Trackers:

Name: Study Tracker

Purpose: Keeps track of the player character's learning progress within the game.

Role Stereotypes: *Information Holder* (Keeps track of number of times the player studies each day)

Responsibilities: Keeps track of the number of times the player studies each day. (From this the study score can be calculated and whether the player met the passing studying requirement.)

Collaborators: *Game*

Name: Energy Tracker

Purpose: Monitors the player character's energy levels, affecting their ability to perform certain actions.

Role Stereotypes: *Information Holder* (Holds player's energy level)

Responsibilities:

- Keeps track of the players energy
- Updates when the player interacts with points of interest.

Collaborators: *Game*

Name: Time Tracker

Purpose: Manages the progression of time within the game, affecting the game environment or character status.

Role Stereotypes: *Information Holder* (holds current time)

Responsibilities:

- Keeps track of the remaining time in the day
- Keeps track of which day the user is on.
- Constantly ticks to maintain correct timing
- Can be updated (so can be told to be increased by Play when a POI is interacted with)

Collaborators: *Game*

Name: Wellbeing Tracker

Purpose: Manages the player's wellbeing within the game, affecting the end score or character status.

Role Stereotypes:
Information Holder (knows current wellbeing)

Responsibilities:

- Keeps track of the players wellbeing score
- Can be updated by request from Play (so it can be increased when the player interacts with POI)

Collaborators: *Game*

Buttons:

There are many different buttons in this system, but

they all follow basically the same format as shown below.

Name: Button
Purpose: When pressed, switch to X screen.
Role Stereotypes: *User Interface*
Responsibilities: • Knows if player has pressed button. • Cause a switch from current screen to X screen when pressed.
Collaborators: *Menu, X*

Screen:

Name: Main Menu

Purpose: This is the initial screen that displays the game title with the buttons Start Game, Character Customisation, Credits and Quit. Allows the character to navigate to the actual game choose a character or view the resources used to produce the game

Role Stereotypes:
User Interface (In charge of displaying the game screen)
Controller (organises the flow of the game)

Responsibilities:

- Loads Map, Players and Points of Interest
- Coordinates player's interactions with points of interest.
- Display the current time to the user

Collaborators: *Library, Accommodation, Piazza, Duck Pond, Map, Player*

Name: Game

Purpose: Screen displaying the main elements of the game such as the map and points of interest. The players spend the most time on this screen.

Role Stereotypes:
User Interface (In charge of displaying the game screen)
Controller (organises the flow of the game)

Responsibilities:

- Loads Map, Players and Points of Interest
- Coordinates player's interactions with points of interest.
- Display the current time to the user

Collaborators: *Library, Accommodation, Piazza, Duck Pond, Map, Player*

Name: Tutorial

Purpose: Explains the functionality of the game as well as the controls

Role Stereotypes:
User Interface (In charge of displaying the rules of the game)

Responsibilities:

- Displays game controls

Collaborators: *Main Menu* (as Tutorial can be switched to/from Main Menu)

Name: Customise

Purpose: Displays the options for characters designs for the player to choose from before starting the game, designs represented as buttons

Role Stereotypes:
User Interface **(**In charge of displaying **)**
Controller (organises the changing of player sprite)

Responsibilities:

- Displays the options for character designs for the player to choose from.

Collaborators: *Player Skin, Main Menu* (as Tutorial can be switched to/from Main Menu)

Name: Scoring

Purpose: This is a screen displayed after the game to show the final score.
Role Stereotypes:
User Interface (In charge of displaying the scoring screen)
Controller (organises the scoring calculator)

Responsibilities:

- Display the final score accurately
- Provide feedback on individual game performance to the player
- Facilitate navigation back to the main menu or replay option

Collaborators: *Game* (as Game provides the results which Scoring reports on), *Main Menu* (as Scoring can be returned from to the Main Menu).

Name: Credits

Purpose: Displays the sources of the resources (audio, images, sound, software etc.) used to create the game

Role Stereotypes:
User Interface (In charge of displaying the sources)

Responsibilities:

- Displays test containing the names of resources used to create the game.

Collaborators: *Main Menu* (as Credits can be switched to/from Main Menu)

User Input:

Name: KeyboardListener

Purpose: This keeps track of keyboard inputs and communicates to the objects that need this information.

Role Stereotypes:
Interfacer (Interfaces with the keyboard hardware and translates that to requests to different hardware)

Responsibilities:

- Monitor and log all keyboard inputs
- Translate raw input data into understandable commands for the system
- Notify relevant objects about user input

Collaborators: *Player*

ScoreCalculator:

Name: ScoreCalculator

Purpose: Can be called to calculate final score when given the study score, wellbeing score, whether the pass requirement was fulfilled, and any other information used to calculate the final score.

Role Stereotypes:
Service Provider (Provides the service of calculating the final score)

Responsibilities:

- Calculate final score from study and wellbeing information passed to it

Collaborators: *Score Screen*

Game Items:

Name: Map

Purpose: Displays the game world layout, allowing the player to navigate and explore different locations.

Role Stereotypes:
Information Holder (stores info about the locations of Points of Interest)
User Interface (displays Map to player)

Responsibilities:

- Knows map layout
- Creates point of interest in correct location
- Renders Map
- Passes on tracker requests from POIs to Play

Collaborators: *Player, Library, Duck Pond, Accommodation. Piazza*

Name: Info Display

Purpose: This is a UI element which shows the user what time it is.

Role Stereotypes:
User Interfaces (Job is to display internal game state information to the user)

Responsibilities:

- Renders Day/Time to the screen

Collaborators: *Time Tracker*

Name: Player

Purpose: Represents the user in the game, interacting with the environment, objects, and other characters.

Role Stereotypes:
Coordinator (mechanically reacts to events such as arrow presses causing the Player to move around)

Responsibilities:

- Interacts with Place of Interest if touching and “E” key pressed
- Moves in direction dictated by KeyboardListener
- Render player skin

Collaborators: *PlayerSkin, KeyboardListener, Map*

Name: Player Skin

Purpose: Visual representation of the character design a player can choose

Role Stereotypes:
Information Holder (knows the player sprite)

Responsibilities:

- Knows the player sprite.

Collaborators: *Player*

Points of Interest (POIs):

Name: Library

Purpose: This is an object on the map that the player can interact with to study. This will increase the study score, while also fulfilling the requirement to study once a day.

Role Stereotypes:
Coordinator (because it reacts to the player interacting with it by increasing study score),
Information Holder (knows how many times the player has already studied today, so diminishing returns for studying more times can be applied)

Responsibilities:

- Knows how many times the player has interacted with it today so diminishing returns can be applied.
- Knows time and energy costs, as well as study score gain.
- Makes request to Map to change time/energy/study score when Player interacts with it.

Collaborators: *Map, Energy Tracker, Time Tracker, Study Tracker*

Name: Accommodation

Purpose: This is an object on the map that the player can interact with to end the day by going to sleep.

Role Stereotypes:
Coordinator (because it reacts to the player interacting with it by changing tracker values).
Information Holder (knows how many times the player has already studied today, so diminishing returns for studying more times can be applied)

Responsibilities:

- Changes day when player interacts with it

Collaborators: *Map, Energy Tracker, Time Tracker, Study Tracker*

Name: Piazza

Purpose: This is an object on the map that the player can interact with to increase their wellbeing by eating. Eating at regular intervals throughout the day increases wellbeing.

Role Stereotypes:
Coordinator (because it reacts to the player interacting with it)
Information Holder (knows how long since the player last ate, so diminishing returns for eating many times in a row)

Responsibilities:

- Knows time and energy costs, as well as wellbeing score gain.
- Knows how many times the player has eaten already today, so diminishing returns are applied.
- Makes request to Map to change time/energy/study score when Player interacts with it.

Collaborators: *Map, Energy Tracker, Time Tracker, WellbeingTracker*

Name: Duck Pond

Purpose: This is an object on the map that the player can interact with to increase their wellbeing by feeding the ducks. If they feed ducks one day, then more ducks will appear on the next day which will lead to higher wellbeing scores.

Role Stereotypes:
Coordinator (reacts to the event of the player interacting with it)
Information Holder (knows how many ducks are at the pond, knows how many times the user has interacted with it today already and so diminishing returns can be applied to relaxing at the duck pond many times in one day)

Responsibilities:

- Knows time and energy costs, as well as wellbeing score gain.
- Makes request to Map to change time/energy/study score when Player interacts with it.
- Knows how many times the player has interacted with it today, so diminishing returns can be applied.
- Increases the wellbeing score gained if ducks were fed the last day.

Collaborators: *Map, Energy Tracker, Time Tracker, Wellbeing Tracker*