

Project Phase 4 Report

Hidden Squirrel is a game where users play as a squirrel and try to avoid mushrooms and moving bears. The goal is to collect all of the acorns across the map to unlock the exit door. Also on the board, there are bushes where the squirrel can hide from bears that are far away.

Our game includes some additional defining features. The major one is fully randomized map generation, everything from the tree generation and graphic type to the trap, and reward locations are randomized. Even bonus rewards have a randomized spawn and despawn time. Over 1000 different map generations each map had a similarity score of less than 30% to any other map, this allows for much more replayability and a different experience every round. Along with randomization, we had a few more small features including but not limited to, changing hero colors, animated sprites, and a hiding feature.

In the original plans and designs, we stayed faithful to the idea of the 2D array to represent each cell on the board in the game, and also to the player's and enemies' movement calculations and interactions. The majority of the Use Cases were achieved, except for implementing the restart button, as well as increase/decreasing buttons of volume. Most of the UML Class Diagrams had insufficient information, and also were un-modularized, so during the coding phase, many more classes and functions were added. User interfaces of the product were close to what we presented for the mockups in phase one. Some of the differences were that we initially planned to do two different moving enemies(bear and hunter) but we ended up doing bear only or traps were designed to be cages initially but later on we replaced them with mushrooms. Buttons have a better user interface than what we initially designed.

The final product increased in the number of classes, from the initial diagram of 14 to 32. Most were from creating one class for each screen, and others for creating subclasses to contain more specified objects. Instead of moving through options with arrow keys, chose to change to clickable buttons for easy interaction. Throughout the coding phase, new ideas of features were made, such as showing sprite animations, fine-tuning enemy movement, and re-adjusting spawn locations of user and exit door to match missed requirements.

The most important lesson learned was the impact of careful and meaningful planning, as although the plan can deviate throughout the project, a stronger plan will always deviate less, resulting in less effort to re-plan and re-code to implement the different ideas of requirements and features. Another lesson is to also read through all documentation and fully understand the functions provided, as incorrect use could lead to failures in the code, resulting in trying to find problems inside the big project codes. Additionally we learned about the importance of communication in a team and having frequent meetings to avoid any duplicate effort or confusions.

A video was made to demonstrate and introduce the game. A link is shown below for the video:
<https://youtu.be/dsr-AFdutEQ>