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Game Architecture

Final Project Technical Document

**DESIGN SUMMARY:**

In the final project, we are going to recreate the classic platformer *Super Mario Bros.* Mario will traverse levels while avoiding foes like Goombas and Koopa Troopas. While Mario is dodging these objects, he will try to collect coins and mushrooms to increase his score and reach the end of each level to progress.

**REQUIREMENTS AND SYSTEMS LIST:**

1. **Main Menu** 
   1. **“Play”**
   2. **“Options”** 
      1. Speed control/difficulty level
         1. Choose between 3 speeds/difficulty levels
      2. Sound effects and music volume
      3. Select Language
   3. **“Load Progress”**
   4. **“Quit”**
2. **Gameplay**
   1. Physics are reminiscent of the original *Super Mario Bros.*
      1. Mario accelerates as he moves and slides to a stop
      2. Mario’s speed affects his jump height and distance
   2. Dangerous objects like enemies and pits will damage or kill the player
   3. Power-ups like Mushrooms, Fire Flowers, and 1-Up Mushrooms will increase the player’s health or grant them new abilities
   4. Information regarding lives, coins, score, and time is displayed on the HUD
   5. Multiple levels
   6. Soundtrack and sound effects pulled directly from the original game
   7. The player is allowed to save their current state and reload it after reopening the game
3. **Issues of Concern**
   1. **High Risks**
      1. Physics System
      2. Replacing Allegro with SDL
   2. **Medium Risks**
      1. Managing Game Objects
      2. Menu
   3. **Low Risks**
      1. Animations
      2. Mario and enemy hitboxes
      3. Control Inputs
      4. Sound Effects and Music