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CSCI 4448 – OOAD

Project 5: The Semester Project for OOAD – Design Phase

<u>Project Summary</u>

- Title: Cat Cafe

- Team: Katy Luttrell, Anjala Katuri, Emma Hardison, Gabriela Tolosa Ramirez

- Cat Cafe is a Strategy and Time Management Game (Desktop Application compatible with Windows/Mac). The player will play as a character who balances being a barista as well as a cat caretaker. Customers line up at the coffee counter and order items. The player clicks to make their character go to different parts of the kitchen (the coffee maker, the syrups, the milk steamer) and each of these take a certain amount of time. The goal is to make the orders quickly and give them to the customers (the faster you get it to a customer the bigger the tip). Then the customer goes over to where the cats are in the cafe and will attempt to play with a randomly chosen cat. The cats will have needs that need to be taken care of. So part of the player's responsibilities in addition to making food/drinks for customers is to fill the cats' orders by giving them food/water/toys when they request it. Depending on how well the cats' requests are met the customer may leave an additional tip or you might lose money from having to placate a customer who got clawed by an angry cat. The money made from playing the levels can be used to purchase power-up items which change the display and increase the cats' and customers' patience. There will be multiple levels of the game and in each level there will be a money goal you need to meet to move on to the next level. Levels will get harder as you progress with more cats, more customers, and higher money goals.
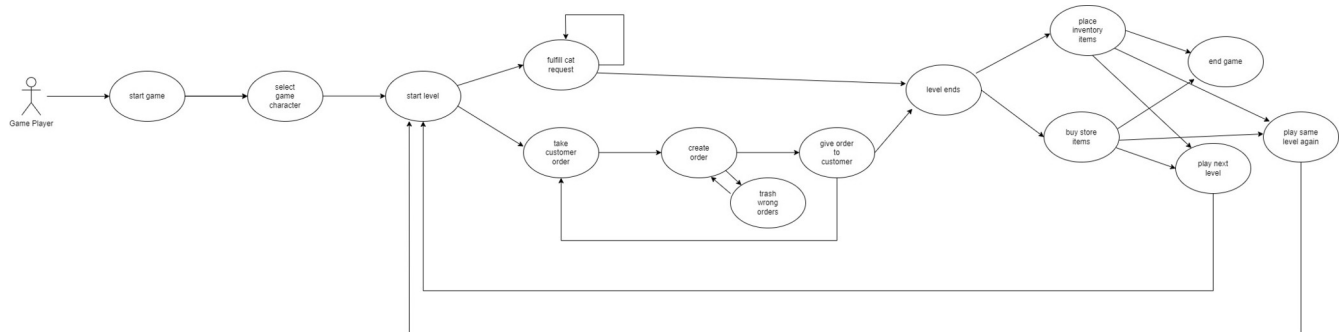
<u>Project Requirements</u>

- Cats
  - Graphics
  - Animation – walks around
  - Implements patience
    - Patience decreases when the cat has unmet needs
  - Requestable interface
    - Cats can request food, toys, and water
- Background graphics
  - Coffee counter
    - machines: coffee maker, milk steamer, syrups, cash register, tips, food, decorations, trash
  - Money count, Quit, Goal
  - Add-on items that player purchased

- People/NPCs
  - Graphics
  - Spawn the people – draw from exponential distribution
  - hearts to show patience level
  - walkable interface
  - requestable interface
  - patience interface
- Player
  - Player will walk around the store making coffee, running the cash register, taking care of the cats.
- Add-On Items
  - Add graphics to the store
  - Increases the patience of cats and customers
  - When a client buys item: it goes into inventory
- Coffee Shop Flow
  - Customers come in with an order request and queue at the register
  - Player clicks on the ingredients/ steps needed to make the drink and then click the customer to give it to them
  - If its correct the customer will take it and give money
  - If its incorrect the customer will reject it and you will have to throw it away (lose money)
- Cat Interaction Flow
  - Once a customer (NPC) has received their drink, they will go to the cat area.
  - If they interact with a happy cat (cared for), they will get happier and tip the store.
  - Medium cat happiness lvl: medium tip
  - Angry cat: cat attacks, NPC gets money from store for their injury
- Level Logistics
  - Each level will have limited time to be completed
  - Different levels
    - Different money goals
    - Different spawn/request frequencies for customers and cats.
  - Locked Levels
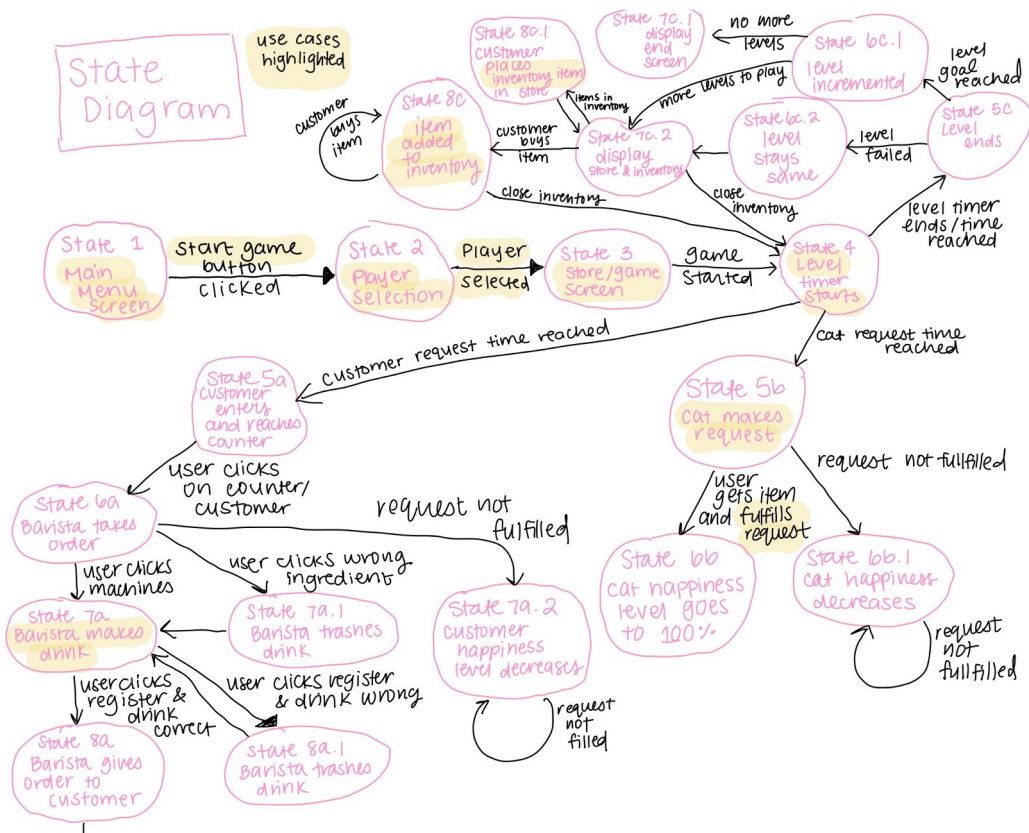   - Player has to complete a level before completing any others.

- Walkable Interface
  - Applied to all people (players and customers) and cats that walk
  - Gives walking functionality
    - When client clicks on a place for the player to go, the correct player should walk to the location and avoid any obstacles in the way
- Patience
  - Applied to customers and cats
  - Allows their patience level/happiness level to go up and down based on how long they have to wait
    - this affects tip amounts
- Requestable interface
  - Applied to customers and cats
  - Lets an object request for items
    - Customer: coffee drinks
    - Cats: toys, pets, food, water
- Data Storage
  - Store high score for each level, player money, and inventory items will be stored in a text file so that they can be loaded in each time a player plays to keep track of progress.
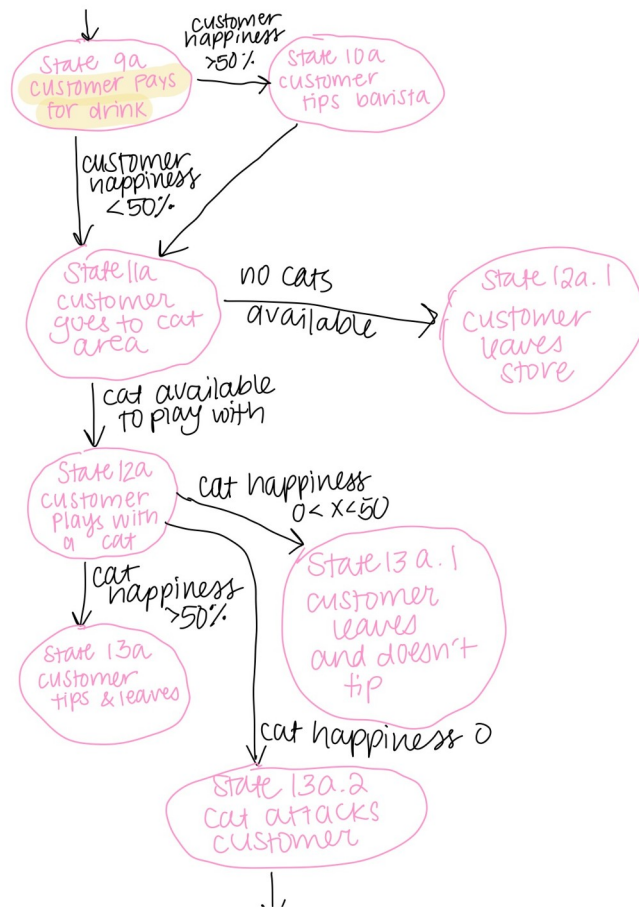
Users and Tasks: Use Cases

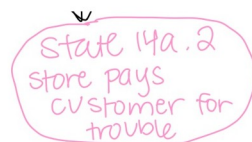https://drive.google.com/file/d/1neVTZ2LO68oAlmP7xNZtbAjLTLGG8qF5/view?usp=sharing

State Diagram

use cases highlighted

State 8c.1 Customer places inventory item in store

State 7c.1 display end screen — no more levels

State 6c.1 level incremented — level goal reached

State 8c item added to inventory — customer buys item — items in inventory — more levels to play

State 7c.2 display store & inventory — customer buys item

State 6c.2 level stays same — level failed

State 5c Level ends

State 1 Main Menu Screen — start game button clicked

State 2 Player Selection — Player selected

State 3 Store/game screen — game started

State 4 Level timer starts — close inventory — close inventory — level timer ends/time reached

cat request time reached

State 5a customer enters and reaches counter — Customer request time reached

State 5b cat makes request — request not fulfilled

State 6a Barista takes order — user clicks on counter/customer — request not fulfilled

State 6b cat happiness level goes to 100% — user gets item and fulfills request

State 6b.1 cat happiness decreases — request not fullfilled

State 7a Barista makes drink — user clicks machines — user clicks wrong ingredient

State 7a.1 Barista trashes drink

State 7a.2 customer happiness level decreases — request not filled

State 8a Barista gives order to customer — user clicks register & drink correct — user clicks register & drink wrong

State 8a.1 Barista trashes drink

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State 9a customer pays for drink → (customer happiness >50%) → State 10a customer tips barista

State 9a → (customer happiness <50%) → State 11a customer goes to cat area

State 10a → State 11a

State 11a → (no cats available) → State 12a.1 customer leaves store

State 11a → (cat available to play with) → State 12a customer plays with a cat

State 12a → (cat happiness 0 < X < 50) → State 13a.1 customer leaves and doesn't tip

State 12a → (cat happiness >50%) → State 13a customer tips & leaves

State 12a → (cat happiness 0) → State 13a.2 cat attacks customer

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State 14a.2 store pays customer for trouble

https://drive.google.com/file/d/18NH7rVpoqAFSH871wP2Cfb4xxjBy94I6/view?usp=sharing

Architecture Diagram

We will be creating a desktop application with the LibGDX framework.

Data Storage

We will be storing data, if necessary, on a text file or CSV. The only things that need to be stored throughout gameplay is player info.
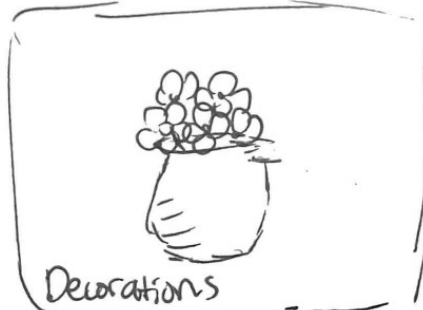
Store

Cat Toys

Cat's Patience Drains Slower

Buy: $400

$800

Decorations

Customer's Patience Drains Slower

Buy: $700

user's money

Oat Milk

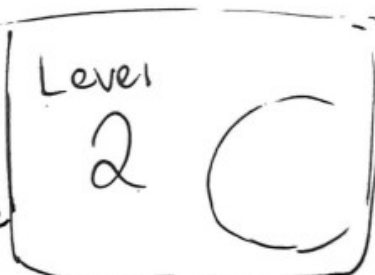Charge more for Drinks with Milk

Buy: $1000

can't afford

Menu

Levels

This level is locked

Level 1

Check indicates level is complete

Goal: $200
High Score: $250

Level 2

Goal: $500
High Score: $482

Level 3

Goal: $500
High Score: $0

Quit

coffee maker

milk steamer

syrups

trash

playable barista

cash register

tips

food

Cat need

Cat happiness

Cat

order latte

+ muffin

Patience bar/happiness

on hover shows recipe

recipe

Customer

Cat food

Cat water

Menu Button

Menu

Goal $

Goal: $500

current $

$ 235

Cat Needs

love/attention
- Go to cat

Food
- Go to food
- Go to cat

water
- go to water
- go to cat

QUIT Store

PLAY

Levels

CAT CAFE

PLAY Levels Store QUIT

UML Class Diagram & Pattern Use

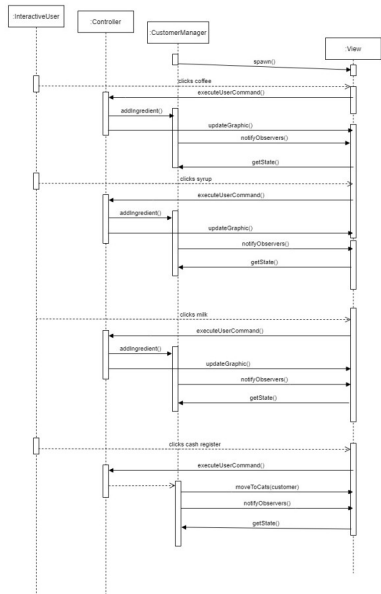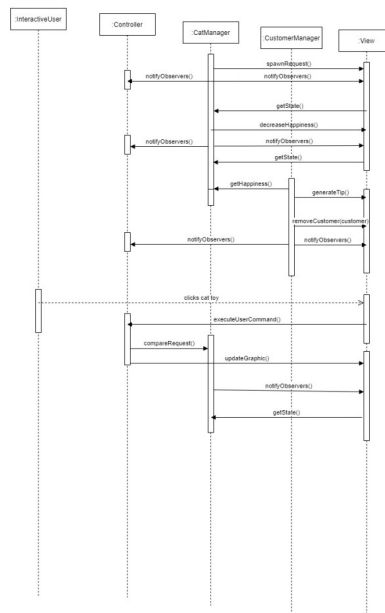https://drive.google.com/file/d/1UprR90nSky5Jx6Zh5AHeD6hG_56ADoq_/view?usp=sharing

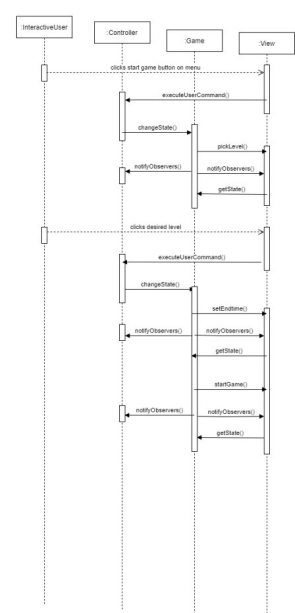# User Interactions/UML Sequence Diagrams

User Interaction 1: Making a customer's drink order example: Latte with syrup

User Interaction 2: Interact with cats example: cat has request for toy

User Interaction 3: start game and pick level

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