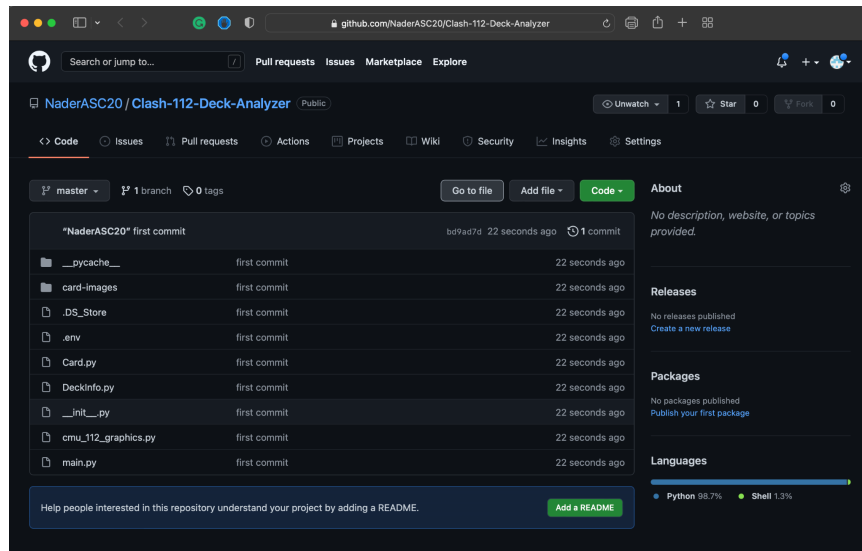- Project Description
    - The name of my term project is "Clash 112 Deck Analyzer".
    - "Clash Royale" is an extremely popular mobile strategy game where players battle each other in 1v1 or 2v2 battle using "decks", a set of 8 cards of the user's choice from the 106 available cards in the game.
    - This project is called "Clash 112 Deck Analyzer". It is an app that allows a user to input a Clash Royale deck of their choice and receive a thorough analysis for said deck.
    - The analyzer matches your deck up against 4 other popular decks in the game. It provides intelligent card suggestions for replacing the card in your deck that gets countered the most by the matchup decks. These card suggestions synergize well with the other cards in your deck.
    - There is also a simulation component to the analyzer. The user can simply press "s" on the analysis screen to be presented with a complete simulation of their deck matched up against the best possible counter deck. This simulation allows the user to view interactions between their cards and the matchup cards which may provide useful insight into the strategies they will choose when playing Clash Royale.
- Competitive Analysis
    - There are a couple other deck analysis tools available online, such as dechshop.pro and clashroyaledeck.wiki. My project's UI will be similar to these tools. There will be a list of cards to choose from, a container for the deck you can build, and a button to analyze the deck. These tools only provide very basic information, such as a score for "Attack, Defense, Synergy" etc. However, my project will also match up your deck to popular decks in the game and provide suggestions to improve card-to-card matchups by replacing some cards with other cards that synergize more with the rest of your deck.
    - Other deck analysis tools online do not have a deck simulation feature as does Clash 112 Deck Analyzer.
- Structural plan
    - Object for "Card", a deck analysis object, a function to provide information about your deck matchup with other popular decks, and a function to provide other more basic information about your deck such as cost and a rating based on all factors combined
- Algorithmic Plan
    - The most complex part of the project will be the deck analysis algorithm. I plan to compare the given deck card by card to the top 50 or so most popular decks (sourced from an API call) and keep track of the weakest cards in the deck. These weakest cards will be fed to another algorithm that will find suitable replacement cards which synergize well with the other cards in your deck based on card type and cost.
- Timeline Plan
    - By TP1: Finish UI for inputting a deck into the app and "analyze" button
    - By TP2: Finish the foundations for the major 2 algorithms that analyze any deck

○ By TP3: Polish the UI and add complexity final to the algorithms
　● Version Control Plan
　　　　　　○ Pushing the code periodically to a github repo at
　　　　　　　https://github.com/NaderASC20/Clash-112-Deck-Analyzer

　● Module List
　　　　　　○ RoyaleAPI/Clash Royale Official API

TP3 UPDATES:
- Implemented a Clash Royale deck simulator feature
New description:
- "Clash Royale" is an extremely popular mobile strategy game where players battle each other in 1v1 or 2v2 battle using "decks", a set of 8 cards of the user's choice from the 106 available cards in the game.
- This project is called "Clash 112 Deck Analyzer". It is an app that allows a user to input a Clash Royale deck of their choice and receive a thorough analysis for said deck.
- The analyzer matches your deck up against 4 other popular decks in the game. It provides intelligent card suggestions for replacing the card in your deck that gets countered the most by the matchup decks. These cards suggestions synergize well with the other cards in your deck.
- There is also a simulation component to the analyzer. The user can simply press "s" on the analysis screen to be presented with a complete simulation of their deck matched up against the best possible counter deck. This simulation allows the user to view interactions between their cards and the matchup cards which may provide useful insight into the strategies they will choose when playing Clash Royale.