**Estimated number of hours**

Total: 71 hours

About 45 hours to code the project.

About 11 hours to learn new features of python/pygame.

About 15 hours for non - technical parts of the project.

**How we got to the estimate**

We used a version of Agile estimation:

Story:

Our team has programmed flappy birds for project 3 and it took us around 95 hours to program the game from start to finish. Taking this into account and the fact that we didn’t need to program the game from start, we estimated our hours.

Time spent:

Having coded flappy bird for Project 3 before, we did not have much learning to do for this project, although we did have to learn new things for different items we were going to implement in the lab.

Estimating:

For the hours we would need to learn new python code, we assumed it would take less than our previous project. The time estimate we used was 1-3 hours per person. We got 11 total hours by assuming some of us who were experienced would need an hour, and the rest would need roughly 3 hours.

For the non technical hours, we assumed we would need a few extra meetings since this was going to be a group created project and not something specific we were assigned. We used our previous projects to get our estimate.

For the actual hours to code the game, we assumed it would take 5-12 hours per person. We assumed it would take us less time than Project 3. We added a few extra hours since we were not sure how hard it would be to program new features.

Final estimate:

Using the above data estimated our hours would be around 71 hours. Estimating the hours for coding is much more difficult so we settled on 45 which is in between our 5-12 hours per person. For this overall estimate we relied heavily on our previous projects for guidance.