

Project Description:

“Beat of Issac” is a remake of the game “Rebirth of Issac” which features Issac using its tears to attack and kill monster in a big dungeon room. The items, like coins and blood, and different level of monsters will appear in random position in the room determined by the beat of the song that the player inputs. For example bigger beat, which appears less frequently, will bring higher level monsters and smaller beat brings monsters that are easier to kill.

Competitive Analysis:

This game is based on the game “Rebirth of Issac” and they have the same characters, monsters and functionalities. The bullet, which is the tear of Issac, has different levels of damage and range determined by the player. There are three kinds of heart, red, blue and black. The difference is that instead of having an entire map of a dungeon and multiple levels, my game is focused on a big room in which Issac can move around. Also, instead of having items and monsters placed in the room, my game starts in an empty room which will later be filled.

The music feature was inspired by a game called Dancing Line in which the player has to tap to turn a gliding line when the tune of music turns. The difference is that though my game also involves the change of certain features in music, it uses music to determine the appearance of objects.

Structural Plan:

A starter code file for pygame

A file of all features of Issac: the character itself and the bullets it emits, possible future upgrade of Issac

A file for beat detection

A file for things that Issac need to kill (all the monsters)

A file for things Issac can pick up: coins, blood, keys, etc.

Algorithmic Plan:

The only part requiring an algorithm might be the beat detection part and I already found a mathematical algorithm online to calculate the instant energy and local average energy of the beat.

Timeline Plan:

TP1: moving Issac, working bullets, beat detection

TP2: moving monsters and their collision with Issac, basic blood status (three red), incorporate the song

TP3: things that don't move like coins and keys which can upgrade Issac

Version Control Plan:

back up the file before I make significant changes to the code

Module List:

Pygame

Pyaudio

TP3 update:

I later added the feature allowing the player to design the board that they will be playing with. The player can put different kinds of obstacles inside the board to make the game harder.