Project Description:

This project will be called block dash. The user will be able to control a block that moves along the map at a constant pace, while controlling the jumping mechanic of the block to avoid obstacles. This is inspired by the popular video game Geometry Dash. My project will be similar in the way the blocks look, but different in the way each map is designed. I also might add some different features.

Structural Plan:

All things that appear on the map such as spikes, portals, or platforms will be of the same superclass “Obstacle,” since they all share basic properties such as having a fixed location on the map. They will be divided into subclasses due to the different ways they interact in the block and their different appearance on the canvas.

Instead of loading premade maps, I will generate obstacles randomly.

Algorithmic Plan:

The trickiest part of the project would be the physics of the game, such as the block interacting with gravity and having to stay on top of the floor or any platform it jumps onto. I will have a variable with a Boolean value, probably in the block class, keeping track of whether the block is on top of a platform or not. If it is not, the block will fall at a constant rate until it falls onto another platform.

Another hard part would be portals, which the block goes through, and it transforms properties of the block. For example, the block could turn into a flying ship, in which instead of a jump button, it will be controlled by a fly button in which holding the button would cause the block to constantly fly upwards and letting go would cause the block to fly downwards. I will keep track of this by having a variable that keeps track of what mode the block is in, and in the controller functions the code will figure out what to do with key inputs by checking that variable.

Another hard part would be random obstacle generation. I will do this through using random to generate obstacles, while doing it legally. (in a way that isn’t impossible for the player)

Timeline plan:

TP1: Jumping works, spikes can be randomly generated, spikes kill player and end the game.

TP2: More obstacles such as blocks and maybe portals are added, block can jump onto platforms. Player can choose to restart the game when loses.

TP3: Graphics are polished, there is a starting menu. Additional features such as increasing difficulty and portals are implemented.

Version control plan:

I will store versions of my code on iCloud.

Graphical user interface, text, application

Description automatically generated

Modules:

No modules planned on being used yet

TP2 Update:

No changes made to plan. Portals appear but don’t transform player. Player jumps on top of blocks and falls smoothly. Rotation works. Pause works.

TP3 Update:

Menu Screen and tutorial screen added. Along with a restart or go back to menu button. Score keeping on lose screen and during the game. Portals transform the block into a spaceship and back. Spaceship mode obstacles are different: random spikes floating in the air making it more difficult for the player. Trail added for spaceship. Permanent leaderboard added with csv file. Music added to the game.