps that might tempt distractions, allowing them to stay on task.
- **Do Not Disturb Integration:** We will explore integrating with device-level Do Not Disturb modes to minimize external interruptions during focus sessions. This could silence notifications or call for a truly distraction-free environment.
- **Hardware/Software Updates:** As Focus Critters grow and user needs evolve, upgrades may be necessary to ensure a seamless experience. A robust cloud infrastructure will allow Focus Critters to handle a growing user base without compromising performance.

7.0 Conclusions and Recommendations.

In conclusion, this proposal documents a comprehensive plan to develop the Focus Critters app, a gamified study platform designed to enhance productivity and engagement among users. The application presents an innovative and engaging solution to enhance study habits through gamification and collaborative features. By integrating customizable virtual pets, focus timers, shared study rooms, and music playlists, Focus Critters aims to revolutionize the study experience for users. The proposed system aligns with modern trends in educational technology and prioritizes user engagement, productivity, and community-building aspects. Overall, the Focus Critters app holds significant potential to become a leading player in the educational and productivity app market.

Here are some recommendations to ensure the success of Focus Critters:

- **Prioritize User Testing:** Conduct user testing throughout the development lifecycle. Gather valuable feedback on core functionalities like focus timers and the effectiveness of virtual pet companions. User testing should also assess the appeal and usability of the reward system to ensure it incentivizes focus behavior.

- **Develop a Comprehensive Communication Strategy:** Educate users on the benefits and functionalities of Focus Critters. This could include creating in-app tutorials, FAQs, and informative blog posts. The communication strategy should also address potential user concerns about data privacy and security, highlighting the security measures implemented to safeguard user information.
- **Plan for Scalability and Future Growth:** As Focus Critters gains traction, invest in a robust cloud infrastructure to ensure the system can handle a growing user base without compromising performance. Implement up-to-date data security measures to maintain user trust and comply with relevant data privacy regulations.
- **Embrace Continuous Improvement:** Foster a culture of continuous improvement by actively seeking user feedback after the initial launch. Analyze user data and feedback to identify areas for improvement and iterate on the app's functionalities. This could involve introducing new features, refining existing ones, and optimizing the overall user experience.

By following these recommendations and remaining committed to user-centric development, Focus Critters has the potential to become a powerful tool for individuals and organizations seeking to achieve focus and maximize productivity in an increasingly distracting world.

Appendices

Below is a copy of the questionnaire that is used for gathering information related to user preferences and study habits for the Focus Critters app:

Focus Critters App User Preferences and Study Habits Questionnaire

Thank you for participating in our survey! Your feedback will help us create a better experience with the Focus Critters app. Please take a few minutes to answer the following questions.

1. Demographic Information:
 - Age:
 - Gender:
 - Educational Level:
2. Usage Habits:
 - a. How often do you engage in focused study sessions?
 - Daily
 - Several times a week
 - Once a week
 - Occasionally
 - Rarely
 - b. What devices do you primarily use for studying?
 - Smartphone
 - Laptop/Computer
 - Tablet
 - Other (please specify)
 - c. How long is your typical study session duration?
 - Less than 30 minutes
 - 30 minutes to 1 hour
 - 1 to 2 hours
 - More than 2 hours
3. Motivation and Challenges:
 - a. What motivates you to stay focused during study sessions?
 - Personal goals
 - External deadlines (exams, assignments)
 - Interest in the subject
 - Other (please specify)
 - b. What are the biggest challenges you face when trying to stay focused while studying?
4. Interest in Focus Critters App Features:
 - a. Would you be interested in using a virtual pet feature that grows based on your focused study time?
 - Yes
 - No
 - Maybe
 - b. How likely are you to use collaborative study rooms with friends?
 - Very likely
 - Somewhat likely
 - Not likely

c. Do you find gamification elements (like rewards, progress tracking) motivating for staying focused?

- Yes
- No
- I'm not sure

5. Feedback and Suggestions:

a. What features would you like to see in a study-focused app like Focus Critters?

b. Any additional comments or suggestions for improving the study experience with an app?

Thank you for completing the questionnaire! Your input is valuable to us.

Glossary

FASB – Financial Accounting Standards Board: FASB is a private, non-profit organization that establishes and improves accounting standards for financial reporting in the United States. It sets guidelines for the preparation of financial statements to ensure consistency, transparency, and comparability in financial reporting.

FLSA – Fair Labor Standards Act: The FLSA is a U.S. federal law that establishes minimum wage, overtime pay eligibility, record keeping, and child labor standards for employees in both the private and public sectors. It also defines exempt and non-exempt employee classifications.

GDPR – General Data Protection Regulation: GDPR is a comprehensive data protection and privacy regulation in the European Union (EU) that governs how organizations collect, store, process, and share personal data of EU residents. It aims to give individuals greater control over their personal data and requires businesses to implement stringent data protection measures.

IRS – Internal Revenue Service: The IRS is the U.S. government agency responsible for administering and enforcing federal tax laws. It collects taxes, processes tax returns, and provides taxpayer assistance and education on tax-related matters.

PCI-DSS – Payment Card Industry Data Security Standard: PCI-DSS is a set of security standards designed to ensure that companies handling credit card information maintain a secure environment. Compliance with PCI-DSS is mandatory for businesses that process, store, or transmit credit card data to protect against fraud and data breaches.

SDKs – Software Development Kits: SDKs are sets of software tools and resources that developers use to create applications for specific platforms, such as mobile apps for iOS or Android. They typically include APIs, libraries, documentation, and sample code to facilitate app development.

Bibliography

Baig, Edward C., et al. "8 Ways Your Smartphone Is Rewiring Your Mind." *AARP*,
www.aarp.org/home-family/personal-technology/info-2022/smartphone-memory.html

JS,, Dube MO;Roy. "Effect of Fatigue and the Absence of Visual Feedback on Shoulder Motor Control in an Healthy Population during a Reaching Task." *Gait & Posture*, U.S. National Library of Medicine, pubmed.ncbi.nlm.nih.gov/31522106/.

Dr. Cameron, Andy. "Feasibility and Risk."System Proposal-part1, Seattle Pacific University, Lecture
