Main Idea:

I want to develop a game for the Android that combines aspects of the current most popular genre for games, multiplayer online battle arenas (MOBAs), with the simplicity and ease of use of mobile games.

Design:

The main game will be a one versus one that takes place on a 5x9 board. Each person will have a team of 4 heroes with a base. The goal of the game is to use the abilities of your team of heroes to cross the board and destroy the opponent’s base. Taking inspiration from the MOBA genre, each hero will have a “kit” of abilities that can be combined in unique and interesting ways that give each match a different feel. The goal is to have a robust set of characters and interactions that are easy to learn, and rewarding to master.

As of now, there are 18 planned characters that cover 9 different roles. Each one is a combination of the classical game archetypes of damage dealer, tank, and support. By combining two of these three roles, each character can bring a different mix to an overall team composition. The 9 roles are as follows:

1. Assassin – Highly mobile damage dealers
2. Fighter – Frontline melee attackers
3. Hunter – Ranged attackers
4. Vanguard – Mobile tanks that can initiate fights
5. Guardian – Toughest, most survivable tanks
6. Warden – Tanks with strong support abilities
7. Sentinel – Backline ranged attackers with wide variety of abilities
8. Defender – Area control
9. Protector – Low damage, but strong healing and support abilities

The precise meaning of each of these classes will be further defined through playtesting, but the goal is to have each character bring more than one capability to a team so that no one character is essential. Each role will have two characters developed for it in order to give the player more options.

The theme of the characters is that they are “Oathkeepers,” people who have sworn oaths to some idea and through their commitment developed powers. While the overall story of why they are fighting isn't particularly important, one of the strongest draws of the MOBA genre is the “flavor” of the heroes. They are bold, unique, and deliver on some kind of promise in gameplay that they make with their art, backstory, and dialogue in game. Therefore, one of the design goals is to create strongly resonant characters that players want to engage with even beyond their utility on the battlefield.
The game will take place in simultaneous turns, divided into phases. Each hero’s abilities will trigger in a specific phase, allowing for players to make predictions, pull off combos, and evade their opponent through carefully planning ahead. Although most MOBAs are real time, using a turn-based approach will allow the AI to be simpler to develop, and better match the control constraints of a mobile device.

Between games, players will have the opportunity to view the characters in the hero gallery, put together new team compositions, and review their previous match history. Many MOBAs also offer cosmetic items, usually through “skins” which are alternate costumes for the heroes. Depending on the time constraints, I would also like to include some form of cosmetic customization for the heroes.

**Technical Requirements:**

The UI requirements will be a main menu with options to play a match, to view the wiki of the characters, to create a team, and to alter settings. The UI of the match will be the view of the 5x9 board, with multiple levels of zoom to see the whole board, or just a section. The heroes will be controlled with tapping; tapping a hero will bring up its ability menu which will appear at the bottom of the screen. The abilities will be represented with easily readable icons, and visual aids to represent cooldowns, damage, range, etc. Tapping an icon will ready the ability, and there will always be the option to cancel it.

The first design challenge will be to develop a system to move characters around the board, and to deal with activating and resolving the unique abilities of each of the characters. It needs to be properly modular in order to allow for fast addition of new characters and quick revisions of character abilities in response to game balancing.

Next, there will need to be an AI developed capable of playing as the enemy team. With a 4 person team out of a roster of 18 characters, there are more than 3000 possible team compositions. So it isn’t feasible to program individual strategies for each potential team. Instead, the AI will learn how to play each individual character, and adapt to the status of the board as the game progresses. For example with a support character, the AI should know to keep them in the back behind the stronger characters, know how to prioritize which teammates to heal or use different buffs, how to combo their abilities, and so on. This should reduce the work necessary to produce a functional team. In addition, once the AI knows how to play each character, it could be possible to have a mode manager similar to DAMN architecture that weights the characters’ abilities depending on if it is set to “aggressive,” “cautious,” etc. Therefore, developing AI will be one of the areas of computer science that I learn more about through this project.

The largest time requirement is the character designs and animations. Each character will need an idle animation, animations for each of their abilities, animations for moving, animations for taking damage, and animations for dying. With 18 planned characters, and about 10 animations each, there will be nearly 200 animations to design. In addition, there will need to be visual effects for lingering results of abilities.
such as the creation of new terrain, fire/burning, poison, and other status effects. I envision the game as 2D pixel art, which I do not have much experience creating or animating, so I will be learning about computer animation through this project as well.

**Project Milestones**

1. Become familiar with Android Studio.
2. Display layout of the board and ensure basic functionality (i.e., accurately responds to touch).
3. Display first hero, for now represented very minimally, and move it around the board.
4. Add abilities to hero and ensure that they all work.
5. Add enemy hero and rudimentary AI to board to test all phases of the game.
6. Successfully complete a game (i.e., starts, moves through all phases until one base is destroyed, ends)
7. Add successive heroes until entire roster is in game
   a. New symbol displayed
   b. New abilities added
   c. AI taught how to play as the hero
8. Develop main menu and polish UI
9. Add graphics and animations for each hero
10. Finish menus: hero gallery, team builder, and settings

**Stretch Goals**

- Cosmetics
- Multiple AI modes