CS3354 Software Engineering
Final Project Deliverable 1

FocusQuest

Group 1
03-14-2025

1. Project Goal/Motivation/ Task Delegation for 1st and 2nd deliverables

1. Group Members:
    - Sanskriti Aripineni
    - Javier Benzo San Martin
    - Ndubueze Echefu
    - Rapheal Evangeslista
    - Leslie Flores
    - Steven Martinez Sanchez
    - Disha Shetty
    - Hunter Smith
    - Juan Pablo Laseter

2. Proposed Implementation
    - FocusQuest is a mobile/web application designed to gamify productivity, track focus sessions, and provide AI-driven insights to enhance users' work and study habits. The app helps users understand their most productive times by analyzing focus patterns and offering personalized feedback.

      Users earn points, streaks, and levels based on task difficulty, encouraging habit-building and motivation. Additionally, an AI-powered chatbot is implemented to provide encouragement, focus tips, and personalized suggestions to ease the burden of hectic tasks and to break them down into subtasks. FocusQuest operates beyond work and study, it can be used to track productivity across various activities such as working out, attending classes, and cooking, since the main idea of this application is to reinforce positive habits in all aspects of life to prevent doom scrolling and excessive screen time.

3. Motivation
    - We are in a world where everything goes very fast. Staying focused is now harder than ever. Traditional productivity methods are hard to follow, Is very difficult to build lasting habits. FocusQuest tries to tackle this by combining gamification, AI-driven insights, and multi-activity tracking to make productivity attractive and personalized to everyone's needs.

      This project is an exciting challenge in terms of software engineering, requiring mobile/web development and the use of AI. FocusQuest helps users stay motivated and focused by taking advantage of technology.

4. Audience
    - FocusQuest is designed for a diverse audience with a goal of enhancing their productivity and developing lasting habits in an engaging way. Students can use this app to stay on track with their academic work, while professionals can use FocusQuest to structure their tasks effectively around project management and team morale. FocusQuest reaches out to students and professionals who share an enthusiasm for gamification, self-improvement, and developing good habits. It offers personalized optimization of multi-task management

through the lens of a video game. In essence, whether you're a student or a professional, or just someone who is willing to take productivity to the next level, FocusQuest is here to help.

2. Link to our repository: [3589hunter/3354-Group-1]

3. Delegation of tasks:

Name	Delegated Task
Disha Shetty	Creating Requirement specification document (including functional and non-functional requirements), completing step 1.1-1.2, task delegation and management, document submission
Leslie Flores	Creating Use case diagrams
Sanskriti Aripineni	Creating Use case diagrams, Traceability matrix
Rapheal Evangeslista:	Creating Sequence Diagrams for Use Cases
Javier Benzo San Martin	Creating the class diagram
Steven Martinez Sanchez:	Creating the architectural design and describing the reason for the architectural pattern design.
Hunter Smith	Creating git Repository, creating class diagram, outlining the classes that will be used for the project
Ndubueze Echefu	Creating the architectural design and describing the reason for the architectural pattern design
Juan Pablo Laseter	Creating Sequence Diagrams for Use Cases

4. Software Process Model

Waterfall model: We have opted to implement the Waterfall model for this project due to the well-defined requirements and the strict timeline associated with it. Given that this is a class project with limited time, we believe the Waterfall approach will provide the necessary structure and discipline, ensuring that each phase is completed before moving on to the next. Additionally, as our objective is to deliver a final presentation at the conclusion of the project, the sequential nature of the Waterfall model aligns well with our goals, minimizing flexibility towards changes and providing a clear, organized framework for successful project completion.

5. Requirement Specification

1. Introduction to Document
    a. Purpose of Product
        i. FocusQuest is a mobile/web application designed to gamify productivity, track focus sessions, and provide AI-driven insights to enhance users' work and study habits.
        ii. The app shall help users understand their most productive times by analyzing focus patterns and offering personalized feedback.
    b. Scope of Product
        i. Users shall earn points, streaks, and levels based on task difficulty, encouraging habit-building and motivation.
        ii. Additionally, an AI-powered chatbot shall be implemented to provide encouragement, focus tips, and personalized suggestions
        iii. To ease the burden of hectic tasks it shall break them down into subtasks.
    c. Acronyms, Abbreviations, Definitions
        i. Acronyms
            1. AI: Artificial Intelligence
    d. Definitions
        i. Streaks: Running count of consecutive high productivity days

2. General Description of Product
    a. Context of Product
        i. To help stay focused in this fast paced world.
        ii. Traditional productivity methods are hard to follow, and it is very difficult to build lasting habits.FocusQuest shall tackle this by combining gamification, AI-driven insights, and multi-activity tracking to make productivity attractive and personalized to everyone's needs.
    b. Product Function
        i. Gamify productivity through streaks and points.
        ii. Assign levels based on task difficulty level.
        iii. Use of AI chatbot to streamline tasks and provide personalized tips and suggestions based on user data and history.

c. User Characteristics
    i. Students
        1. Possible use: To stay on track with their academic work
    ii. Professionals
        1. Possible use: To structure their tasks effectively around project management and team morale building.
d. Constraints
    i. For AI personalized feedback to be useful, users would have to use the app for 3-4 months.
e. Assumptions and Dependencies
    i. It is assumed that the user has basic technological experience in using mobile/web application

3. Specific Requirements
    a. Functional Requirements
        i. Login
            1. Shall allow customers to login to an account to ensure their data is safe, and previous tasks and streaks are continued.
            2. Inputs: Users shall login with username and password
            3. Processing: Shall validate based on existing database if existing user or shall add user information to database.
        ii. Manage Focus Sessions
            1. Shall allow users to track sessions
            2. Shall measure and analyze focus duration
        iii. Create tasks
            1. Shall allow users to add tasks they want to complete.
            2. Should allow users to add date/time by when they want to complete it by
            3. Shall allow users to enter expected time for task
        iv. Earn Points
            1. Points shall be assigned on task completion
            2. 1 Point/minute according to the expected time on task will be assigned, to measure difficulty.

v. Manage Tasks
    1. Shall allow users to modify information on added tasks, such as expected time, due date/time
    2. Shall allow user to remove/replace task

vi. AI feedback
    1. Shall provide encouragement to complete tasks.
    2. Should provide personalized tips and strategies based on user data
    3. Should provide personalized peak productivity time frames for different types of tasks according to past user data

b. **Non Functional Requirements**

i. Availability
    1. Occasional maintenance breaks expected but shall be no longer than 1 hr.
    2. Shall not be available offline

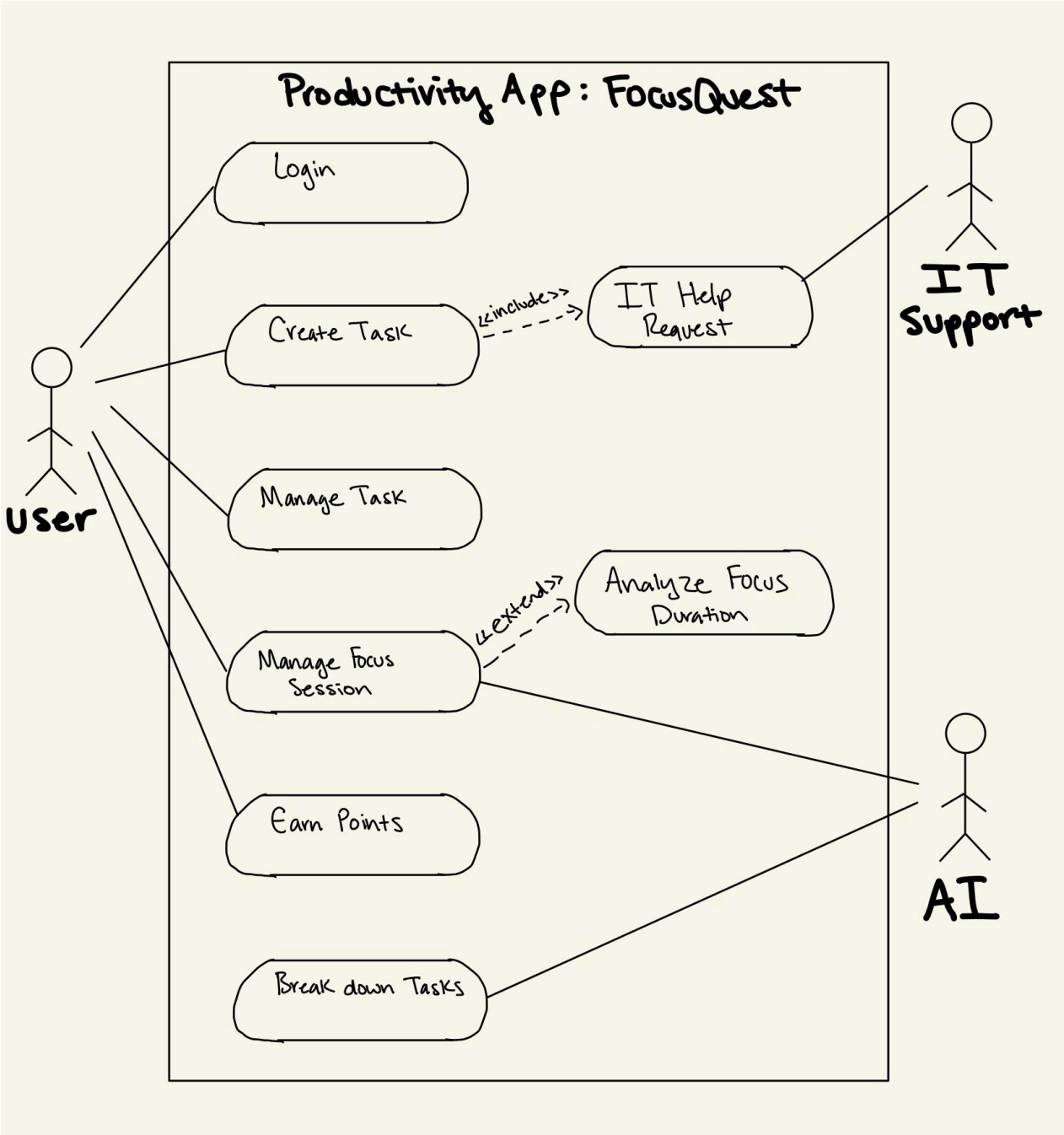
ii. Security
    1. User data is secure and databases shall not be accessible unless legally required.

iii. Usability
    1. The interface shall be easy to use and anyone with basic technology experience should be able to use it with ease.

iv. Performance
    1. Shall not take more than 10 seconds to login.
    2. Task tracking and AI feedback should not take more than 90 seconds.

5. Diagrams (Use-Case/Sequence/Class/Activity

5.1. Use case diagram



5.2. Traceability Matrix

Use Cases

- Login
  1.Login
  2.Logout
  3.Create account
  4.Reset password
- Create task
  5.Add task
  6. Delete task
- Manage task
  7. View report
  8. Edit task
- Earn points
  9. Streak
  10. Points
- Break down
  11. AI feedback
  12. importance
  13. deadline

Functional Requirements and Use Case

Req	Priority	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11	UC12	UC13
R1	1	x												
R1.1	1	x												
R1.2	1	x		x										
R1.3	1			x										
R1.4	1	x	x		x									
R2	2					x	x							
R2.1	3							x						
R2.2	1							x	x					
R3	1					x								
R3.1	1					x								
R3.2	1					x	x							
R3.3	2						x							
R4	2									x				
R4.1	2									x	x			
R4.2	1										x			
R5	3			x		x			x					
R5.1	2					x		x						
R5.2	1						x		x					
R6	1											x		
R6.1	1											x		
R6.2	1											x	x	x
R6.3												x	x	
UC priority		1	1	2	3	1	1	2	2	3	4	1	1	1

Non-Functional Requirements and Use Case

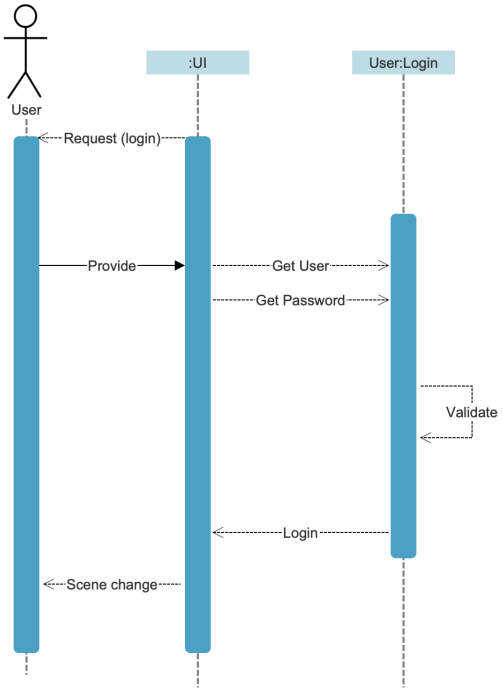
NFR	Priority	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11	UC12	UC13
NFR1	1	x												
NFR1.1	1	x	x	x	x									
NFR1.2	2	x												
NFR2	1	x												
NFR2.1	1					x								
NFR3	3					x	x	x	x					
NFR3.1	3					x	x	x	x					
NFR4	4	x												
NFR4.1	4	x												
NFR4.2	3											x	x	x
UC priority		1	1	2	3	1	1	2	2	3	4	1	1	1

Non-Functional Requirements and Functional Requirements

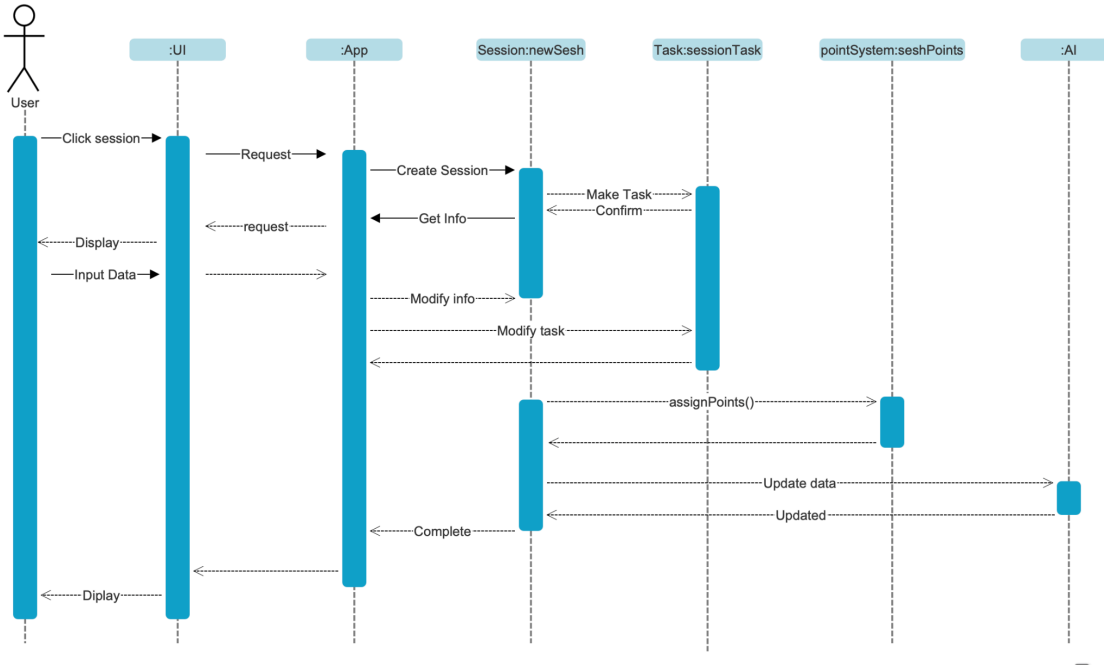
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Req	Priority	FR1	FR1.1	FR1.2	FR1.3	FR1.4	FR2	FR2.1	FR2.2	FR3	FR3.1	FR3.2	FR3.3	FR4	FR4.1	FR4.2	FR5	FR5.1	FR5.2	FR6	FR6.1	FR6.2	FR6.3
NFR1	3																						
NFR1.1	3																						
NFR1.2	3																						
NFR2	1			x																			
NFR2.1	1	x	x		x	x																	
NFR3	2									x								x					
NFR3.1	2					x	x	x	x		x	x	x	x	x	x	x	x	x		x	x	x
NFR4	1																						
NFR4.1	2	x	x	x	x	x																	
NFR4.2	1								x							x				x	x	x	x
FR Priority		1	1	1	1	1	3	3	2	1	1	1	1	2	2	1	2	1	1	1	1	2	2

5.3. Sequence diagram

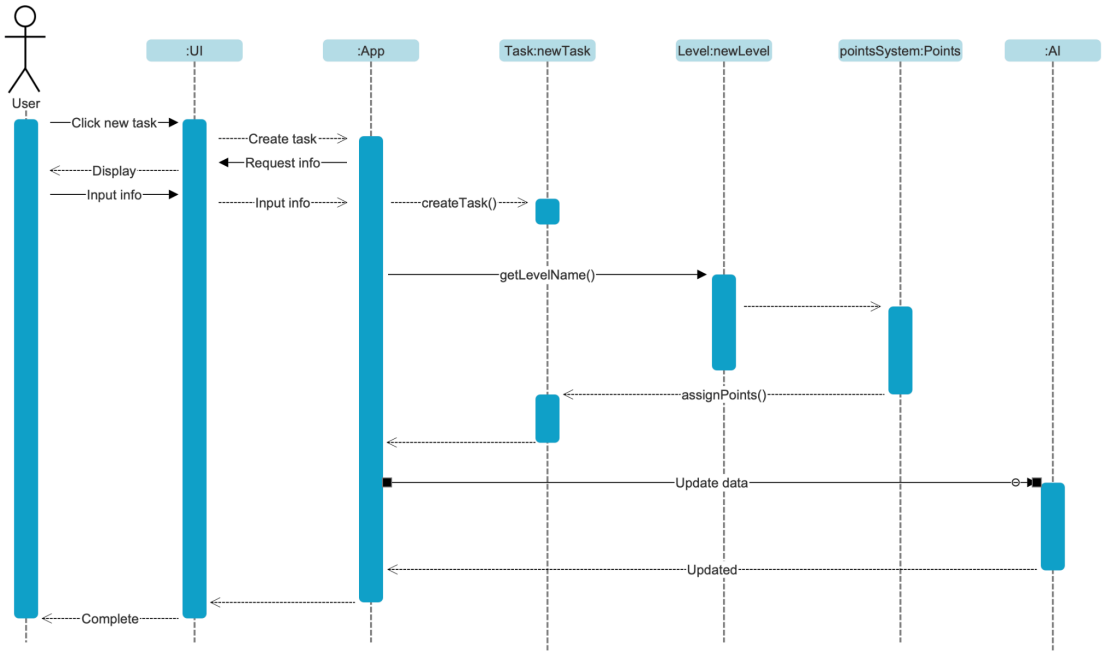
i Login



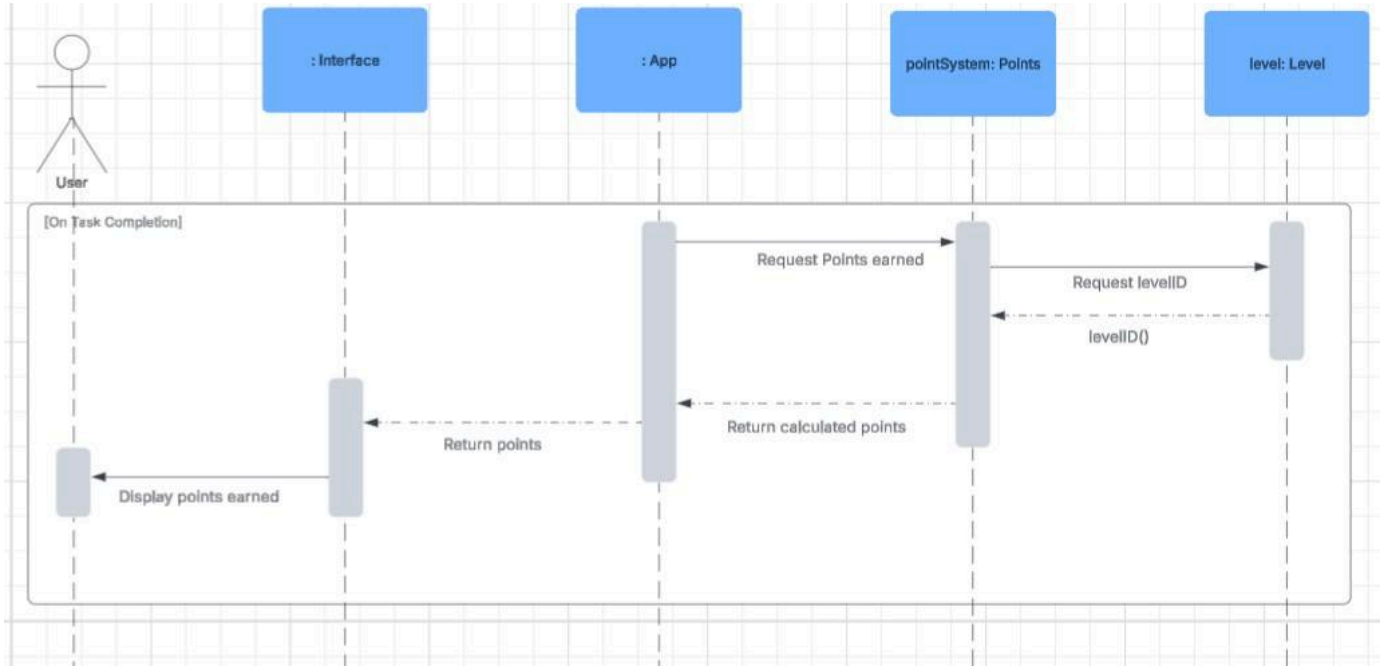
ii Manage Focus Sessions



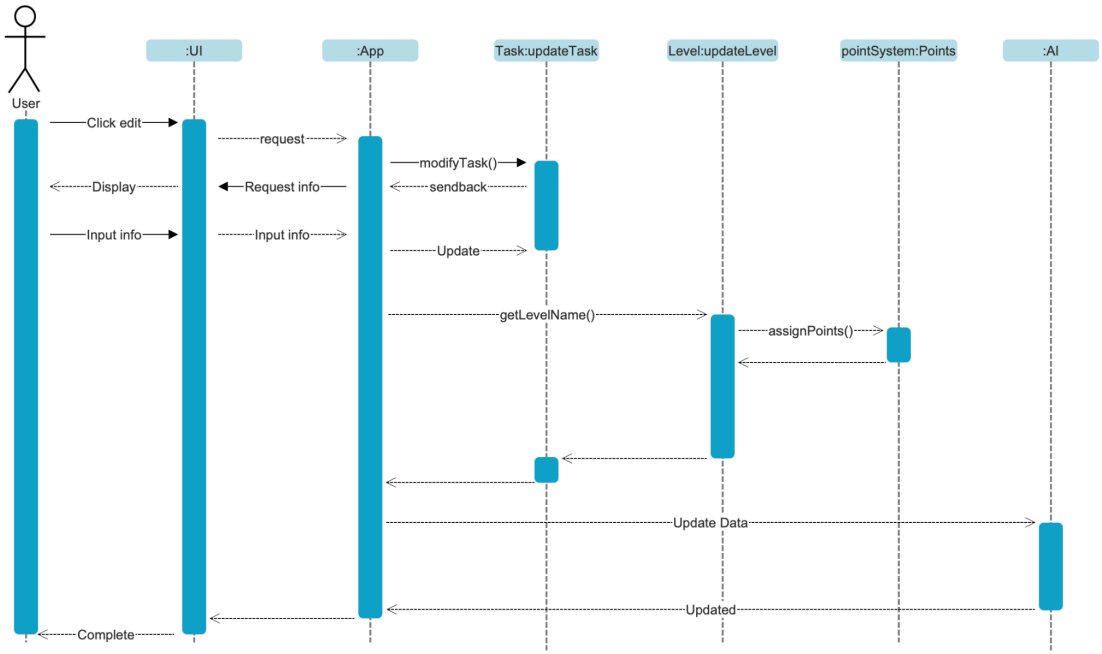
iii Create Tasks



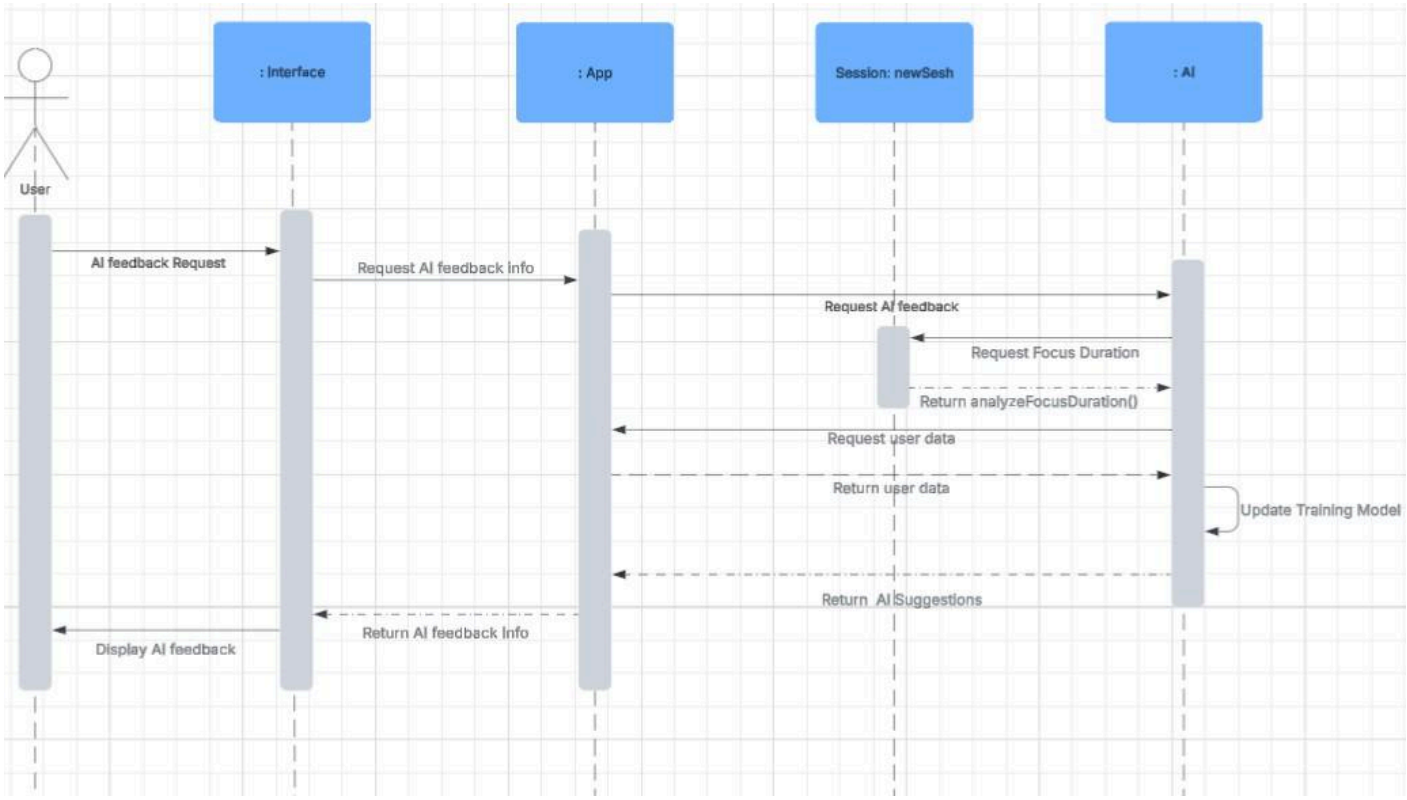
iv Earn Points



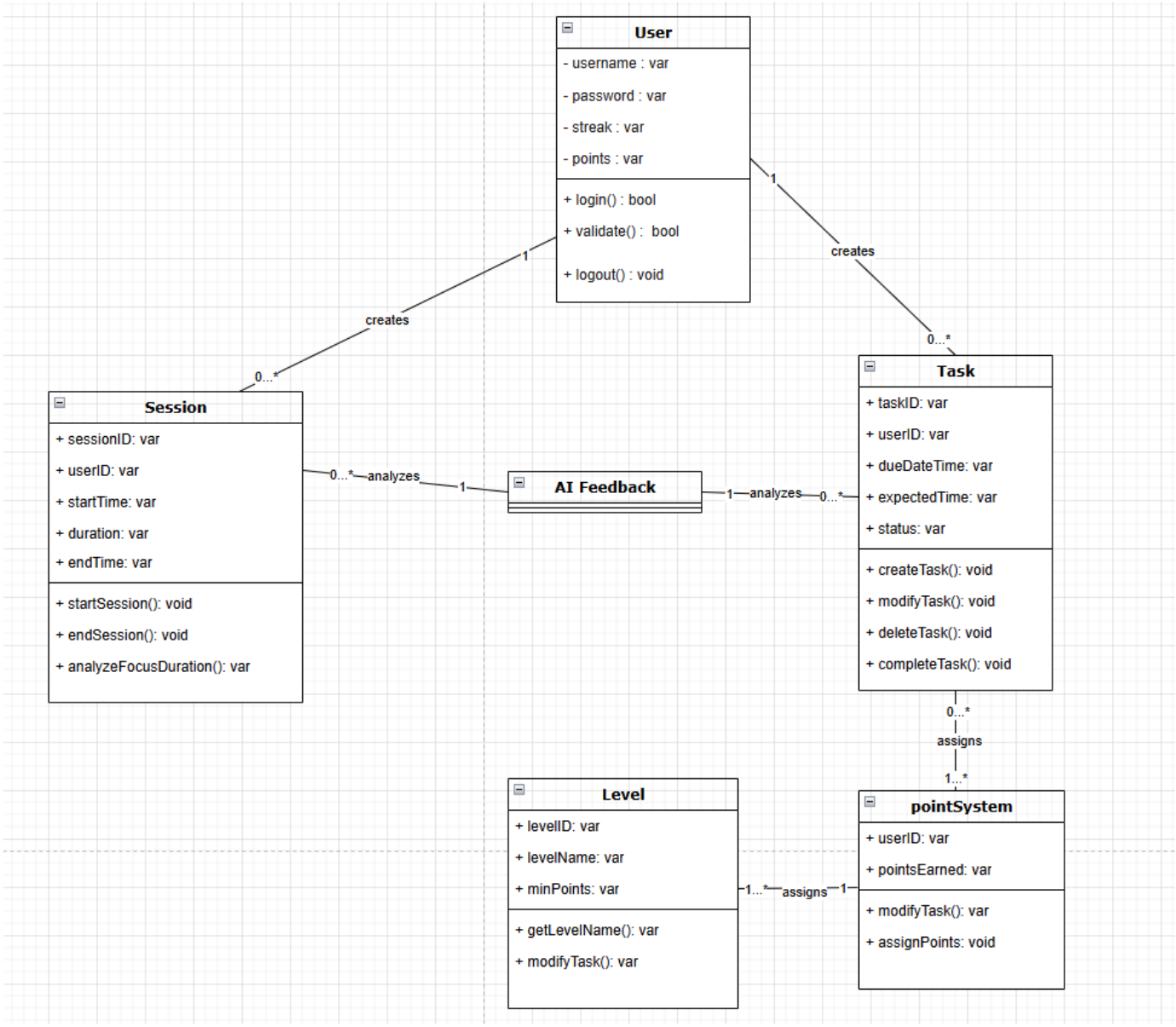
v Manage Tasks



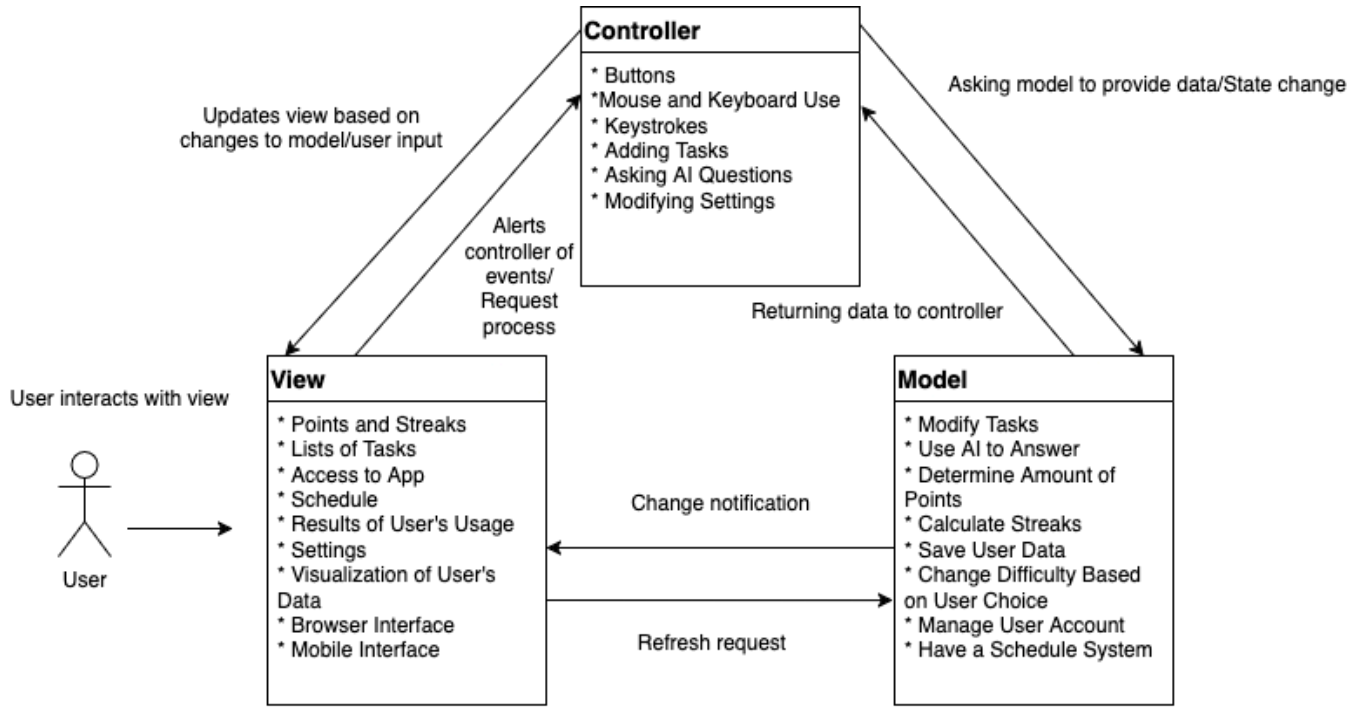
vi Ai Feedback



5.4. Class Diagram



6. Architectural design



6.1. Describe why the pattern is selected

We've selected to use MVC because we believe that it is the architectural pattern most suited to complete our project within the given timeframe. Its separate three tier component approach will increase the speed of our development process by allowing us to work on the visual, controller, and model aspects of our system simultaneously. Furthermore, the ability to create multiple views for our model aligns well with the mobile/web application nature of our project. The controller and model being unaffected by changes to the view is especially beneficial for a productivity application where changes to the view to enhance user experience is not uncommon.