



# Wild Card Bot

## Sprint 3 Planning Document

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### **Sprint Overview:**

During this sprint, we will be finishing up the bot. We will continue to develop useful modules that the bot can use. Some of the modules we will be creating range from a Blackjack game to a math solver. Our bot will continue to be very customizable, by the end of this sprint there will be a very wide variety of customizable commands that the bot can use. During the last sprint we started to develop modules that the bot would use, and this sprint will be pretty similar as we will again be developing external modules to be used by the bot.

**Scrum Master:** Nikolas Damalas

**Meeting Plan:** Monday/Wednesday/Friday @ 11:30am EST

### **Risks and Challenges:**

The risks and challenges that sprint 3 brings are similar to the challenges brought by sprint 2. I think one of the main challenges will be finishing all of the work. It is even more important in sprint 3 versus sprint 2 to get everything done since this is the last sprint of the project. In sprint 2 if we underestimated the amount of time something would take and did not get it done we had the option to push it into sprint 3. This sprint however we will need to make sure everything is polished by the end of the sprint. Because of this we will need to have good communication and make sure everyone is on the same page throughout the sprint.

### **Current Sprint Detail:**

#### **User Story #1**

As a user, I want to see a Pokemon's basic information given its Name or Number

#	Description	Estimated Time	Owner
1	Figure out how to connect to Pokemon API	1 Hour	Nikolas
2	Create functions to parse the Pokemon's type, ability, and statistics	1.5 Hour	Nikolas
3	Create function to get the Pokemon's sprite	45 minutes	Nikolas
4	Create function to pass the pokemons name or number to the API call from the user to get the desired information	1 Hour	Nikolas
5	Create manual tests	45 minutes	Nikolas

#### Acceptance Criteria:

- Given a valid Pokemon name, when the bot responds then the Pokemon's image, type(s), abilities, and base statistics will be provided to the user.
- Given a valid Pokemon Number, when the bot responds then the Pokemon's image, type(s), abilities, and base statistics will be provided to the user.
- Given an invalid name or number, when the bot responds then the bot will inform the user that the input is not valid.

#### User Story #2

As a user, I want to see a shiny Pokemon's sprite

#	Description	Estimated Time	Owner
1	Create a function to get the shiny sprite of a Pokemon given its name or number	30 minutes	Nikolas
2	Create a function to allow users to compare a pokemon's normal and shiny sprites side by side	45 minutes	Nikolas
3	Create manual tests	45 minutes	Nikolas

#### Acceptance Criteria:

- Given a valid Pokemon name, when the bot responds then the Pokemon's shiny sprite will be shown.
- Given a valid Pokemon Number, when the bot responds then the Pokemon's shiny sprite will be shown.
- Given an invalid name or number, when the bot responds then the bot will inform the user that the input is not valid.

### User Story #3

As a user, I want to see information about a Pokemon Item

#	Description	Estimated Time	Owner
1	Create a function to get the requested items information and sprite from the Pokemon API	1 Hour	Nikolas
2	Create function to list which Pokemon hold the item naturally, if any at all	30 minutes	Nikolas
3	Create manual test	1 Hour	Nikolas

Acceptance Criteria:

- Given a valid item name, when the bot responds then the items description will be given.
- Given a valid item name, when the bot responds then the items sprite will be shown.
- Given an invalid item name, when the bot responds then the user will be notified.
- Given a user provides an optional flag, when the bot responds then all Pokemon that can naturally hold the item will be listed.

### User Story #4

As a user, I want to see information about Pokemon Moves

#	Description	Estimated Time	Owner
1	Create a function to get the requested moves information (name, type, power, added effects, flavor text, priority, effect chance, and accuracy) from the API	1.5 Hour	Nikolas

2	Create a function to list all the moves a specific Pokemon can know given its name or number.	2 Hour	Nikolas
2	Create manual tests	1 Hour	Nikolas

#### Acceptance Criteria:

- Given a valid move name, when the bot responds then the moves base power, accuracy, type, priority, flavor text, added effects, and effect chance will be given to the user.
- Given a move has no added effects, when the bot responds then the effect chance will not be shown.
- Given an invalid move name, when the bot responds then the user will be notified.
- Given a specific Pokemon name, when the bot responds then the user will see all moves the specific Pokemon can learn

### User Story #5

As a user, I want to see information about a Pokemon Ability

#	Description	Estimated Time	Owner
1	Create a function to get the requested abilities information (name and effect) from the API.	45 minutes	Nikolas
2	Create optional choice to list all Pokemon that can have the given ability	1 Hour	Nikolas
3	Create manual tests	45 minutes	Nikolas

#### Acceptance Criteria:

- Given a valid ability name, when the bot responds then the ability name and effect will be shown.
- Given the user adds an additional flag to the command, when the bot responds then all pokemon that can have the ability will be listed.

- Given an invalid move name is given, when the bot responds then the user will be notified.

### User Story #6

As a user, I want to see evolutionary family of a Pokemon

#	Description	Estimated Time	Owner
1	Create a function to get the evolutionary family of a pokemon (what it evolves from and into)	2 Hour	Nikolas
2	Determine how to display the evolutionary family in the Discord chat.	1 Hour	Nikolas
3	Determine and List the evolution methods next to each stage in the evolutionary family.	2 Hour	Nikolas
4	Create manual tests	1 Hour	Nikolas

Acceptance Criteria:

- Given a valid Pokemon name or number, when the bot responds then the full evolutionary tree will be shown.
- Given a valid Pokemon name or number, when the bot responds then the evolution methods for each stage will be provided.
- Given a valid Pokemon that cannot evolve into or from another, when the bot responds it will tell the user there is no evolutionary family.
- Given an invalid Pokemon name or number, when the bot responds then it will inform the user.

### User Story #7

As a user, I want to know what types are effective against other types.

#	Description	Estimated Time	Owner
1	Get a given types offensive capabilities (which types they do no damage, reduced damage, normal damage, and super effective damage)	45 minutes	Nikolas

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2	Get a given types defensive capabilities (which types do no damage, reduced damage, normal damage, and super effective damage to it)	45 minutes	Nikolas
3	Create a function to show the damage relations between only two types.	45 minutes	Nikolas
4	Create manual tests	1 Hour	Nikolas

Acceptance Criteria:

- Given a valid Pokemon type, when the bot responds then the full offensive and defensive type effectiveness will be given.
- Given a valid two pokemon types, when the bot responds then the offensive and defensive relations of the pair of types will be given.
- Given an invalid Pokemon type, when the bot responds then it will inform the user.

### User Story #8

As a user, I want to know what a Pokemon's egg group is and what it can breed with.

#	Description	Estimated Time	Owner
1	Get a given Pokemon's egg group(s)	30 minutes	Nikolas
2	Get all other Pokemon in the egg group(s)	30 minutes	Nikolas
3	Create a function to display the egg group(s) and compatible Pokemon.	1 Hour	Nikolas
4	Create manual tests	30 minutes	Nikolas

Acceptance Criteria:

- Given a valid Pokemon, when the bot responds then the Pokemon's egg group(s) will be listed.
- Given a valid egg group, when the bot responds, all Pokemon in that egg group will be listed.

- Given a Pokemon that cannot breed, when the bot responds it will tell the user the Pokemon cannot breed.
- Given an invalid Pokemon, when the bot responds then it will inform the user.

### User Story #9

As a user, I want to know what a Pokemon's nature does

#	Description	Estimated Time	Owner
1	Get the stat boosts and debuffs of a given nature	30 minutes	Nikolas
2	Create a function to list all natures with a desired bonus, drawback, or both.	1.5 Hour	Nikolas
3	Create manual tests	1 Hour	Nikolas

Acceptance Criteria:

- Given a valid Pokemon nature, when the bot responds then the natures increased and decreased stat will be listed.
- Given a + with a stat, all natures that boost that stat will be listed.
- Given a - with a stat, all natures that decrease that stat will be listed.
- Given an invalid Pokemon nature or stat, when the bot responds then it will inform the user.

### User Story #10

As a user, I want to be able to view live sports scores on the discord server.

#	Description	Estimated Time	Owner
1	Create a function to search and find the requested sports game/event.	1 Hour	Kyle
2	Create a function to retrieve the current score.	1 Hour	Kyle
3	Create a function to retrieve the current time remaining.	1 Hour	Kyle
4	Create manual tests	30 Minutes	Kyle

#### Acceptance Criteria:

- Given a valid sports event, when the user requests information on the sporting event, the bot will present the live score and live time remaining.
- Given an invalid sports event, when the user requests information on the sporting event, the bot will tell the user that there is no sporting event and it is an invalid request.
- Given a valid sports event, when the user requests information on the sporting event, the bot will present a hyperlink to view the game in more depth.

#### User Story #11

As a user, I want to view betting odds, spreads, and any other relevant information related to the sports betting for that event.

#	Description	Estimated Time	Owner
1	Create a function to retrieve the website with the betting information.	30 Minutes	Kyle
2	Create a function to scrape the different information such as betting odds, spread, over/under, etc.	3 Hours	Kyle
3	Create a function to display the info to the user.	30 Minutes	Kyle
4	Create manual tests	30 Minutes	Kyle

#### Acceptance Criteria:

- Given a valid sports event, when the user requests betting information on the sporting event, the bot will present the spread, over/under, odds, and anything else that is relevant.
- Given an invalid sports event, when the user requests information on the sporting event, the bot will tell the user that there is no sporting event and it is an invalid request.
- Given a valid sports event, when the user requests betting information on the sporting event, the bot will present a hyperlink to view the game in more depth.

#### User Story #12

As a user, I want to view players' season averages and career averages.



#	Description	Estimated Time	Owner
1	Create a function to retrieve the website with the player information.	30 Minutes	Kyle
2	Create a function to scrape the different statistics for basketball players.	3 Hours	Kyle
3	Create a function to scrape different statistics for football players.	3 Hours	Kyle
4	Create a function to display the info to the user.	30 minutes	Kyle
5	Create manual tests	30 Minutes	Kyle

#### Acceptance Criteria:

- Given a valid player, when requesting statistics on a player, the bot will respond by displaying the players' season and career stats.
- Given an invalid player, when requesting statistics on a player, the bot will respond by telling the user that the player does not exist or is invalid.
- Given a valid player, when the user requests player statistics, the bot will present a hyperlink to view the player in more depth.

#### User Story #13

As a user, I want to get answers for simple math equations such as addition, subtraction, multiplication, division, and exponents.

#	Description	Estimated Time	Owner
1	Create a function to parse through the math equation.	3 Hours	Kyle
2	Create a function to solve the math equation.	2 Hours	Kyle
3	Create a function to display the results.	30 Minutes	Kyle
4	Create manual tests	30 Minutes	Kyle

#### Acceptance Criteria:

- Given that a valid math equation is given, when a user gives the bot a math equation, the bot will respond with the correct answer.
- Given that an invalid math equation is given, when a user gives the bot a math equation, the bot will respond telling the user that the equation was invalid.
- Given that a valid math equation is given, when a user gives the bot a math equation, the bot will respond with the answer formatted nicely in a discord embedded message.

#### User Story #14

As a user, I want to get answers for trigonometric equations quickly. These could include functions such as sine, cosine, and tangent.

#	Description	Estimated Time	Owner
1	Create a function to parse through the math equation, but now with trigonometric principles.	1 Hour	Kyle
2	Create a function to solve the math equation.	2 Hours	Kyle
3	Create a function to display the results.	30 Minutes	Kyle
4	Create manual tests	30 Minutes	Kyle

#### Acceptance Criteria:

- Given that a valid math equation with trigonometric principles is given, when a user gives the bot a math equation with trigonometric principles, the bot will respond with the correct answer.
- Given that an invalid math equation is given, when a user gives the bot a math equation, the bot will respond telling the user that the equation was invalid.
- Given that a valid math equation is given with trigonometric principles, when a user gives the bot a math equation with trigonometric principles, the bot will respond with the answer formatted nicely in a discord embedded message.

#### User Story #15

As a user, I want to solve calculus problems quickly, these could include both derivatives and integrals.

#	Description	Estimated Time	Owner
1	Create an option for users to pick either a derivative or an integral.	30 Minutes	Kyle
2	Create a function to handle the derivative including all of the options the user needs to give the bot in order to solve the problem.	30 Minutes	Kyle
3	Create a function to handle the integral including all of the options the user needs to give the bot in order to solve the problem.	30 Minutes	Kyle
4	Create a function to solve a derivative.	2 Hours	Kyle
5	Create a function to solve an integral.	2 Hours	Kyle
6	Create a function to display the results.	30 Minutes	Kyle
7	Create manual tests	30 Minutes	Kyle

#### Acceptance Criteria:

- Given that a valid derivative equation is given, when a user gives the bot a derivative, the bot will respond with the correct answer.
- Given that a valid integral equation is given, when a user gives the bot an integral, the bot will respond with the correct answer.
- Given that an invalid derivative or integral is given, when a user gives the bot an invalid equation, the bot will respond telling the user that the equation was invalid.
- Given that a valid derivative or integral is given, when a user gives the bot either a derivative or integral, the bot will respond with the answer formatted nicely in a discord embedded message.

#### User Story #16

As a user, I want to start a blackjack game if no one is playing or redisplay the game if someone is currently playing.

#	Description	Estimated Time	Owner
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1	Research the rules of blackjack and decide on the most efficient way to implement blackjack.	1 Hour	Matthew
2	Create a Card class that represents a card. Include the possible suits and numbers as well as a text representation of the card.	1 Hour	Matthew
3	Create a Game class that represents a game and includes all fields necessary to monitor the game.	1 Hour	Matthew
4	Create a Player class that represents a player and keeps track of the player's currency, hand value, and other required fields.	1 Hour	Matthew
5	Create a function that checks for an existing Game object in the server and if it exists delete the old message representing the game and display a new message with the game info.	1 Hour	Matthew
6	Create a function that creates a Game object and creates a Player object for the caller of the command.	1 Hour	Matthew
7	Create a function that takes a Game object and creates a message displaying the game state.	2 Hours	Matthew
8	Create manual test cases.	1 Hour	Matthew

#### Acceptance Criteria:

- Given that no blackjack game is running on the user's server, when requesting to start a game, the bot will create a new game and include the user as a player.
- Given that a blackjack game is running on the user's server, when requesting to start a game, the bot will redisplay the currently running game.
- Given that a blackjack game is running on the user's server and currently in a round, the bot will edit the game message to notify the user that a round is running.

#### User Story #17

As a user, I want to join an existing blackjack game in session with a reaction.

#	Description	Estimated Time	Owner
1	Create a function that checks the reactions of the message representing the game between rounds.	1 hour	Matthew
2	Create a function that determines which users have reacted but are not in the game. It will create a player object for such users and add them to the list of players in the game.	1 hour	Matthew
3	Create manual test cases.	30 Mins	Matthew

Acceptance Criteria:

- Given that the user reacts with the reaction used to add users into the blackjack game, the user should be added into the blackjack game in the upcoming round.
- Given that the user is already in the game and reacts with the reaction used to add users into the blackjack game, the bot should not consider or respond to the reaction.
- Given that the blackjack game has been displayed, the bot should react to the game with the reaction used to add users into the blackjack game to make it considerably easier to join the game.

### User Story #18

As a user, I want the bot to continuously host rounds of blackjack while the game is active and display the results of each round.

#	Description	Estimated Time	Owner
1	Create a function that starts a round by deciding the cards of each player and the dealer.	1 Hour	Matthew
2	Create a function that checks to see if the number of players is above zero and continuously calls the function that starts a round when the previous one ends.	1 Hour	Matthew

3	Create a function that takes a Game object and displays the results of the current round.	2 Hours	Matthew
4	Create manual test cases.	30 Mins	Matthew

#### Acceptance Criteria:

- Given that a game of blackjack is currently running, when the current round ends, the bot should immediately start another round considering that at least one player remains playing.
- Given that a round has just concluded, the message representing the game should be edited to display the round results.
- Given that the round results are displayed, the message representing the game should include the results of each player for the round, the hand values of all players that did not fold, and the currency of all players.

#### User Story #19

As a user, I want to hit, stand, or fold with reactions via a direct message.

#	Description	Estimated Time	Owner
1	Create a function that sends a direct message to the user with their current hand and the dealer's cards.	1 Hour	Matthew
2	Decide on the reactions to be used for hit, stand, and fold. Make sure the bot reacts to the direct message with these reactions when appropriate.	30 Mins	Matthew
3	Create a function that handles a hit and adds another randomly selected card to the user's hand. It should also check for busts and keep the value of ace in check.	1 Hour	Matthew
4	Create a function that handles a stand. It should take the value of the player's hand and notify the Game object that the player is done with the round.	1 Hour	Matthew

5	Create a function that handles a fold. It should notify the Game object the player did not play the round.	1 Hour	Matthew
6	Create manual test cases.	30 Mins	Matthew

#### Acceptance Criteria:

- Given that the user has selected his or her bet, a direct message should be sent to the user displaying their cards and the dealer's cards. The bot should react with the reactions used for hit, stand, and fold.
- Given that a round is ongoing and the user is in the blackjack game, when the user reacts with the reaction for hit, the bot should add another randomly selected card to the user's hand and notify the user that he or she has busted if the hand value exceeds 21.
- Given that a round is ongoing and the user is in the blackjack game, when the user reacts with the reaction for stand, the bot should display a message indicating the player's current hand value and decision to stand.
- Given that a round has just started and the user is in the blackjack game, when the user reacts with the reaction for fold, the bot should remove the player from the current round and notify the user they have folded.

#### User Story #20

As a user, I want to make or change my bet at specific amounts with reactions at the beginning of each round.

#	Description	Estimated Time	Owner
1	Decide on the bet amounts and reactions to be used for the different amounts. Make sure the bot reacts to the direct message with these reactions when appropriate.	30 Mins	Matthew
2	Create a function that sends a timed direct message before every round indicating if the user would like to change their bet.	1 Hour	Matthew
3	Create manual test cases.	30 Mins	Matthew

#### Acceptance Criteria:

- Given that a round has just begun, a direct message should be sent to the user displaying their current bet. The bot should react with the reactions used for the different bet amounts.
- Given that the direct message for changing bet is being shown, when the user reacts with any of the reactions used for the different bet amounts, the bot should change the bet amount of the user and display a message indicating the new bet amount.
- Given that the direct message for changing bet has reached its time limit, the bot should not change the bet amount of the user.

#### User Story #21

As a user, I want the bot to keep track of the currency.

#	Description	Estimated Time	Owner
1	Create a function that compares the hand value of the player to the dealer and determines if the player won or not.	1 Hour	Matthew
2	Create a function that adjusts the currency balance of a player. It considers whether the player won or not and the bet amount.	1 Hour	Matthew
3	Create a function that directly messages the current currency balance of a player to the player.	30 Mins	Matthew
4	Create a function that detects if the player's currency falls below zero and directly messages the user that they have bankrupted. Resets the player's currency to the default amount.	30 Mins	Matthew
5	Create manual test cases.	30 Mins	Matthew

#### Acceptance Criteria:

- Given that the blackjack game module is properly loaded, when the user requests to see his or her currency balance, the bot will directly message the currency balance to the user.



- Given that a round has just concluded and the user is in the blackjack game, the balance of the user should be adjusted according to the round result and the bet amount.
- Given that a user has left a previous blackjack game and has joined another blackjack game, the balance of the user in the current game should equal the balance of the user at the end of the previous game. In other words, leaving games should not change a user's balance.

## User Story #22

As a user, I want to be able to leave the game in between rounds.

#	Description	Estimated Time	Owner
1	Enhance the function that sends a timed direct message before every round to change bet amount to include a reaction to leave the game.	30 Mins	Matthew
2	Create a function that removes the Player object from the Game object's list of players, removing the player from the game.	1 Hour	Matthew
3	Create manual test cases.	30 Mins	Matthew

Acceptance Criteria:

- Given that a round has just concluded and the user is in the blackjack game, a direct message should be sent to the user to change his or her bet amount. It should include a reaction to leave the game.
- Given that the direct message for changing bet is being shown, when the user reacts with the reaction to leave the game, the bot should notify the user that they have left the game and remove the user from the blackjack game.
- Given that the user has left the blackjack game and has not rejoined, when the user asks to display his or her currency balance, they should be directly messaged his or her currency balance and no errors should occur.

## User Story #23

As a user, I want to know the exact rules being used for the blackjack game.

#	Description	Estimated Time	Owner
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1	Create a function that directly messages the rules to the user. The rules should be organized into sections and the user can request just one section.	1 Hour	Matthew
5	Create manual test cases.	30 Mins	Matthew

#### Acceptance Criteria:

- Given that the blackjack game module is properly loaded, when the user requests to see all the rules, the bot will directly message the user with the rules of the blackjack game.
- Given that the blackjack game module is properly loaded, when the user requests to see one section of the rules, the bot will directly message the user with the rules of the blackjack game only that section.
- Given that the blackjack game module is properly loaded, when the user requests to see a section of the rules that does not exist, the bot will notify the user that the section given was invalid.

#### User Story #24

As a user, I want to display information and stats from my Steam account.

#	Description	Estimated Time	Owner
1	Research how the Steam API works and determine how to extract profile and game stats	2 Hr	Michael
2	Create a function that displays status of Steam account	1 Hr	Michael
3	Create a function that displays the game a user is currently playing	1 Hr	Michael
4	Create a function that displays the location of a user	1 Hr	Michael
5	Create a function that displays the groups a user is apart of	1 Hr	Michael
6	Create a function that displays a profile card of a user	3 Hr	Michael

7	Create manual test cases	1 Hr	Michael
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Acceptance Criteria:

- Given that the Steam API module is loaded, the bot will display the status of a Steam user upon request with a steam ID.
- Given that the Steam API module is loaded, the bot will display the groups of a Steam user upon request with a steam ID.
- Given that the Steam API module is loaded, when a user requests a specific profile using a Steam ID, the bot will display a profile with username, profile picture, status, and description.

### User Story #25

As a user, I want to display information and stats of a game on Steam.

#	Description	Estimated Time	Owner
1	Create a function that displays a description of a game	2 Hr	Arun
2	Create a function that displays the price of a game	2 Hr	Arun
3	Create a function that displays the publishers and developers of a game	2 Hr	Arun
4	Create a function that displays a profile card of a game	3 Hr	Arun
5	Create manual test cases	1 Hr	Arun

Acceptance Criteria:

- Given that the Steam API module is loaded, the bot will display the description of a game upon request using a game name.
- Given that the Steam API module is loaded, the bot will display the price of a game upon request with a game name.
- Given that the Steam API module is loaded, the bot will display the publishers and developers upon request with a game name.

- Given that the Steam API module is loaded, when a user requests a specific game using the game name, the bot will display a profile card of the game which includes the name, splash art, description, price, and game ID.

### User Story #26

As a user, I want to display top charts of games on steam.

#	Description	Estimated Time	Owner
1	Create a function that links multiple databases containing Steam game stats.	1 Hr	Konstantin
2	Create a function that displays a list of trending games on steam	3 Hrs	Konstantin
3	Create a function that displays a list of recently added games on steam	3 Hrs	Konstantin
4	Create a function that displays a list of top played games on steam	3 Hrs	Konstantin
5	Create manual test cases	1 Hr	Konstantin

Acceptance Criteria:

- Given that the Steam API module is loaded, the bot should include multiple databases which contain statistics on game charts.
- Given that the Steam API module is loaded, the bot will display a list of trending games on steam upon request.
- Given that the Steam API module is loaded, the bot will display a list of recently added games on steam upon request.
- Given that the Steam API module is loaded, the bot will display a list of top played games on steam upon request.

### User Story #27

As a user, I want to be able to choose my class at the beginning of the game.

#	Description	Estimated Time	Owner
1	Create a function that starts the RPG game and notifies the user after	1 Hr	Michael

	starting.		
2	Create a function that prompts the user to choose between classes.	1 Hr	Michael
3	Create a function that stores the data of the chosen class for the character specific to that user.	2 Hr	Michael
4	Create manual test cases	1 Hr	Michael

Acceptance Criteria:

- Given that the Discord Bot is running, when a user types the start RPG game command into the chat the Discord Bot will notify the user that the game has started.
- Given that the Discord Bot is running, if the user is starting the RPG game, the Discord Bot will prompt the user to choose between classes for their character.
- Given that the Discord Bot is running, if the user is starting the RPG game, the Discord Bot will prompt the user to enter a username for their character.

### User Story #28

As a user, I want to be able to check my status which should include a short summary of my character's stats and their items currently.

#	Description	Estimated Time	Owner
1	Create a text file and dictionary which holds profiles of players. Create a function that reads the text file into the dictionary	1 Hr	Michael
2	Create a function that displays the profile of a player	1 Hr	Michael
3	Create a function that displays the stats of a character	2 Hr	Michael
4	Create manual test cases	1 Hr	Michael

Acceptance Criteria:

- Given that the Discord Bot is running, when the user requests a display of their profile, the bot will respond with a profile card containing ID, class, and name of a player.
- Given that the Discord Bot is running, when the user requests a display of their stats, the bot will respond with various stats of a player's character.
- Given that the Discord Bot is running, when the user requests a display of their current equipment, the bot will display all equips on the character.

### User Story #29

As a user, I want to be able to check my inventory and switch items or discard them.

#	Description	Estimated Time	Owner
1	Create a section of the text file that stores inventory.	30 min	Arun
2	Create a function that shows the user their inventory.	2 Hr	Michael
3	Create a function that discards a certain item if the user specifies it and notifies the user.	2 Hr	Arun
4	Create manual test cases	1 Hr	Arun

Acceptance Criteria:

- Given that the Discord Bot is running, when a user requests a display of their inventory the Discord Bot will respond with a list of their inventory.
- Given that the Discord Bot is running, if the user requests to discard an item in their inventory, the Discord Bot will discard that item from their inventory and notify the user.
- Given that the Discord Bot is running, if the user tries to discard an item that is not in their inventory the Discord Bot will notify the user that it is not possible to discard something they do not have.

### User Story #30

As a user, I want to be able to buy items from the merchants between floors and sell items if necessary.

#	Description	Estimated Time	Owner
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1	Create profiles of items including stats and effects	3 Hr	Michael
2	Create a function that displays profiles of items	1 Hr	Michael
3	Create a shop which holds items players can purchase	1 Hr	Michael
4	Create a function that displays the shop	1 Hr	Michael
5	Create a function that handles purchasing items from the shop	2 Hr	Michael
6	Create manual test cases	1 Hr	Michael

#### Acceptance Criteria:

- Given that the Discord Bot is running, display profiles of individual items upon request.
- Given that the Discord Bot is running, display the shop menu upon request.
- Given that the Discord Bot is running, handle purchasing of items upon request.

#### User Story #31

As a user, I want to be able to be able to know what different enemies do.

#	Description	Estimated Time	Owner
1	Create profiles of different enemies/monsters.	3 Hr	Arun
2	Create a function that shows all of the enemies/monster profiles, their stats, and abilities.	2 Hr	Arun
3	Create a tag to #2 function that orders the monster by rarity when displaying them.	2 Hr	Arun
4	Create a tag option to #2 that shows individual monsters displayed if asked for.	2 Hr	Arun
4	Create manual test cases	1 Hr	Arun

#### Acceptance Criteria:

- Given that the Discord Bot is running, when a user types a command to see all of the different enemies the Discord Bot will give them a list of all the possible enemies.
- Given that the Discord Bot is running, if the user requests a list of all of the enemies with a tag for rarity, the enemies will be listed from least to most rare encounter, rarity meaning strength and the higher the rarity the lower chance of encountering.
- Given that the Discord Bot is running, if the user types a command for a certain enemy to be displayed from the list of enemies, the Discord Bot will display that enemy profile to the user.

#### User Story #32

As a user, I want to be able to use skills and have the option of attacking, defending, healing, or fleeing the fight, when fighting monsters.

#	Description	Estimated Time	Owner
1	Create a function that prompts the user of the encounter with the enemy and the available options they have and what to type to choose said options.	1 Hr	Arun
2	Create a function that shows the different attack options for the player, including skills and attacks the enemy with the player's selected attack move.	1 Hr	Arun
3	Create a function that shows the defense skills and defends the enemy's attack if selected.	2 Hr	Arun
4	Create a function that heals the player if using an item or skill.	1 Hr	Arun
5	Create a function that flees the fight but if in a floor sets the to the beginning of the floor they were previously on.	2 Hr	Arun



#### Acceptance Criteria:

- Given that the Discord Bot is running, when a user enters a dungeon and fights an enemy/enemies the user will be prompted by the bot with options for attack/defend/heal(use an item)/flee.
- Given that the Discord Bot is running, if the user selects an option attack/defend/heal/flee the bot will respond appropriately with the correct output to the user.
- Given that the Discord Bot is running, if the user chooses to flee they will go back to the beginning of the floor and exit the encounter with the enemy/enemies.

#### User Story #33

As a user, I want to be able to enter a dungeon with my character and his/her items and skills.

#	Description	Estimated Time	Owner
1	Create a function that starts the dungeon dive and notifies the user that the quest is starting.	2 Hr	Arun
2	Create a function that randomized the monsters that spawn on each floor and level from a given set	4Hr	Konstantin
3	Create a function that randomizes the loot dropped	4 Hr	Konstantin
4	Create manual test cases	1 Hr	Konstantin

#### Acceptance Criteria:

- Given that the Discord Bot is running, when a user types the start Dungeon Quest command, the Discord Bot will notify that the quest is starting
- Given that the Discord Bot is running, if the user is starting the Dungeon Quest they will see different monsters depending on the floor and stage.
- Given that the Discord Bot is running, the user has a chance to get loot from fighting with different mobs.

#### User Story #34

As a user, I want to be able to enter a dungeon with my character and his/her items and skills.

#	Description	Estimated Time	Owner
1	Create a function that shows a leaderboard of the top 3 fastest completions of the dungeon run	3 Hr	Konstantin
2	Create a function that will write to a text file the record of the top three runs	3 Hr	Konstantin
3	Create a function that will overwrite one of the top three runs given that the most recent run is faster than one of those on the leaderboard	4Hr	Konstantin
4	Create manual test cases	1 Hr	Konstantin

#### Acceptance Criteria:

- Given that the Discord Bot is running, when a user types !rpgleaderboard it will display the top 3 completed runs of the dungeon
- Given that the Discord Bot is running, if the user gets a top 3 run through their name will be written on the leaderboard
- Given that the Discord Bot is running, if the user beats one of the top 3 runs on the leaderboard, their run will take their place

#### User Story #35

As a user, I want to be able to see a leaderboard of the players who have won the most rounds, won the most money, and gotten the most blackjacks.

#	Description	Estimated Time	Owner
1	Create a function that obtains the players on the current server, sorts the players according to the criteria, and displays it to the user.	2 Hr	Matthew
2	Modify the player class to keep track of most won rounds, most money won, and most blackjacks.	1 Hr	Matthew
3	Create manual test cases	30 Min	Matthew

#### Acceptance Criteria:

- Given that the blackjack module is correctly loaded, when a player calls the command to display the blackjack leaderboard, the players that have won the most rounds should be displayed.
- Given that the leaderboard is displayed, the user should be able to toggle between most rounds won, most money won, and most blackjacks using reactions to the leaderboard.
- Given that the leaderboard is displayed, the bot should react with the reactions used to toggle between the different statistics.

#### User Story #36

As a user, I want to play a slot machine.

#	Description	Estimated Time	Owner
1	Create a function that directly messages the user a message representing the slot machine.	1 Hr	Matthew
2	Create a function that tracks the reactions of the user to the slot machine and runs the slot machine using random number generation.	1 Hr	Matthew
3	Create manual test cases	30 Min	Matthew

#### Acceptance Criteria:

- Given that the blackjack module is correctly loaded, if the user requests to play the slot machine, they will be directly messaged the message resembling the slot machine.
- Given that the slot machine is displayed, the bot should react with the reactions corresponding to the predetermined bet amounts to the message resembling the slot machine.
- Given that the slot machine is displayed, when the user reacts to bet a certain amount, the slot machine should change the slots and display to the user the result after running the slot machine.

## Remaining Backlog:

### Functional Requirements

#### 1. Modular Function System:

- ~~a. As a Server Administrator, I want to add functions to the bot using Discord's file sharing feature.~~
- ~~b. As a Server Administrator, I want to remove functions from the bot with a command.~~
- ~~c. As a Server Administrator, I want to add and remove functions to the bot via a function folder.~~
- ~~d. As a developer, I want to dynamically load functions and features to the bot from separate files.~~
- ~~e. As a developer, I want functions to be able to use libraries not found in the main bot.~~
- ~~f. As a developer, I want to know what format to code commands in.~~
- ~~g. As a developer, I want to know what languages I can code commands in.~~
- ~~h. As a Server Administrator, I want to know if the function I am adding uses the same command as a currently implemented command.~~
- ~~i. As a Server Administrator, I want to specify and change which roles can use a command.~~
- ~~j. As a Server Administrator, I want to know where I can download additional modules.~~

#### 2. Administration Services:

- ~~a. As a Server Administrator, I want the bot to automatically delete messages containing banned words~~
- ~~b. As a Server Administrator, I want the bot to warn users if they try to use a banned word.~~
- ~~c. As a Server Administrator, I want to be able to edit the list of banned words.~~
- ~~d. As a Server Administrator, I want the bot to kick/ban users with a command.~~
- ~~e. As a Server Administrator, I want to create text and voice channels with a command.~~
- ~~f. As a Server Administrator, I want to assign and change user roles with a command.~~
- ~~g. As a Server Administrator, I want the bot to have the ability to remove messages with links in certain channels.~~

#### 3. Basic Bot Usage: As a user,

- ~~a. I want to know what commands are available to use with the bot.~~

- ~~b. I want to know what a command does and ways to invoke it.~~
- 4. Music Function: As a user,
  - ~~a. I want to play songs from youtube by providing a youtube link.~~
  - ~~b. I want to queue multiple songs to be played.~~
  - ~~c. I want to add and remove songs from the queue.~~
  - ~~d. I want to view the queue.~~
  - ~~e. I want to clear the queue.~~
  - ~~f. I want to skip a song.~~
  - ~~g. I want to pause and resume songs~~
  - ~~h. I want to play songs from youtube using their title~~
- 5. Decision Maker: As a user,
  - ~~a. I want to have the bot randomly pick between a set of options to help me make decisions.~~
  - ~~b. I want to have the bot to randomly generate a number between a range of values.~~
  - ~~c. I want the bot to pick more than one of the possible choices or numbers.~~
- 6. Poll Maker: As a user,
  - ~~a. I want to have the bot generate a poll that members of the server can vote on.~~
  - ~~b. I want the bot to announce the result in the text channel the poll was sent to with voting statistics.~~
  - ~~c. I want to create a poll using direct messages to not reveal the question and topic beforehand.~~
- 7. Google Search: As a user,
  - ~~a. I want to get a google search result in the server with a command.~~
  - ~~b. I want there to be an option to jump to the search in my browser from an extra command.~~
  - ~~c. I want there to be an option for the bot to give me a short answer rather than extra unneeded information.~~
- 8. Basic Financial Info: As a user,
  - ~~a. I want to see basic stock information when I provide a ticker~~
  - ~~b. I want to see expanded stock information and get a link with more info about the stock.~~
- 9. Game statistics display (Riot and Steam (If time allows)): As a user,
  - ~~a. I want to display information and stats from my Steam account.~~
  - ~~b. I want to display information and stats of a game on Steam.~~
  - ~~c. I want to display top charts of games on steam.~~
  - ~~d. I want to display information for the game I'm currently in.~~
  - ~~e. I want to get information on a specific champion.~~
  - ~~f. I want to get information on a specific account.~~

- ~~g. I want to see my recent match history.~~
  - ~~h. I want to see my champion mastery score.~~
  - ~~i. I want to see information about an in-game item.~~
  - ~~j. I want to see what pro players build on my champion.~~
  - ~~k. I want to see what jungle pathing is the best.~~
  - ~~l. I want to see the matchup rates of my laners to know which lanes to focus and help.~~
  - ~~m. I want to see tips for laning on how to manage minions in all forms: slow pushing, hard pushing, freeze and what to do in each situation.~~
  - ~~n. I want to see if there are any ongoing in-game events or special modes.~~
10. Code Manual Documents (If time allows: Java, Python, C): As a user,
- ~~a. I want to access code documentation for python and java.~~
11. Clock Integration: As a user,
- ~~a. I want to be able to run a stopwatch on the server.~~
  - ~~b. I want to be able to set a timer for a specific length of time on the server.~~
  - ~~c. I want to type a command to give a timezone in a certain city.~~
12. Sports Info: As a user,
- ~~a. I want to view live scores on the discord server.~~
  - ~~b. I want to view betting odds, spreads, and any other relevant information related to the sports betting for that event.~~
  - ~~c. I want to view players' season averages and career averages.~~
13. Pokemon Information Reference: As a user,
- ~~a. I want to be able to see information about a Pokemon given its name or number~~
  - ~~b. I want to see a shiny Pokemon's sprite~~
  - ~~c. I want to see information about an in-game item~~
  - ~~d. I want to see information about a Pokemon move~~
  - ~~e. I want to see information about a Pokemon ability~~
  - ~~f. I want to see the evolutionary family of a Pokemon~~
  - ~~g. I want to know what types are effective against other types.~~
  - ~~h. I want to know what a Pokemon's egg group is and what it can breed with.~~
  - ~~i. I want to know what Pokemon's nature does.~~
14. RPG: As a user,
- ~~a. I want to be able to choose my class at the beginning of the game and be able to leave the game at any stage and come back as they please.~~
  - ~~b. I want to be able to check my profile which includes all of the details of my stats.~~
  - ~~c. I want to be able to check my status which should include a short summary of my character's stats and their items currently.~~

- ~~d. I want to be able to check my inventory and switch items or discard them.~~
  - ~~e. I want to be able to buy items from the merchants between floors and sell items if necessary.~~
  - ~~f. I want to be able to use skills and have the option of attacking, defending, healing, or fleeing the fight, when fighting monsters.~~
15. Math functions: As a user,
- ~~a. I want to get answers for simple math equations such as addition, subtraction, multiplication, division, exponents, and algebraic equations.~~
  - ~~b. I want to get answers for trigonometric equations quickly. These could include functions such as sine, cosine, and tangent.~~
  - ~~c. I want to solve calculus problems quickly, these could include both derivatives and integrals.~~
16. Blackjack Card Game:
- ~~a. As a user, I want to start a blackjack game if no one is playing or redisplay the game if someone is currently playing.~~
  - ~~b. As a user, I want to join an existing blackjack game in session with a reaction.~~
  - ~~c. As a user, I want the bot to continuously host rounds of blackjack while the game is active.~~
  - ~~d. As a user, I want to hit, stand, or fold with reactions via a direct message.~~
  - ~~e. As a user, I want to make or change my bet at specific amounts with reactions at the beginning of each round.~~
  - ~~f. As a user, I want the bot to keep track of the currency.~~
  - ~~g. As a user, I want to be able to leave the game in between rounds.~~
  - ~~h. As a user, I want to know the exact rules being used for the blackjack game.~~

## Non Functional Requirements

1. Architecture:
  - a. I want to develop the program in python with the Discord API.
2. Performance:
  - a. I want the bot to respond within a second of requesting something from it.
  - b. I want the bot to be available 24 hours of the day.
3. Usability:
  - a. I want the bot to be easy to download, set up, and customize for my server.
  - b. I want to be able to set up the bot easily with no previous experience with discord bots.
  - c. I want to never have to interact with code while running my bot.
  - d. I want to be able to know which commands I can use.
  - e. I want to use commands easily.

4. Security:

- a. I only want trusted individuals to be able to upload functions to the bot.