

Anthony Grant-Cook, Alexis Caldwell, Simon Jones

Professor Mohan

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Project Proposal

As a group, we chose project track number 6. This is the student-designed project track, in which we are going to choose to build a platformer video game. A platformer is simply a two-dimensional game in which a player is governed by basic laws of physics, like gravity and friction. The player translates along the x-y axes and jumps on platforms to reach an end goal.

We want to build a platformer where the player starts at a startpoint to reach an endpoint. The player will have one life, and if they lose the life they must restart. We will use Javascript, CSS, and HTML to complete this project. We had been recommended to use another language to keep score, but this can all be done with the three previously mentioned. We will try to see how little html we can use in this project, with just enough to import the Javascript files and the CSS stylesheets. The Javascript, of course, will use HTML to create the game, but it will be done in a more imperative, programmatic way.

We have researched some methods to create basic platformer features such as collision detection, where the game decides if a player should keep moving in one direction, gravity, which keeps the player on the ground, and level creation, which is responsible for depicting the features of the level such as obstacles and platforms. The most viable method for level creation appears to be via a tile map, which is a static string of alphanumeric characters representing identifiers of the tiles in the game. This allows for declarative level design and should provide us with a good 'platform' for developing multiple levels. The most viable solution for collision detection that we have found is to continually run an event loop in which the player coordinates are calculated relative to each tile in the current level with an arithmetic algorithm to prevent the player from moving through obstacles.

Sources:

<https://replit.com/talk/learn/Basic-Platformer-With-Javascript-and-HTML/7509>

https://developer.mozilla.org/en-US/docs/Games/Techniques/3D_collision_detection

<https://web.cs.wpi.edu/~rich/courses/imgd4000-d09/lectures/D-Physics.pdf>

https://www.w3schools.com/tags/canvas_drawimage.asp