Technologies used

Visual Studio

Used for the basic coding in C#. This provided the ability to use classes and made finding and fixing coding errors easy.

Monogame 3.3 & Monogame Pipeline Tool

Monogame created the basic structure for the game, and gave access to a lot of very useful frameworks which meant that the creation of the game was much simpler, like the graphics framework which allowed the use of spritebatches and 2D textures that had been processed by the pipeline tool.

GitHub

GitHub made it easy to work on the game from whichever computer I had access to, and meant that there was always a backup of the game if it was needed. It was also useful for the purpose of the development diary process, as I could use the wiki feature to not my progress, which is available online at: github.com/tomrowell/GamesProgramming/wiki

Technical Features Programmed

Procedural level generation

When the player enters a new floor, I use random number generators to create the size and placement of rooms relative to the amount of floors cleared, which then places the player and the stairs to the next floor randomly within the rooms generated. The game then connects the player to the stairs if necessary, so that the player can always progress, and places enemies around the map in available spaces. It also places a chest on each floor which, when walked over, gives the player either a sword or shield with a few charges, or adds more charges to a currently equipped sword or shield.

Controllable camera class & HUD

The camera I implemented is designed to follow the player around the map using the player's coordinates and a transformation matrix, and is used through the SpriteBatch.Begin() function. It is implemented with a zoom and a rotation variable, but these are never changed during gameplay as it would reveal more of the map to the player, lowering the difficulty, or rotate the map, disorientating the player. It also utilizes the provided graphics device manager to track the resolution of the game so that it can correctly position the camera on the player.

The HUD provided for the player is simple, but provides all useful information to the player, which is their health, the charges remaining on their sword and shield, and the floor number they are currently on.

Death screen and restarting the game

There is also a basic death screen in the game which, when displayed, allows the player to restart the game after they have died. Unfortunately, repeated use of this function can cause the memory usage to increase too much.