**Project Proposal (Due 2/09)**

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1. First, briefly describe your project including (a) overall theme with reference/research (b) programming (e.g., a few classes, interaction etc.), and (c) user interaction (e.g., mouse, keyboard etc.).
2. Overall theme

The theme of this project is to create a challenging 2D platformer reminiscent of Jump King [1][2]. In this game, the player must navigate a series of precarious platforms and obstacles while dealing with realistic physics that affect each jump and landing. Inspired by research on difficult platformer mechanics (see references [1] and [2]), the game emphasizes precision, strategy, and timing. The narrative might follow a determined protagonist attempting to ascend a mysterious tower filled with traps and secrets.

1. Programming

Architecture: The game will be structured using object-oriented programming principles. Key classes might include:

* 1. Player: Manages player attributes, movement, and state (jumping, falling, landing).
  2. Platform: Defines landing spaces with collision properties, coordinates, size and angle (? if I have time).
  3. GameManager: Oversees overall game state, level progression, and scoring.
  4. PhysicsEngine: Implements the gravity, momentum, and collision detection to simulate some physics.

Interaction: The program will employ an event-driven system. When a player presses a key (or clicks a button), an event is dispatched to the relevant object (e.g., the Player class updates its velocity for a jump). For the UI features like buttons, I will use the controlP5 library.

1. User interaction

Input Devices:

* 1. Option 1:
     1. Keyboard: Arrow keys or WASD will be used to move left and right and the spacebar to jump, players will hold WASD to decide the direction they jump while holding the spacebar to decide how far and where the jump will land.
     2. Mouse: Used for navigating menus and selecting game options.
  2. Option 2:
     1. Keyboard: WASD or arrow keys are used to move left and right and the spacebar to jump. Holding the spacebar longer will result in a farther jump.
     2. Mouse: While holding the spacebar, use your cursor to decide where you will jump.

Feedback:

* 1. Visual Feedback: Animated character movements and responsive platform behaviour.
  2. Audio Feedback: Sound effects for jumps, landings, and collisions to enhance immersion.
  3. Difficulty Feedback: The game will feature a scoring system and progression markers to inform the player of their progress and challenges ahead.

1. Add (or attach) a rough sketch (or drawing/wireframe) showing a storyboard of your potential project. Briefly describe an application flow during a program run (e.g., game play).

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| --- | --- | --- |
| Shot# | Content | Thumbnail sketches (or images/wireframe) |
| 1 | Start Screen: The game opens with the title, featuring a background of a towering structure. |  |
| 2 | Tutorial/Introduction: A brief view with on-screen instructions explaining the controls and objective. |  |
| 3 | Gameplay - before jump: The player character begins on a small platform; initial obstacles and simple platforming challenges are introduced. |  |
| 4 | Gameplay - jump fail: The player misses the platform and falls down with a landing head first sprite |  |
| 5 | Level Complete Screen: After the player reaches the top platform, the screen displays options to retry or a level completion screen with progress details. |  |

Application Flow during a Game Run:

1. Startup: The player launches the game, sees the start screen, and selects "Start Game."

2. Tutorial: An introductory tutorial or brief cutscene explains basic controls and game objectives.

3. Gameplay: The game transitions to level one where the player begins navigating platforms, encountering simple obstacles.

4. Progression: As the player advances, the difficulty increases through tougher jumps.

5. Conclusion: The level ends with a victory screen if the player reaches the top platform providing options to restart or quit.

1. Add a reference relate to any information relate to your project. Please follow [APA citation guide.](https://www.ufv.ca/media/assets/academic-success-centre/handouts/APA-Quick-Bits-7th-Ed.-rev-June-2021.pdf)

[1] Nexile. (n.d.). *Jump King - There is a Smoking Hot Babe at The Top!* Retrieved February 8, 2025, from <https://www.jump-king.com/>

[2] Nexile. (2019, May 3). *Jump King*. Steam. <https://store.steampowered.com/app/1061090/Jump_King/>

[3] Ooga Booga™. (2020, December 22). *Beginner's Guide to Jump King!*. Steam Community. <https://steamcommunity.com/sharedfiles/filedetails/?id=2330386421>