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Game Architecture

Final Project Game Design Document



OVERVIEW:

Released in 1983 for the Nintendo Entertainment System (NES), Super Mario Bros. is an exceptionally popular 2D platformer and the first major title in Nintendo’s Mario series. The game stars Mario, an Italian plumber who must rescue Princess Toadstool from the evil Koopa, Bowser. In our final project for Game Architecture, we seek to somewhat recreate this game in Visual Studio 2017 using the SDL library, where we will program five levels. This recreation will include the following major mechanics: walking and running, jumping, defeating enemies, collecting power-ups and coins, and clearing levels by grabbing a flagpole at the end.

GAMEPLAY:

* Walking: By pressing and holding the “A” or “D” keys on the keyboard, Mario will walk in that direction. Mario cannot walk past the left side of the screen.
* Running: The player can hold the right enter key while walking to make Mario run, which increases his velocity and makes him jump farther.
* Jumping: If the player presses the spacebar, Mario will jump into the air. The player can stall Mario’s fall rate by holding the spacebar, and they have great control of his aerial movement.
* Enemies: Mario can defeat an enemy by jumping on its head or by hitting it with a fire flower. Unlike in the original game, Koopa Troopas die instantly if Mario jumps on them.
* Coins and Power-ups: There are four kinds of power-ups:
  + Coins increase Mario’s score.
  + Mushrooms make Mario bigger and give him an extra point of health.
  + Fire Flowers give Mario a fireball attack and give him an extra point of health. If he already has a Fire Flower, collecting another one will instead increase his score.
  + 1-Up Mushrooms increase Mario’s total life count by one.
* Timer: At the beginning of each level, a timer starts counting down. If the timer hits zero, the player loses instantly. On harder difficulties, the player has less time to complete each level.

*An example gameplay screenshot. Note the UI at the top of the screen, the mushroom, Mario himself, and the various kinds of blocks that he can hit to obtain different rewards.*

*Also note that Mario is almost always in the center of screen, except when he moves left.*

