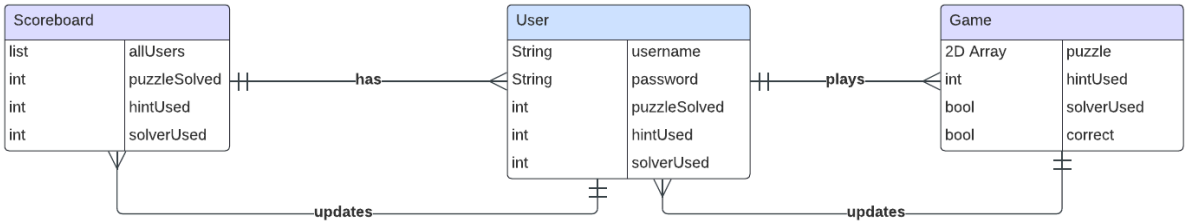
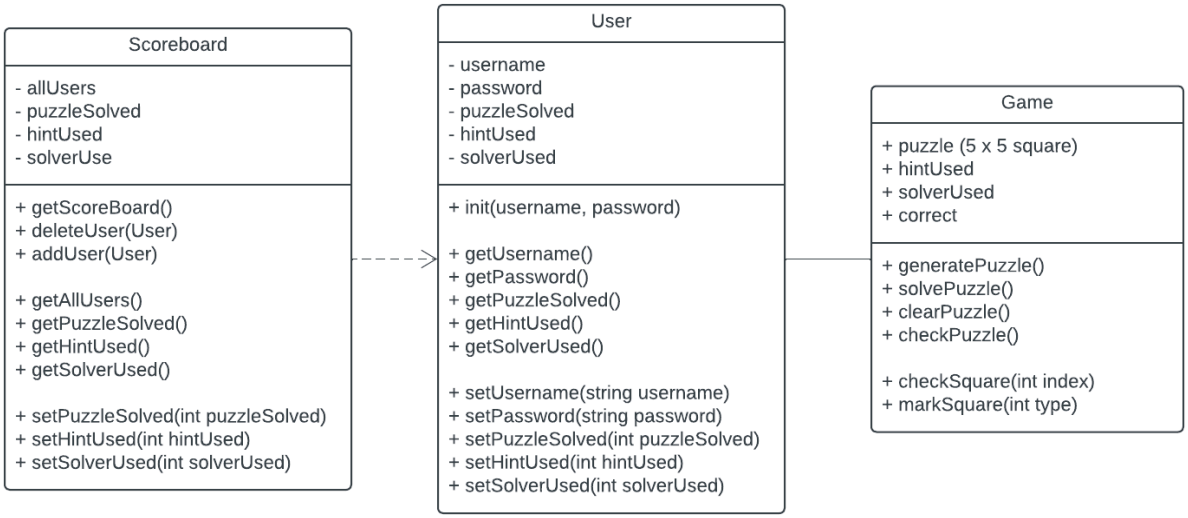
Project Description

- The end product will be a website where users can sign up or sign into their account. Once users are logged in, they can play the puzzle game in the middle of the page. User will have options to play the game, check their high score, or log out:
    - If users choose to play the game they will be shown a generated 5 x 5 table where they can flip the tiles. Users can also ask for a hint on a certain square or ask the game to solve the whole puzzle by pressing a button
    - If the user chooses to check their high score, they will be able to see the number of puzzles they've solved, the number of hints used, and the number of times that they have asked for the game to solve the puzzle for them.
    - If the user chooses to log out, they will be sent back to the login and signup page.
- **Prototype to the website with the puzzle game:**
    - https://xd.adobe.com/view/2ce38b38-ad91-429b-b222-2a6bc6080f01-79b0/





- **The methods used in the puzzle solver.**
    - **Start with the highest numbered "line"** and flip in the possible tiles to black
        - Ex: a line with 4 would mean that the center 3 out of 5 tiles will need to be flip

    - **Once there are no more lines that are higher than 3**, go through each line and mark the tiles as white if number conditions are meet
        - Ex: if the number condition for the line is 5 and all 5 tiles on that line are black then the line is done
        - Ex 2: if the line is 3 and three of the five tiles are black then mark the other 2 non-black tiles as white
    - **If a line has a a black tile next to a white one** then starting from that black tile add n - 1 numbers of tile (n being the number condition)
        - Ex: let w be white and b be black and g be gray (unmarked):
            - If n is 3: w b g g g --> w b b b w
            - If n is 4: w b g g g --> w b b b b
- **Describe the market space the application is related to and its selling points.**
    - A 5x5 simple tile game with free hints and a scoreboard to compare scores with friends

Functional specifications

- **A complete list of product features, with a description for each feature.**
    - **Account** - The user will be able to sign in and out of an account
    - **Highscore** - There will be recorded scores only for those with an account
    - **Auto-Solver** - When pressing the solver button, the game will use an algorithm to solve the puzzle for the user
    - **Hint** -While Solving, the user will be able to ask for hints on a certain number of squares
    - **(10% bonus points)** It won't be completely multiplayer but there will be a scoreboard for people to compare their high scores to others

Deployment

- **Describes how to deploy your flask project**
    - I'm planning on deploying on Docker or through Heroku CLI
    - I'll probably be following this tutorial if I'm using Heroku

List of features that will be accomplished in the following (major) milestones M1, M2, M3, M4, or M5.

- **M1 (2/6 - 2/15):** Setting up Github and Flask App
- **M2 (2/20 - 2/29):** Add log-in, sign-up, and log-out
- **M3 (3/5 - 3/14):** Build 5x5 tiles and generate patterns
- **M4 (3/19 - 3/28):** Add "flippable" tiles and a record number of incorrect flips
- **M5 (4/2 - 4/11):** Implement an algorithm to solve tile without using help from the database
- **M6 (4/16 - Finals):** Testing for bugs and making visuals a little bit better