

ITAS 282 Final Project Proposal

The Classic Mafia Game

Milad Fotoohnejad

Idea or Elevator pitch:

The Mafia game is simply a group game which has various roles (231 roles to be exact), and a Lord who is the narrator of the instructions of the game. The purpose of the website is to let people to skip the role of the Lord in the game, and everybody can play. The website will act as the Lord role, give the instruction, distribute the roles randomly to people, and take their decisions on the game flow.

Needs Analysis:

Several other websites with similar functionality were discovered during the research process, but the way this project will be built differs from those. This game will be built for those who want to play the game face to face but do not want to keep a person out of the game to be the Lord, whereas the websites introduced below only provide an online option. The first website uses Discord as a chatroom to play the game online, the second gives you a difficult instruction for joining the game in a forum with multiple people, and the third uses the website to let someone host the game, after which others can join the group and play the game online there.

There will be a list of other websites below:

1. [MafiaDiscord](#)
2. [MafiaScum](#)
3. [Mafia Game](#)

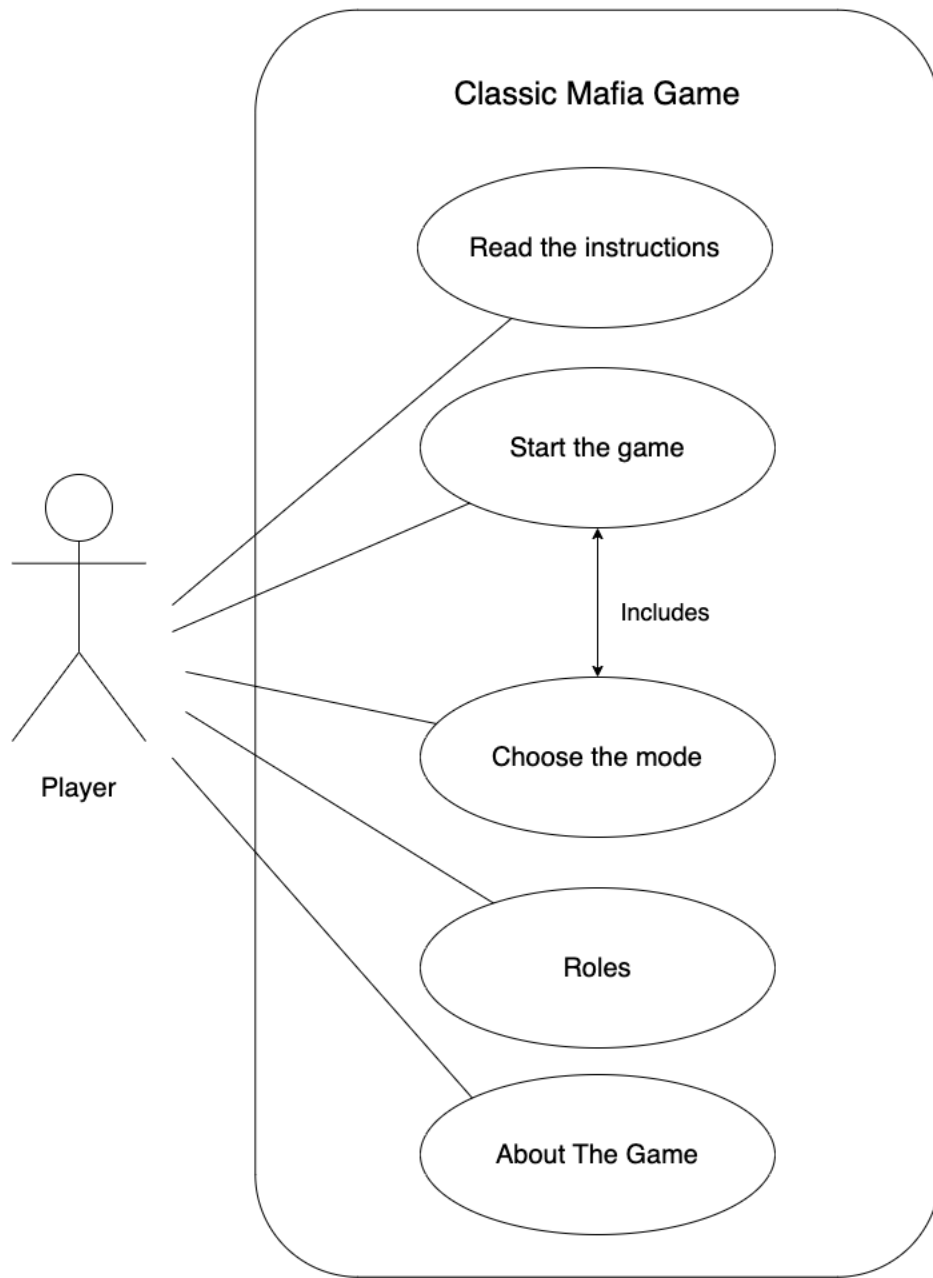
Stakeholders:

The Classic Mafia game project is an individual endeavor, financed and sponsored solely by myself. The project manager is Mr. Allan McDonald, my instructor. As this is an individual project, there is no project team and all responsibilities fall on me. The clients for this project includes myself, my classmates, and any other individuals who have an interest in the Classic Mafia game.

User Types:

There are only two type of user on this website: Admin and Players. All the players will form a group and then begin the game. The game will be initiated by the website and managed by the logics of the role "Lord," which is the website, after which the rules will be distributed to all players to allow them to continue playing at their leisure.

Use Case Diagram:



User Stories:

1. As a new player, I want to be able to see an introduction tutorial when I first start the game, so I can understand how to play the game.

Acceptance Criteria:

Scenario1: The tutorial is displayed to new players when they first start the game.

Given that I am a new player starting the game

When I click on the Instructions tab on the navigation bar

Then I should see an instruction explained.

Scenario 2: A player is unable to access the instructions page

Given that I am a player and trying to access the instructions page

When I try to navigate to the instructions page

Then I should receive an error message "Instructions page is not available"

And I should be redirected to the homepage.

2. As a player, I want to be able to see the list of players currently in the game so that I can keep track of who is still alive.

Acceptance Criteria:

Scenario1: A player accesses the game page

Given that I am a player and on the game page

When I click on the "Players List" button

Then I should see a list of all players currently in the game

And the list should include the player's name and role (mafia or town member)

And the list should be updated in real-time as players are eliminated from the game.

Scenario 2: A player cannot access the players list due to technical issue

Given that I am a player and on the game page

And the website is experiencing technical difficulties

When I try to access the players list

Then I should see a message "Players list is temporarily unavailable"

And I should not be able to see the list of players currently in the game.

3. As a player, I want to have a notification system that alerts me when it's my turn during the night phase starts, so that I don't miss my chance to participate.

Scenario1: A player receives a notification during the night phase

Given that I am a player and in the middle of a game

When it's my turn during the night phase

Then I should receive a notification

And the notification should be sent to my email or in-game message

And the notification should have the option to be turned off in the game settings.

Scenario 2: A player misses their turn due to no notification

Given that I am a player and in the middle of a game

And my notification system is turned off

When my turn during the night phase starts

Then I should not receive a notification

And I should not be able to take my turn during the night phase.

4. As a player, I want to be able to see a summary of the previous night's events, including who was killed and by whom, so that I can make informed decisions during the day phase.

Scenario 1: Displaying previous night's events

Given the player is on the website

When the player clicks on the "Night Summary" button

Then a summary of the previous night's events should be displayed, including the name of the player who was killed by Mafia and the name of Mafia group.

Scenario 2: No events to display

Given the player is on the website

When the player clicks on the "Night Summary" button

And no events occurred during the previous night

Then a message should be displayed indicating that no events occurred during the previous night.

5. As a player, I want to be able to see the results of the previous day's vote, including who was eliminated.

Scenario 1: Displaying vote results with the eliminated player's role

Given the player is on the website

When the player clicks on the "Vote Results" button

Then the results of the previous day's vote should be displayed, including the name of the player who was eliminated, and also the role of the eliminated player.

Scenario 2: No vote results to display

Given the player is on the website

When the player clicks on the "Vote Results" button

And no vote has occurred during the previous day

Then a message should be displayed indicating that no vote has occurred during the previous day.

6. As a mafia member, I want to be able to communicate privately with other mafia members during the night phase so that we can plan our strategy.

Scenario 1: Sending private message to other mafia members

Given the player has been chosen as a mafia member

When the player clicks on the "Mafia Chat" button

And the night phase is active

Then the player should be able to send a private message to other mafia members.

Scenario 2: Receiving private message from other mafia members (This one is for the Online Mode if I had enough time to do)

Given the has been chosen as a mafia member

When the player clicks on the "Mafia Chat" button

And the night phase is active

Then the player should be able to receive private messages from other mafia members.

7. As a citizen member, I want to be able to see a list of the remaining roles (mafia or town member in case of high number of players) of players who have been eliminated so that I can better deduce who the remaining mafia members are.

Scenario 1: Viewing list of eliminated player's roles (for the games with high number in people)

Given the player has been chosen as a citizen member

When the player clicks on the "Eliminated Players" button

Then a list of eliminated players should be displayed, including their roles.

Scenario 2: Updating eliminated player's list

Given the player has been chosen as a citizen member

When the player clicks on the "Eliminated Players" button

Then the list of eliminated players should be updated with the most recent eliminated players and their roles.

8. As a player, I want to be able to see the current status of the game (if there are enough mafia members left or not) so that I can measure my chances of winning.

Scenario 1: Viewing current status of the game

Given the player is on the website

When the player clicks on the "Game Status" button

Then the current status of the game should be displayed, including the number of remaining mafia members and the number of remaining town members.

Scenario 2: Displaying game status with the possibility of winning

Given the player is on the website

When the player clicks on the "Game Status" button

Then the current status of the game should be displayed, including the number of remaining mafia members, the number of remaining town members, and the possibility of winning for both groups.

Technology and resources:

For this project I am planning to use full stack language using React.js for this website and typically using JavaScript for both the front-end and back-end development. On the front-end,

React.js would be used to build the user interface and handle the user interactions. For the front-end UI design I will be using HTML5, CSS3 and Bootstrap5/Tailwind. On the back-end, Node.js, which is a JavaScript runtime built on Chrome's V8 JavaScript engine, could be used as the back-end framework. For the database, MongoDB, which is a NoSQL database could be used to store the game information and user information. To handle the communication between the front-end and back-end, a library like Axios could be used to make HTTP requests to the back-end API. Additionally, libraries like redux and express could be used to handle the state management and routing respectively. This stack is commonly referred to as MERN stack (MongoDB, Express.js, React.js, Node.js). As I am not familiar with most of the technologies I named here yet, as this is a live document, I might use another type of technology in the middle of the way to make ends meet.

Key Tasks:

Note*: The estimated time I have set in front of each step might not be very accurate, but I will try stick to it as much as I can.

1. Setting up the project: This step includes familiarizing myself with the technologies that will be used in the project, such as React.js, Node.js, MongoDB, and any other necessary libraries or frameworks. This step also includes creating the initial file structure, configuring the development environment, and installing the necessary dependencies. (Estimated duration: 3-4 days)
2. Game logic implementation: This step includes familiarizing myself with the game logic and mechanics, such as the night and day phases, voting system (if the scope let me to do so), and player elimination. This step also includes creating the necessary database schemas to store the game information and player information, learning and writing the code for the game logic and mechanics. (Estimated duration: 15-20 days)
3. User interface design: This includes designing and implementing the user interface, including the pages for the game, list of players, voting, and game summary. This task would involve working with React.js to create the necessary components. (Estimated duration: 8-12 days)
4. Game rules and Instructions: This includes creating a page with all the rules and instructions of the game, this page will be accessible from the homepage and it will be helpful for new players. (Estimated duration: 1-2 days)

5.

6. Testing and debugging: This includes testing the website to ensure that it works as expected and fixing any bugs that are found. (Estimated duration: 3-5 days)

Milestone Tasks:

1. Setting up the development environment and creating the initial file structure.
2. Implementing the game logic and database integration.
3. Designing and implementing the user interface.

Potential risks and limitations:

1. Limited development time: With only a 3 month timeline, there may not be enough time to fully implement all the features and functionality that I visualise for the project. This could result in a lower quality or less complete product.
2. Limited development experience: As an individual working on the project, I may not have the experience or expertise in all the technologies and tools necessary to complete the project. This could lead to delays and additional time needed to learn and become proficient in the required technologies.
3. Difficulty in handling the complexity of the game mechanics: Implementing the game mechanics described in the project could be complex and difficult, which could lead to delays and increased development estimated time for myself.
4. Security: If the website needs to deal with personal information, it needs to have a secure environment and protect user's data. If security measures are not implemented properly it can lead to data breaches and loss of user trust.
5. Dependence on Third-Party Libraries: If the website needed to rely on third-party libraries, it could be difficult to implement features or fix bugs if the library is no longer maintained or if the API changes.
6. Browser compatibility: The website should be tested and compatible with different web browsers and devices, which could take additional time and resources.

Given the 3 months timeline and the fact that it's a single person working on the project, it's important to manage the time and expectations, the project's scope may need to be adjusted to fit the timeline and Sprints introduced on the portal, and it's important to prioritize tasks and focus on the most important features in order to deliver a viable and functional product. Additionally, it's important to have a well-defined plan and to manage expectations with my instructor to avoid disappointment.

References and Resources:

At this point there is no actual tutorials for the Mafia game that I can follow along the way, so writing the codes and logics are my own responsibilities. On the other hand, I think the Web development II class we have on Wednesdays will be a valuable source for me while I'm using the same technologies. I'll also include a link to the Udemy website for the React JS course here in case I need it. My goal is to break down the entire project into smaller, easier parts so that they are easier to find on Google or become more understandable.

Here is the URL for the Udemy course:

[Udemy React Course](#)

Game explanation (just for your information):

In the Mafia Game each player is secretly assigned a role aligned with either the citizen or the mafia. The mafia eliminates one citizen per night while cleverly disguised as normal citizens during the day. The citizens must group together to eliminate the true mafia before they are outnumbered! The game is divided into two parts: night and day. During the night, mafia members secretly plan to murder a citizen and think up a sneaky day-time strategy. During the day, the entire cast of surviving players debates who among them is a mafia and votes to hang someone. The game alternates between these two phases until either all of the mafias are eliminated (citizen wins) or the number of remaining players reaches a certain threshold. The Lord or the God role here in the game that from now on will be played by the website, was a player who had to giving the instructions and observing the game before. There are 231 roles in the mafia Game that I will introduce the necessary ones in a page of the website.