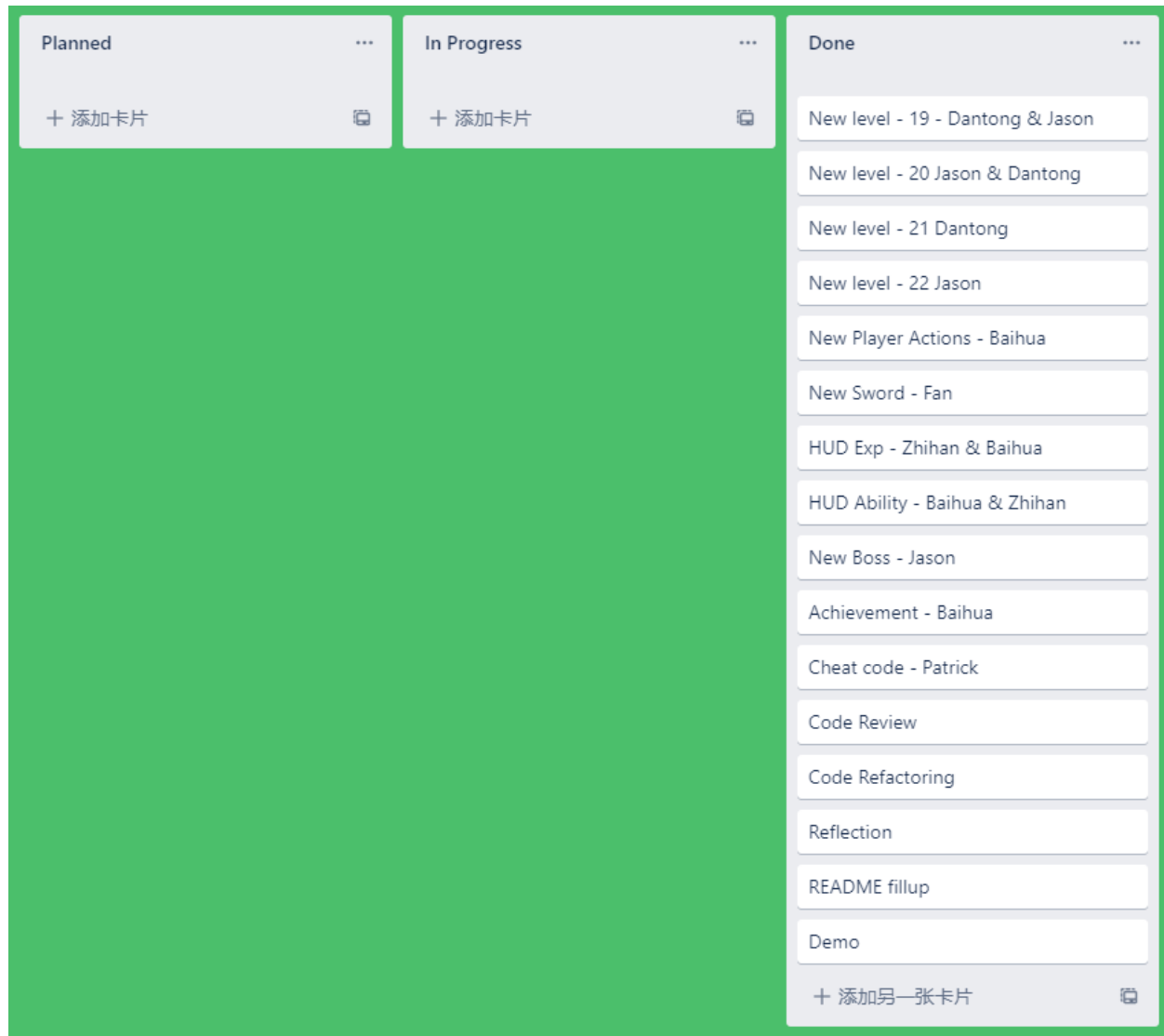
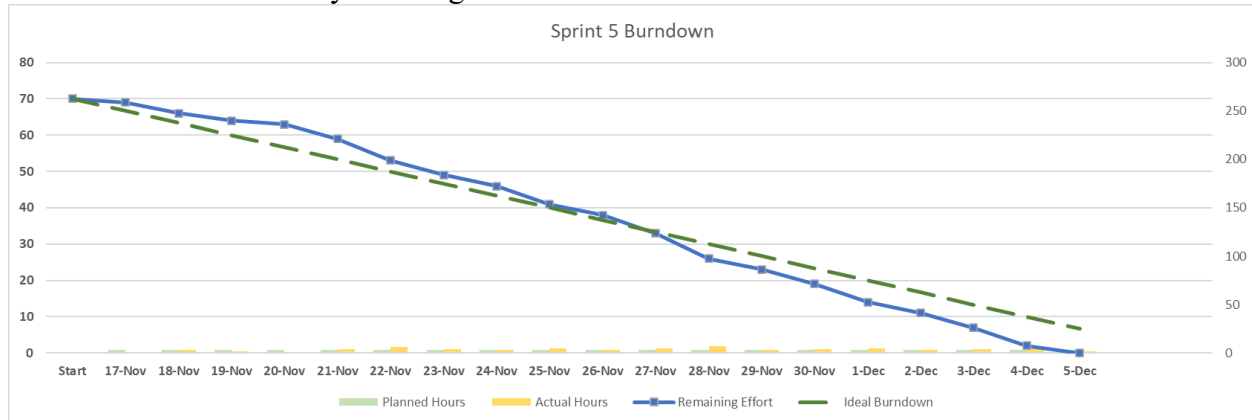


## Sprint 5 Reflection

Team members: Patrick Cheng, Zhihan Li, Jason Lian, Fan Shen, Dantong Xue, and Baihua Yang  
(names listed in alphabetical order of the last names)

Reflection summarized by Dantong Xue.



This is the last sprint we have for CSE 3902. In this sprint, we added several new features that covered different aspects of the games. Each of us had a specific focus. We believed that we delivered a comprehensive project with those new features.

In this Sprint, we had our main priority but collaboration on different features as well. I personally designed four new maps. In map #20, I collaborated with Jason to design a “run and hide” puzzle where the player needs to find specific timeslot to run over the level to avoid being damaged. It was also fun to implement the map #21 where there were directed arrows. When player stepped on the arrow block, they will move to that direction like when taking the escalator. This idea was originally borrowed from *Pokémon Omega Ruby / Alpha Sapphire*. We also designed level #22 to add a more powerful boss for the player to encounter with. Overall, I enjoy working with my teammates to come up with interesting ideas that we hope the player can also enjoy.

Baihua added 3 new kinds of features into the game: achievement system, new actions and ability tree system for Link. Achievements were easy to implement but since the game was not big enough as there were only a few meaningful achievements could be added. Baihua had difficulties in implementing jump and dash actions for Link. It was hard to identify a block and a wall since they were all named "block" at beginning. So finally, he decided to make Link unable to jump over any block but only invincible when jumping. For ability tree, he was planning to implement a more complicated and variant version than it looks now. However, he did not have enough time, so he simplifies it to be two single trending trees with 4 abilities for each one. It was fun to create some pixel arts for the ability system. In addition, Baihua also refactored some implementation of what he did in previous sprints, since some of them did not have enough maintainability and flexibility. Despite that he did not think this game will have any further development, it was a great experience to get familiar with game developments. During this sprint, he realized that he had to manage and balance my time and workload and saw the importance of following the practices of developing software.

Jason added three new enemy types to our game: two simple traps and a new kind of boss. Traps can be interesting components in level design because they could not take any damage from the player. So, he collaborated with Dantong (who is in charge of map design) and made room #20, which was a kind of puzzle-solving level. he also wanted to add a more challenging boss fight to the game. More specifically, he wanted the boss to be more actively engaged in attacking and thus could force the player to pay more attention to avoid damages. The three new types of enemy he added worked well in the game and were straightforward to implement. He kind of regret that he did not have a lot of time to explore more interesting possible new ideas for this sprint after he saw some very creative features from other groups. He got some ideas about expanding the attacking logic of the Saw and some ideas for new bosses. He would be happy to work on the game after this semester.

Patrick added cheat to the game, giving the player an easier difficulty if he has a hard time getting through the game. He mainly focused on how to implement the cheat code part. When he thought about what cheats that other people would want, he enjoyed the sense of destructing the intended

way of gameplay. The group discussed thoroughly and came up with all kinds of ideas to make the game more fun and interesting for this sprint. He felt like if more time was provided, we could come up with more ideas.

Fan created a new weapon called Ice sword that has the ability to freeze the enemy in place for 50 frames (same amount as damage cooldown). This was implemented to make the last boss fight with the saw implemented by Jason easier to handle even under rapid movement. New sprites were created of link holding the ice swords and thanks to Baihua for the basic implementation of attacks based on similar wooden and master swords. He felt that the collaboration is more important than ever for this sprint as the project gets much complicated. The somewhat lack of comments on code also made implementing the new weapon a bit challenging so he had to go back to the creator of player class for help.

In this sprint Zhihan added the RPG elements to the game (experience bar, level-up system), and add the description of abilities (new feature add by Baihua). Zhihan learned a lot from this project, and the most important thing learned from this class is to use the design pattern, which can save lot of time and make others easy to understand the code. Zhihan appreciated all teammates' efforts and help on the project during this entire semester.

In conclusion, it is a great semester working on this project. We have much to express about our enthusiasm and passion on this game. Thanks to the close teamwork, we are able to finish each sprint as we expected.