Putt’n Ale: A complete tournament system

Requirements Definition

1. Introduction and Context

Imagine that you own a miniature golf business, or maybe a frisbee golf park, or some other hole by hole based game venture. What do you do when you want to host an event or tournament? You would either have to have a lot of employees going around, taking down people’s scores or give all the players cards with tiny pencils and have them record their own scores and then report them at the end, counting and determining winners. PuttPuttGolf is a complete tournament system designed for hole-by-hole games that eliminate these issues.

PuttPuttGolf is a web-based app that allows you to quickly and easily set up tournaments. It also allows for tournaments to be sponsored with integrated ad support for the sponsors. Users can sign up for an account and then register for open tournaments. Once they are registered and participating in an active tournament, the app keeps track of their hole and allows them a very easy way to report their scores. Users, while playing, will see a very simple UI. It will display their hole number, and either *n* buttons pertaining to the total number of strokes on that hole or a text field to enter the strokes manually. The server keeps track of all the users' scores and can automatically determine the winners at the end. The app also allows for the sale of drinks during the tournament, with an integrated beverage ordering queue system.

As part of the UI, users while playing will see their hole/score options but also a button to order drinks. It will display a menu where they can choose drinks to order from. Once ordered, they will be able to see the status of their drinks. Employees, logged in under drink delivery dedicated accounts, will be able to see a queue of all drinks ordered. They will be able to accept an order and update the status of the order. Once the drink is made, the user’s real-time location will be shown to the employee so that they will be able to quickly bring the drink to the customer out on the course.

2. Users and Goals

There are 5 main users for this app.

1. Player
2. Sponsor
3. Drink Meister
4. Manager
5. Tournament

A player is just a player in the tournament, a sponsor has the ability to create and sponsor tournaments, drinks meisters handle the drink queue, managers have admin abilities such as creating tournaments, changing the drink menu, changing scores, kick/banning people, manage user accounts, etc. A tournament is an automated user that gets created automatically by the manager or sponsor when they want to make a tournament. It has an account that houses the sponsor money, as well as the money made from drinks during that tournament for metric reasons. It also keeps track of scores, displays a scoreboard, and determines winners when the tournament is over.

Below are some figures and descriptions of use cases for the users.

Use Case Diagram: Sign Up/Login

Participating Actor: Human

Entry Condition:

- Human has navigated to the website

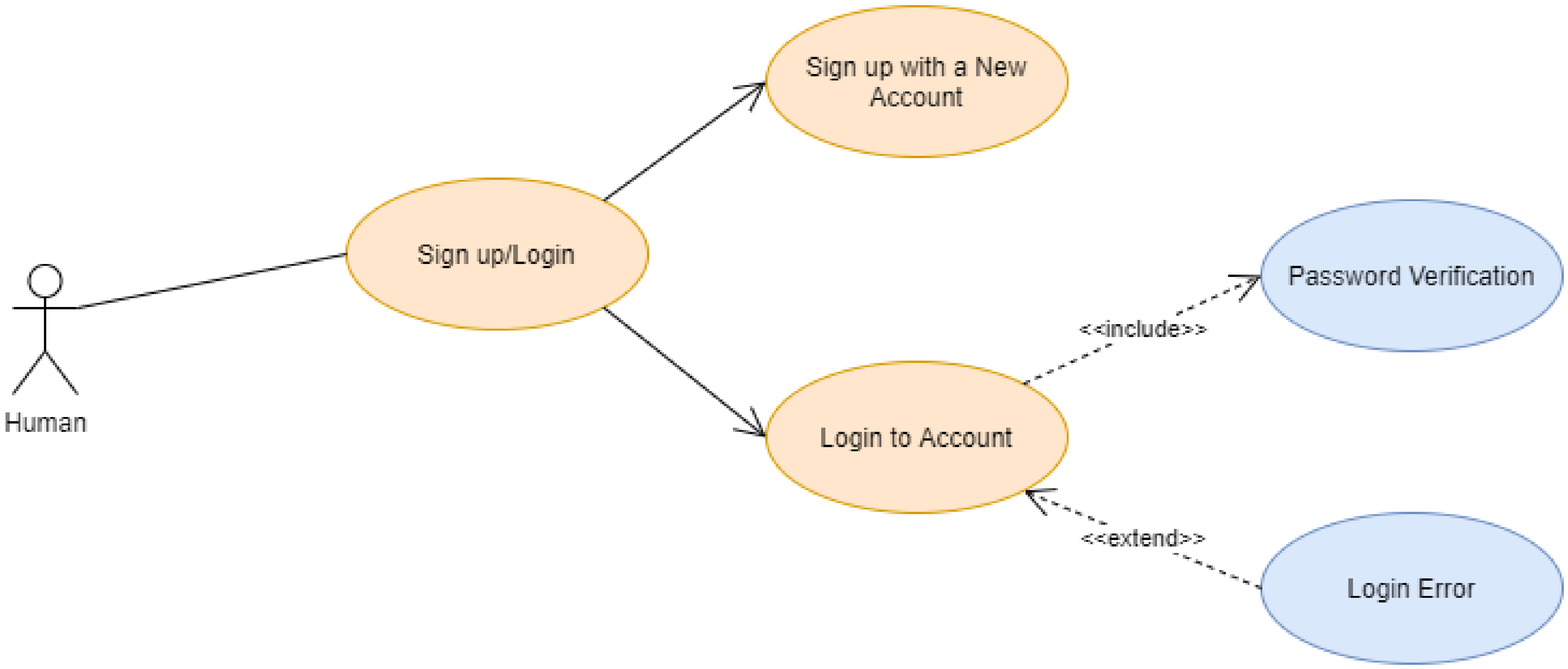
Exit Condition:

- Human has logged in

Event Flow:

1. New Human enters new username and password
    a. Validate email and good password
    b. If invalid email/password display error
2. Returning Human enters their username and password
    a. Validate email and password in the database
    b. If login error display login error

Use Case Diagram: Sign Up/Login



Use Case Diagram: Manage Money

Participating actor: User

Entry condition:

- User is logged in

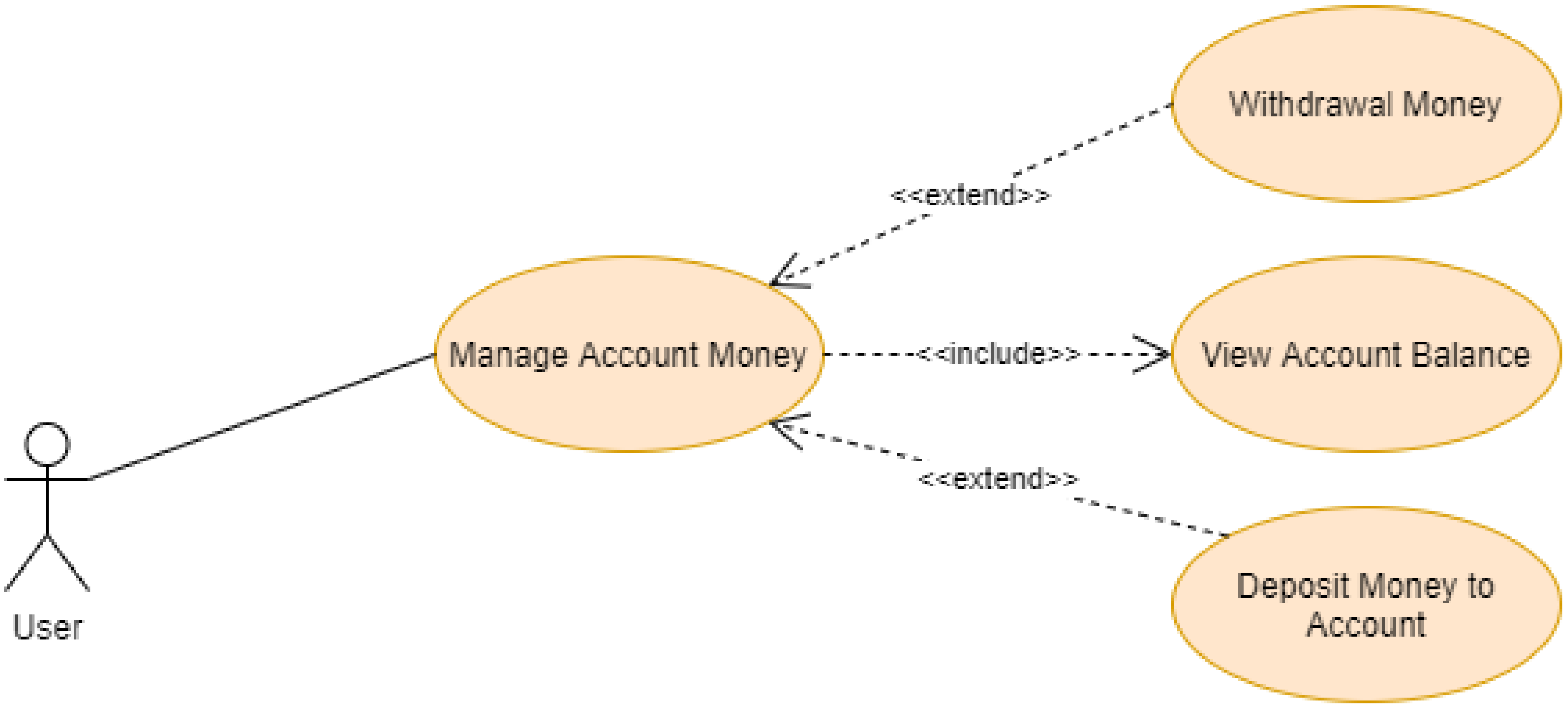
Exit condition:

- User is done viewing or editing their money

Event Flow:

1. User selects manage account tab
2. User views their account balance
3. User may withdraw money if their balance is $0+
4. User may deposit money

Use Case Diagram: Manage Money



Use Case Diagram: Drink Meister

Name: Handle drink order

Participating actor: Drink meister

Entry condition:

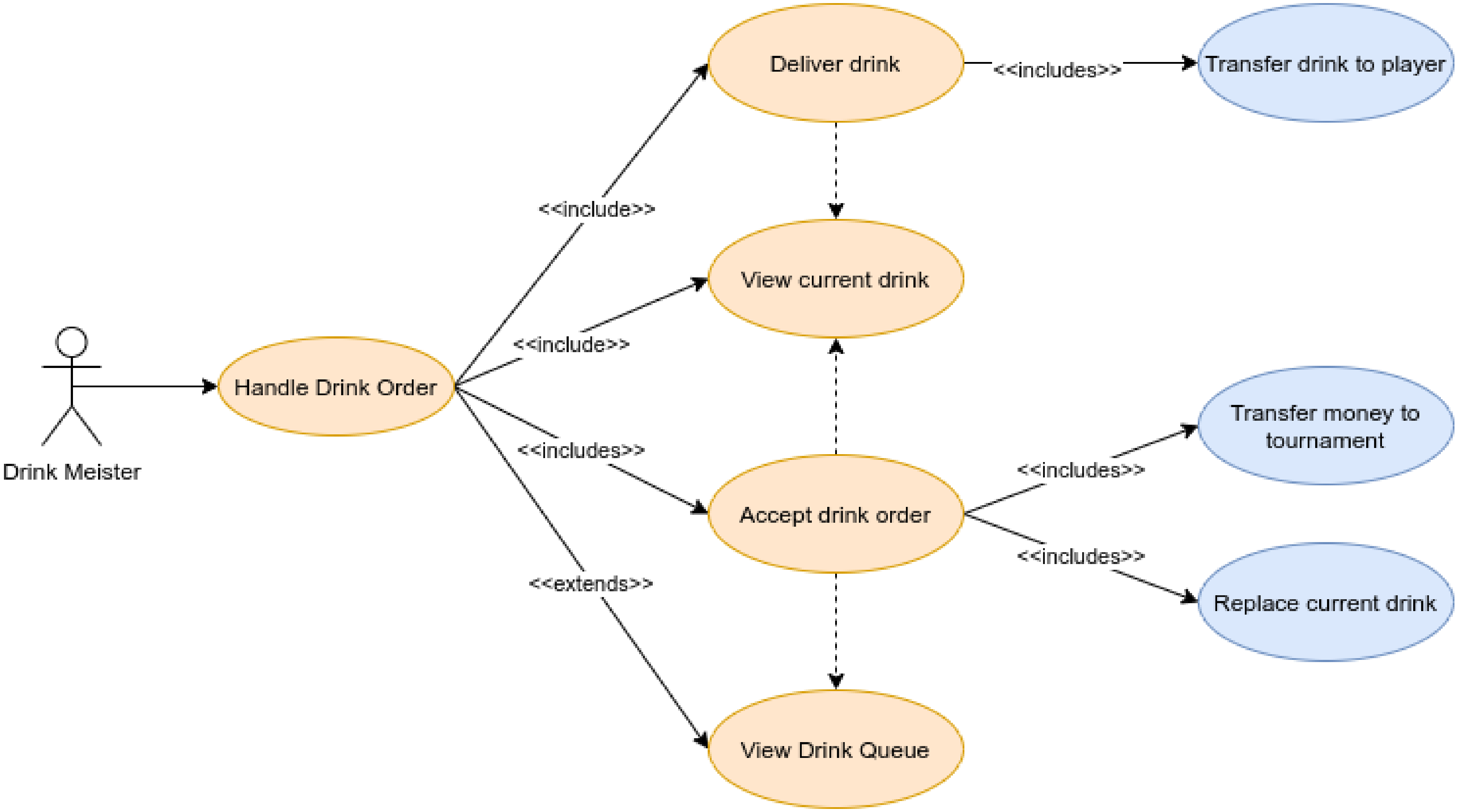
- Drink meister has successfully logged in
- Drink queue is not empty

Exit condition:

- Drink is served to the user

Event Flow:

1. Drink meister selects drink to prepare from the drink queue
2. Tournament receives money for drink
3. Drink meister prepares selected drink
4. Drink meister transfers drink to player


Deliver drink
<<includes>>
Transfer drink to player
<<include>>
View current drink
<<include>>
Drink Meister
Handle Drink Order
Transfer money to tournament
<<includes>>
<<includes>>
Accept drink order
<<includes>>
<<includes>>
Replace current drink
<<extends>>
View Drink Queue

Use Case Diagram: Manager

Name: Add drink

Participating actor: Manager

Entry condition:

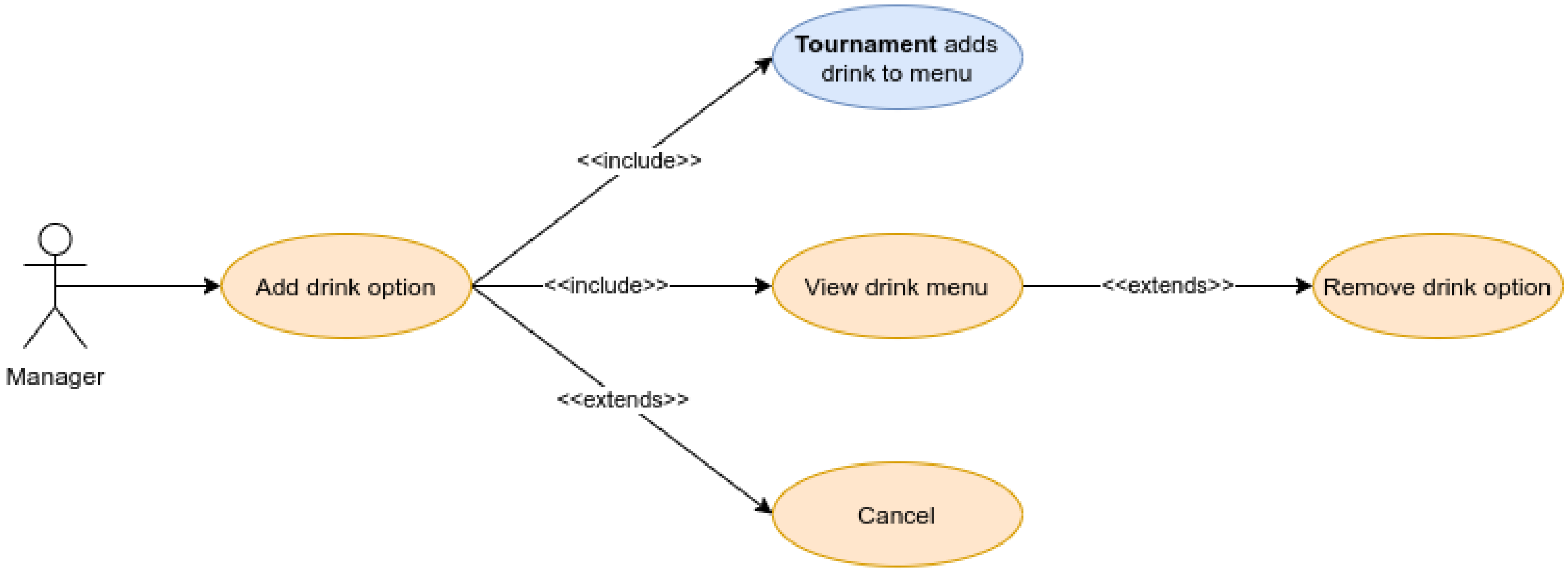
- Manager has successfully logged in
- Manager is viewing the current drinks

Exit condition:

- Menu has the new drink.
- Manager cancels adding the drink

Event Flow:

1. Manager types the name of the drink.
2. Manager types the cost of the drink.
3. Manager types the description of the drink.
    a. Tournament validates the data and adds the drink to the menu.
    b. Tournament returns an error code to Manager saying the data is not correct.
4. Tournament displays the newly updated menu.


Tournament adds drink to menu
<<include>>
Manager
Add drink option
<<include>>
View drink menu
<<extends>>
Remove drink option
<<extends>>
Cancel

Use Case Diagram: Manager

Name: Set up tournament dates

Participating actor: Manager

Entry condition:

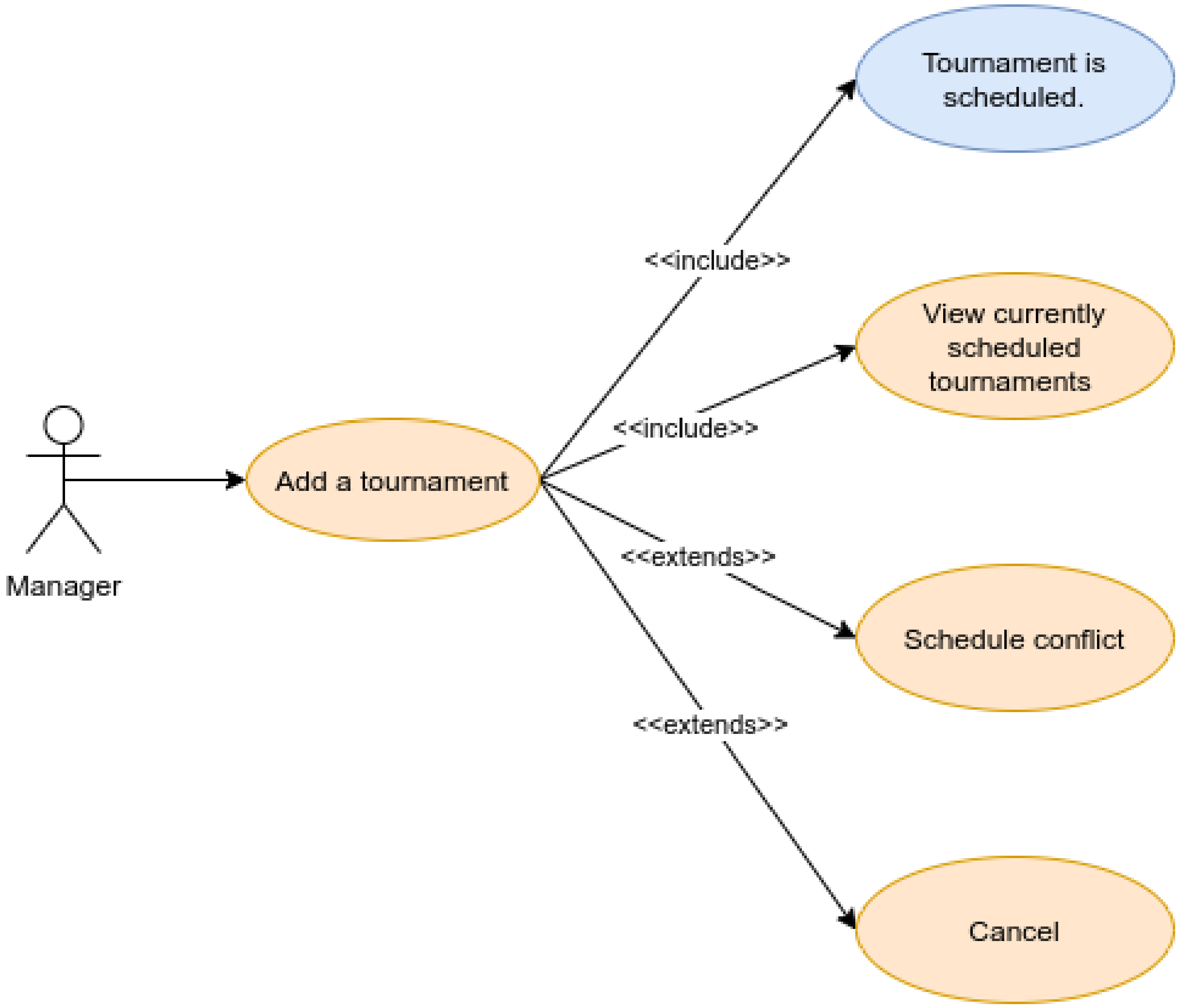
- Manager has successfully logged in
- Manager is viewing tournament schedule

Exit condition:

- Tournament is scheduled.

Event Flow:

1. Manager selects the add tournament button.
2. Manager picks a date for the tournament.
3. Tournament is scheduled.


Manager
Add a tournament
<<include>>
Tournament is scheduled.
<<include>>
View currently scheduled tournaments
<<extends>>
Schedule conflict
<<extends>>
Cancel

Use Case Diagram: Manager

Name: Change user roles

Participating actor: Manager

Entry condition:

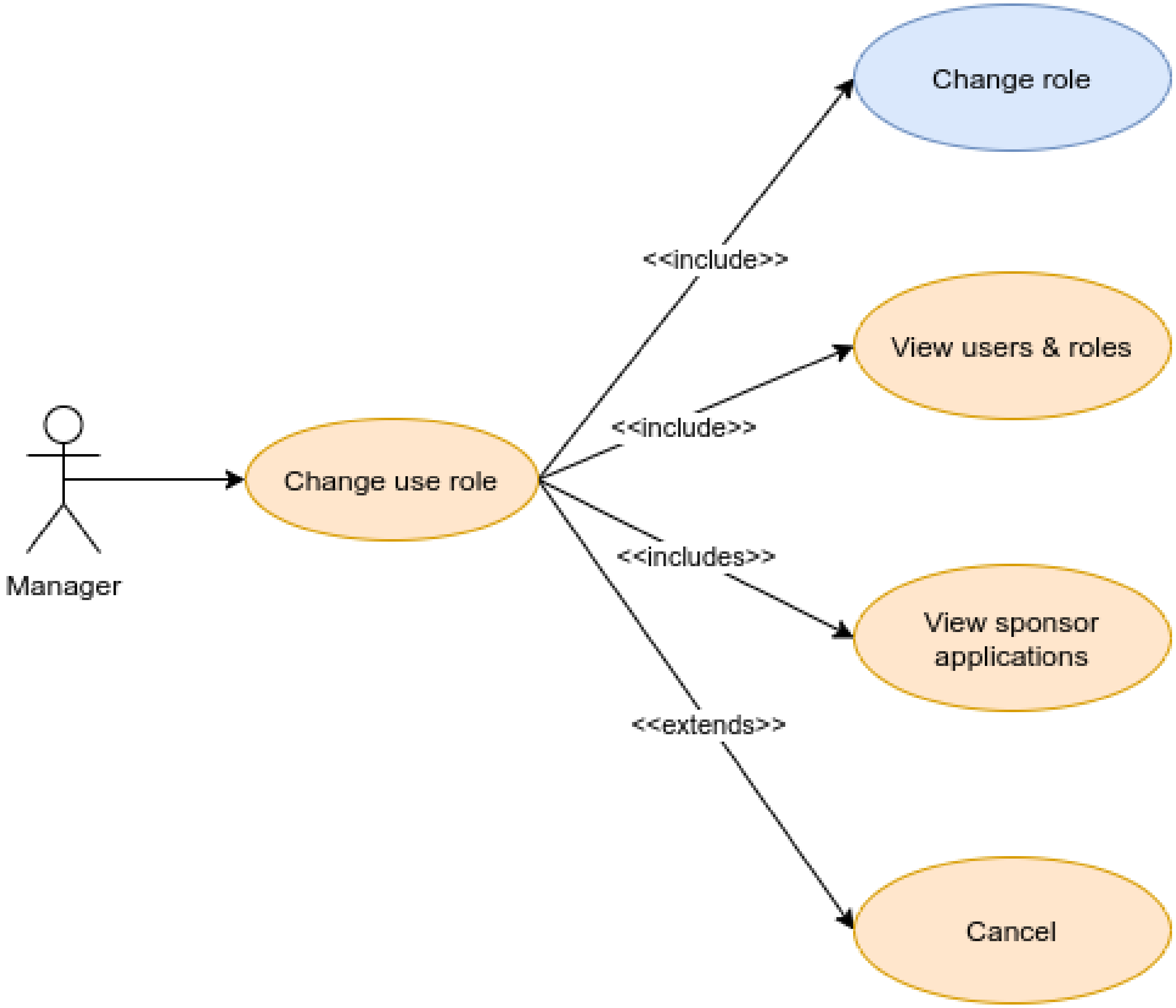
- Manager has successfully logged in
- Manager is viewing list of users

Exit condition:

- User role is changed

Event Flow:

1. Manager selects user to modify.
2. Manager selects new role for the user.
3. User role is changed.


Change role
<<include>>
View users & roles
<<include>>
Manager
Change use role
<<includes>>
View sponsor applications
<<extends>>
Cancel

Use Case Diagram: Manager

Name: Remove drink

Participating actor: Manager

Entry condition:

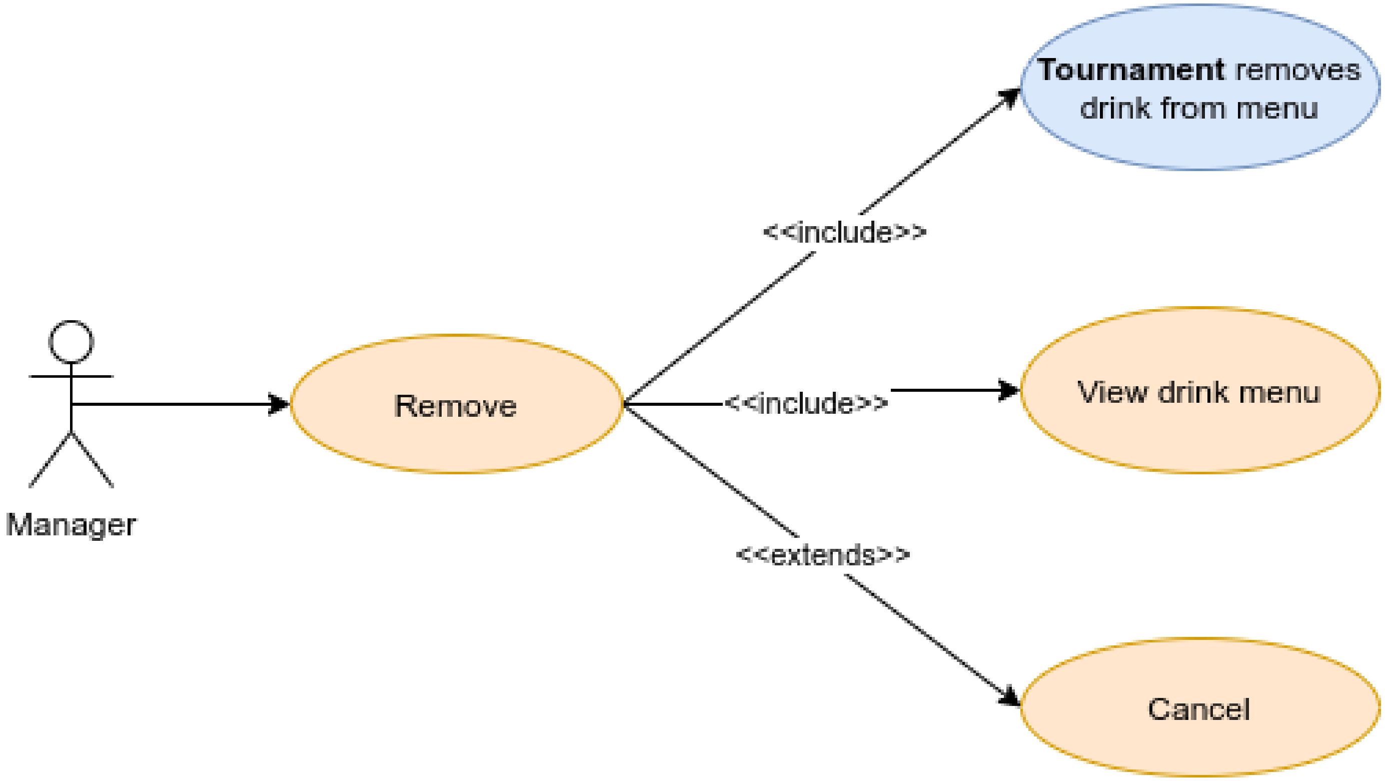
- Manager has successfully logged in
- Manager is viewing the current drinks

Exit condition:

- Menu removes the chosen drink.
- Manager cancels removing the drink

Event Flow:

1. Manager removes drink from menu.
2. Manager confirms removal
3. Tournament removes drink from menu
4. Tournament displays the updated menu.


Tournament removes drink from menu
<<include>>
Manager
Remove
<<include>>
View drink menu
<<extends>>
Cancel

Use Case Diagram: Order Drink

Participating Actor: User

Entry condition:

- User clicks on order drink

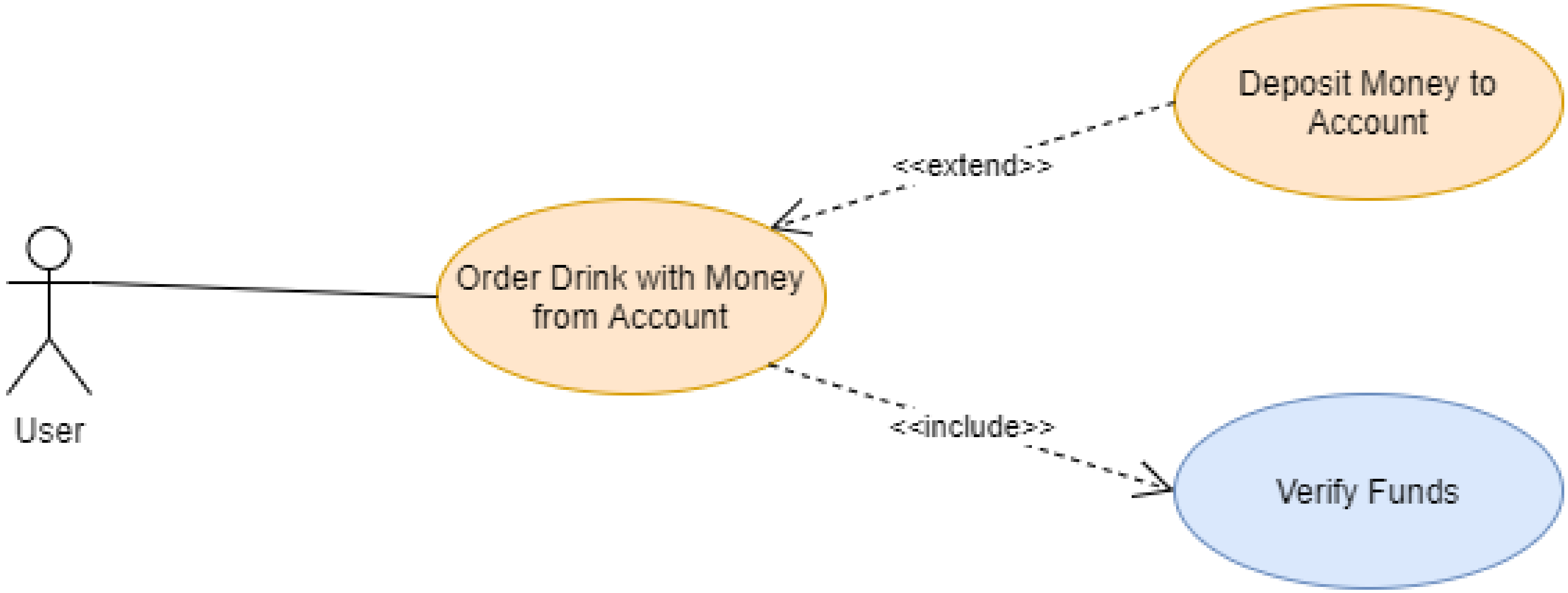
Exit condition:

- User clicks to confirm order

Event Flow:

1. User selects which drink they want from the list.
2. User clicks pay now
   a. If the user does not have enough money, they are directed to deposit money
3. Payment and Order confirmation are displayed on the screen

Use Case Diagram: Order Drink



Use Case Diagram: Player UI

Participating actor: Player

Entry condition:

- User is logged in

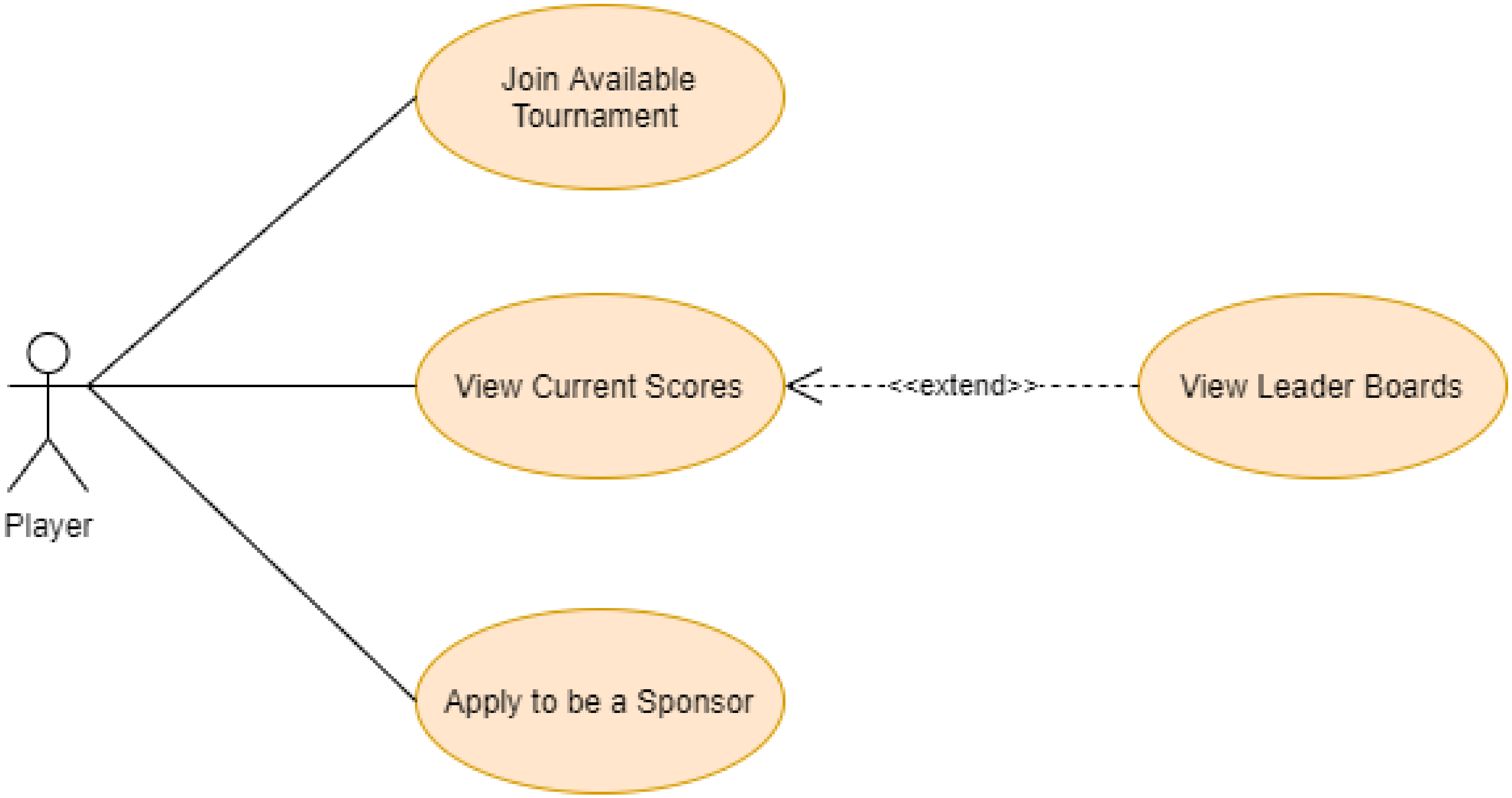
Exit condition:

- User logs out

Event Flow:

1. User is greeted with the ability to join an available tournament
2. User can click to their scores
    a. As well as the current leaderboard
3. User can apply to be a sponsor
    a. Manager acceptance required for full transition

Use Case Diagram: Player UI



Use Case Diagram: Sponsor UI

Participating Actor: Sponsor

Entry condition:

- Sponsor approved by manager
- Sponsor is logged in

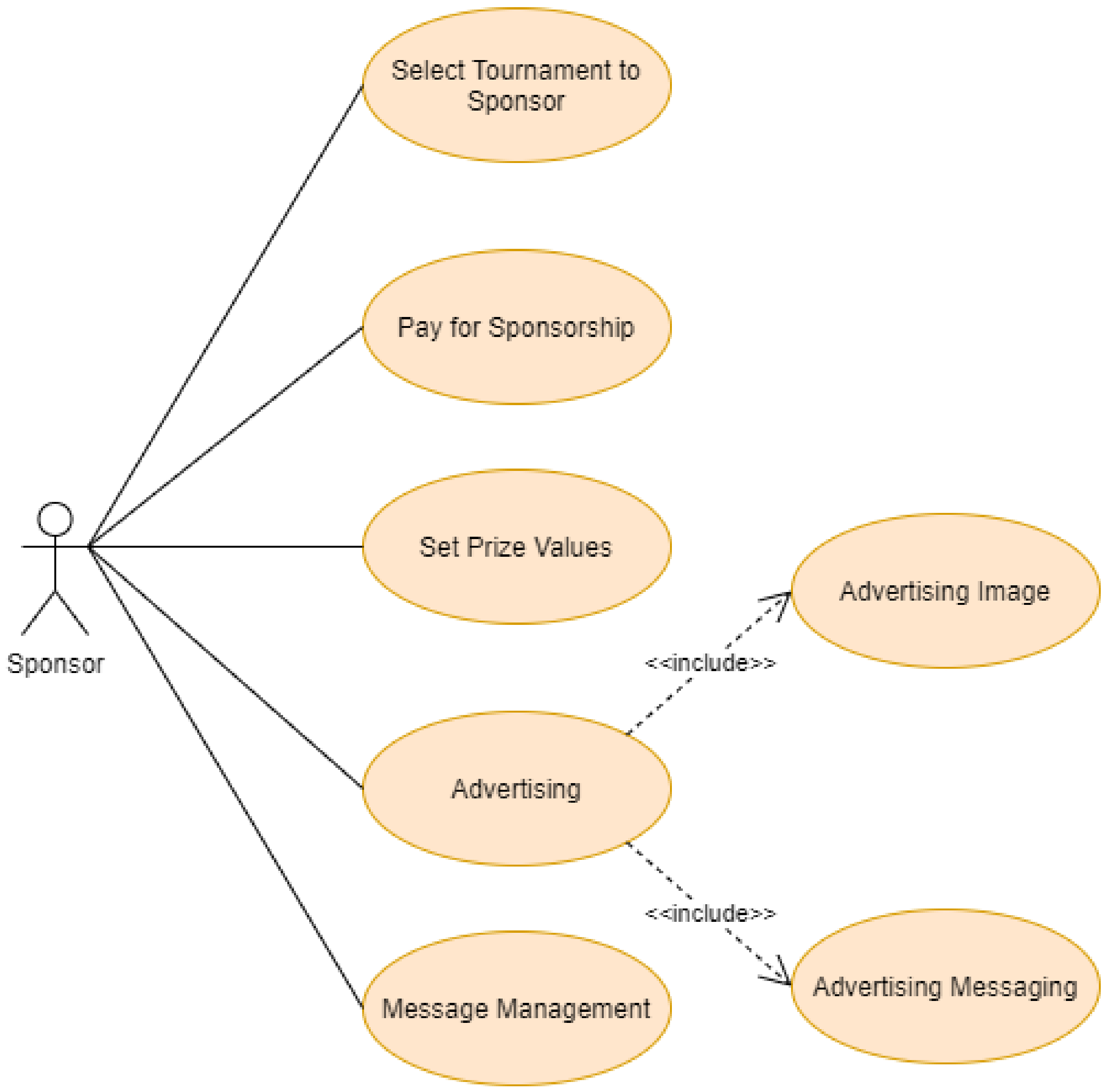
Exit condition:

- Sponsor logs out

Event Flow:

1. Sponsor may select a tournament to sponsor from a calendar
2. Sponsor can make a payment for Sponsorship
3. Sponsor can set prize values
4. Sponsor can set their advertising:
   a. With their image/logo
   b. A message for the advertisement
5. Sponsor may message management

Use Case Diagram: Sponsor UI



3. Functional Requirements

1. User Authentication
    1.1. On the first visit to the website, a user only has access to the home screen and must sign up for an account to access the rest
        1.1.1. When a user signs up, their account is added to the db and automatically given the permissions for player
    1.2. On subsequent visits, users must sign in to access the website
        1.2.1. When a user logs in, their permissions are checked and different options are added to a sidebar navigation menu based on their permissions
        1.2.2. Check for the location permission from the browser and give a prompt if it hasn't been given
    1.3. When accessing any endpoint, the user's permissions are checked to see if they have access to that endpoint

2. User Permissions
    2.1. Permissions stack upon each other. EX. a player will have access to the player permissions but a sponsor will have access to the player permission and the sponsor permissions
    2.2. A user can have player permissions
        2.2.1. Has access to the tournament play system, drink ordering system, account management system
    2.3. A user can have sponsor permissions
        2.3.1. Has access to the tournament sponsor system
    2.4. A user can have drink meister permissions
        2.4.1. Has access to the drink delivery system
    2.5. A user can have manager permissions
        2.5.1. Has access to the tournament play system, drink ordering system, account management system, tournament create system, drink delivery system, drink menu management system, user accounts management system, tournament management system, tournament sponsor system

3. Tournament Play System
    3.1. Allows users with the player permissions to view available tournaments
        3.1.1. Lists all present and future tournaments with date and time
            3.1.1.1. Lets the user click on the tournament for more details
                3.1.1.1.1. Sponsor
                3.1.1.1.2. Prize pool
                3.1.1.1.3. Number of holes
                3.1.1.1.4. Date and time
                3.1.1.1.5. Currently registered number of users for that tournament
    3.2. Allows a user to register for a tournament
    3.3. Notifies a user 10 mins before the start of a tournament
    3.4. Allows the user to pick their first hole 10 mins before the start of the tournament but not accept score input

3.5. Once the tournament starts, allows a user to pick their hole and input their score

3.6. Allows a user to view their score, view the leaderboard

4. Drink Ordering System

4.1. Allows a user to view the drink menu

4.1.1. Shows the drink details

4.1.1.1. Picture

4.1.1.2. Name

4.1.1.3. Price

4.1.1.4. Description

4.2. Allows a user to add drinks to a cart

4.3. Allows a user to checkout

4.3.1. During checkout, the cost of the drinks is subtracted from the user’s account balance

4.3.2. Drinks are added to the drink queue

4.4. After checkout, users will be able to check the status of their order

5. Account Management System

5.1. Allows a user to view and manage their account

5.1.1. Allows a user to view and manage their money

5.1.1.1. Allows a user to add/remove money from their account

5.1.1.1.1. Displays two buttons, add and remove

5.1.1.1.2. When a button is clicked, a prompt appears asking for the amount of money to add/remove

5.1.1.1.3. When the amount is entered and confirmed, the balance is instantly updated with the amount entered either added or removed

5.1.2. Allows a user to view and manage their profile

5.1.2.1. Can change name

5.1.2.2. Can change password

5.1.2.3. Can delete account

6. Tournament Create System

6.1. Allows a user to view a calendar of present and future tournaments

6.2. Allows a user to create a new tournament

6.2.1. Checks to see if there is already a tournament that day

6.2.1.1. If so then don’t allow another one to be created the same day and display an error message

6.2.2. Requires the user to enter the tournament details

6.2.2.1. Tournament Name

6.2.2.2. Date

6.2.2.3. Time

6.2.2.4. Number of holes

6.2.3. Displays a button to create the tournament

6.2.3.1. When the button is pressed a confirmation prompt is shown
6.2.3.2. When the prompt is confirmed the tournament is added to the db

7. Drink Delivery System
7.1. Allows a user to view the drink queue
7.1.1. Displays all the orders with some brief information
7.1.1.1. Displays the number of drinks in the order, the time ordered, and the status
7.1.2. Allows a user to click on and claim an order
7.1.2.1. When an order is claimed, the status is updated from Not Started to Being Made
7.1.2.2. Displays detailed order information
7.1.2.2.1. Displays all drinks in the order
7.1.2.2.1.1. Drink name and price
7.1.2.2.2. The time ordered
7.1.2.2.3. The status
7.1.2.3. Displays a button to deliver the order
7.1.2.3.1. When clicked the status is updated from Being Made to Being Delivered
7.1.2.3.2. When the button is clicked, the order drinks information is replaced with a map showing the users location from GPS
7.1.2.3.3. A delivered button is displayed below the map
7.1.2.3.3.1. When the drink is delivered and the button is clicked, remove the drink from the drink queue

8. Drink Menu Management System
8.1. Allows a user to view the current drink menu
8.2. Allows a user to remove a drink from the menu
8.3. Allows a user to add a drink to the menu
8.3.1. Allows a user to upload a picture URL for the drink
8.3.2. Requires a user to fill in the details for the drink
8.3.2.1. Name
8.3.2.2. Price
8.3.2.3. Description
8.3.2.4. Picture Url

9. Users Account Management System
9.1. Allows a user to search another user by username
9.2. Allows a user to manage another user account
9.2.1. Allows a user to ban the account from the website
9.2.2. Allows a user to edit account details
9.2.2.1. Username
9.2.2.2. Password
9.2.2.3. Name

- 9.2.3. Allows a user to delete the account
- 9.2.4. Allows a user to edit the account permissions
  - 9.2.4.1. Give/take player permissions
  - 9.2.4.2. Give/take sponsor permissions
  - 9.2.4.3. Give/take drink meister permissions

10. Tournament Management System
    - 10.1. Allows a sponsor to view and manage tournaments they've created
      - 10.1.1. They can view past tournaments but not change them
      - 10.1.2. They can view a present active tournament but not change them
        - 10.1.2.1. They can view the tournaments current balance
      - 10.1.3. They can view and change future tournaments they have created
        - 10.1.3.1. Can edit any of the tournament details and save it
        - 10.1.3.2. Can delete the tournament
    - 10.2. Allows a manager to view and manage all tournaments
    - 10.3. Allows a user to manage an active tournament
      - 10.3.1. Allows a manager to override player scores
      - 10.3.2. Allows a manager to kick a user from the tournament
      - 10.3.3. Allows a user to broadcast a message from the tournament

11. Tournament Sponsor System
    - 11.1. Allows a user to view a calendar of all past, current, and future tournaments
    - 11.2. Allows a user to click on and sponsor a tournament
      - 11.2.1. Checks to make sure the tournament is in the future
      - 11.2.2. Requires the user to enter the following details
        - 11.2.2.1. Sponsor Name
        - 11.2.2.2. Sponsor Money
        - 11.2.2.3. Amount of sponsor money for prizes
          - 11.2.2.3.1. The split for 1st,2nd,3rd
        - 11.2.2.4. Advertising banner URL
      - 11.2.3. Has a button to confirm sponsorship
        - 11.2.3.1. Money is subtracted from the account sponsoring the tournament and sent to the tournament account

12. Tournament
    - 12.1. The object created automatically when a manager or sponsor creates a new tournament
    - 12.2. Contains all the details about the tournament
    - 12.3. When the tournament starts, the sponsor and prize money is subtracted from the sponsor account balance and added to the tournament balance
    - 12.4. All drink money during the tournament is added to the tournament balance
    - 12.5. Automatically updates scores and the leaderboard
    - 12.6. Allows a user to search for their score or any other users score

- 12.7. Automatically declares winners when the tournament is over and adds their split of the prize money into their account balances
  - 12.7.1. The tournament is considered over when the tournament end time passes

4. Non-Functional Requirements

1. We are using an agile development process, specifically scrum
2. We have scrum meetings on Tuesday and Thursday at 6 pm
   - 2.1. The meetings may become more frequent as the project demands with the possibility of meeting M/W/F as well as T/T
3. We make story points and a burndown chart as the beginning of each phase/milestone/sprint to track what we need to do
4. We are using GitHub pull-requests and projects to keep track of the story points and their completion as well as assignment to team members
5. We use a private discord as our primary means of communication

5. Future Features

1. Expansion to other game types besides hole-by-hole based games
2. Expansion to a food menu as well as a drink menu
3. The ability to run more than one tournament a day
4. Adding a user class Referee to help ensure fair gameplay

6. Glossary

Term	**Definition**
A user	Any person with the permissions to access a specified system/endpoint
A player	Any person with the player permissions
A sponsor	Any person with the sponsor permissions
A drink meister	Any person with the drink meister permissions
A manager	Any person with the manager permissions
DB	The application database
An endpoint	A specific page on the website
A system	A backend collection of logic to perform specific tasks
Hole-by-hole game	A game with many holes where the total score is the sum of all the individual hole scores

Web-based app	An application whose main interface is a website
UI	User Interface