# CPSC 386: Introduction to Game Design and Production - Fall 2018

Project Five, **Super Mario,** due Wednesday, 7 Nov 2018 (by 1730)

Super Mario is a platform game, with fixed platforms (made of bricks that can be broken, or opened to reveal various rewards like mushrooms, coins, fire-making flowers, …), or moving platforms that can be jumped on to clear gaps or to reach higher/lower levels. It is made of many levels, each of which has a different background. The characters are similar from level to level. In the original game, there is an ultimate villain who must be defeated, but that villain is not required for this project. **This project is a GROUP project, for teams of three developers.**

A good, online implementation of the game can be found at: **https://supermarioemulator.com/mario.php.** Do not use flashier versions of the game based on the Unreal Engine or on Unity. (That's for later in this course.) Super Mario needs a Physics engine, in order to show him or other objects falling, jumping, ducking, bouncing, or sliding under the influence of gravity. You should review playing this game several times to be sure you understand all of the requirements for it.

There are many assets needed in this game: images, animations, and sounds. A list is found on the following page.
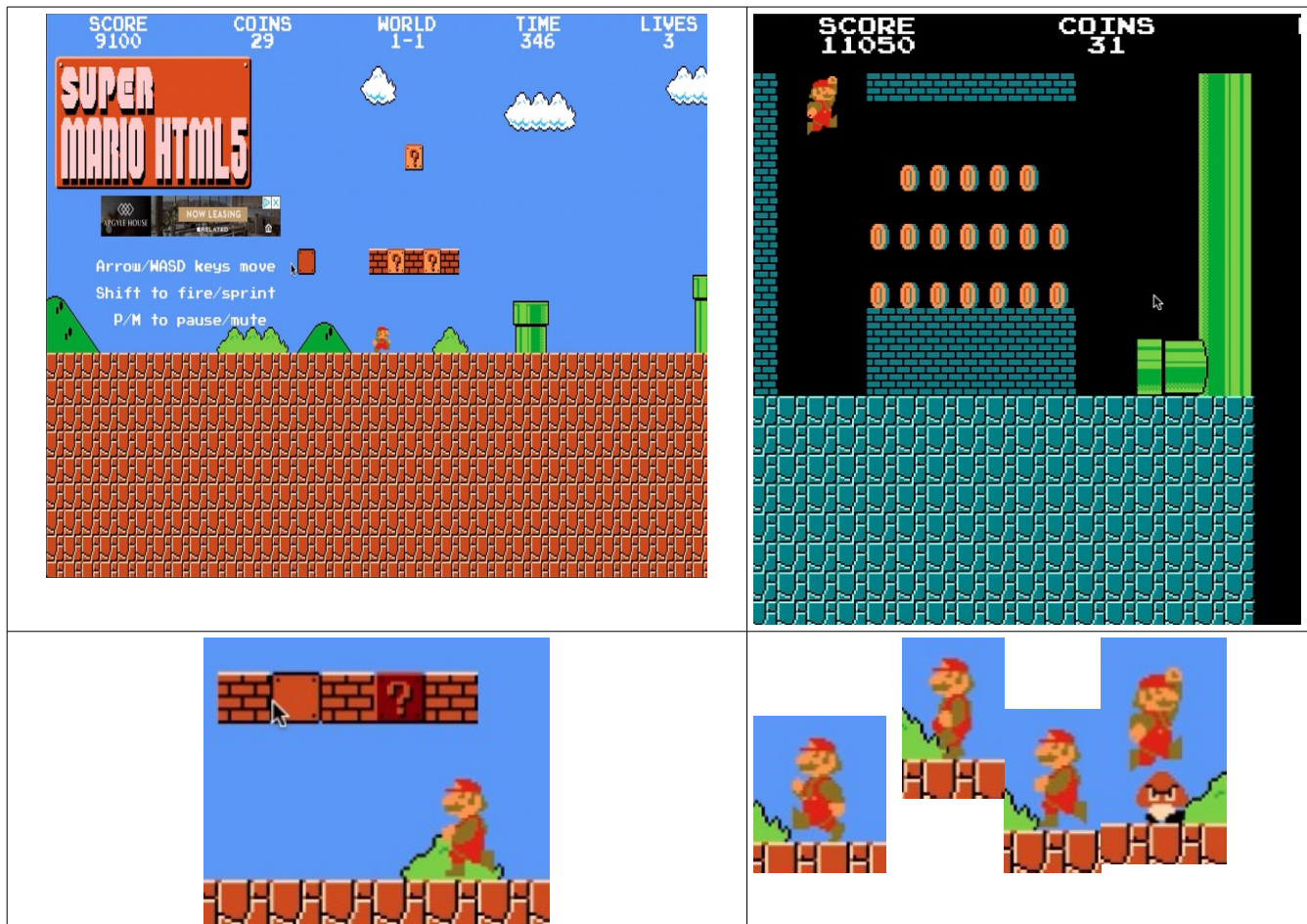
The image resources you will need are: Mario (small), Mario (large), Fire Mario, (heroes)

Evil birds, evil Geese, evil man-eating plants, (villains, henchmen), Coins, fire-Mario plant, large-Mario mushroom, (allies, rewards), Multiple kinds of bricks (e.g., orange, surprise orange bricks, blue-green, patterned-orange, patterned-blue-green), clouds, trees, hills, Pipes, will all have to be created using an Image editing tool such as Inkscape or Gimp.

Audio resources can be captured using an audio editor such as Audacity from an online version of Super Mario.

You might want to record yourself playing the game with a screen movie capture program, such as Camtasia (https://www.techsmith.com/video-editor.html), OBS Studio (https://obsproject.com), Icecream Screen Recorder (https://icecreamapps.com/Screen-Recorder/), or TinyTake (https://tinytake.com).

Write down the list of rules for the game as well. A short list can be found here (https://itstillworks.com/12406864/rules-for-super-mario-bros) List reproduced below...

Attacking Enemies

The general way to attack enemies is to jump on them. If you collide horizontally, you can be damaged. The first enemy you will encounter is the goomba, which are small, mushroom-shaped simpletons that waddle towards you. Koopa Troopers, the tortoises, will retract into their shell when jumped on, and can then be picked up and thrown at other enemies.

Other Enemies

Enemies such as Spiny, the spiky version of a Koopa Trooper, and the Pakkun Flower, a man eating plant that grows from tubes, cannot be jumped on. To kill these, you have to throw something at them.

Power Ups: Mushroom

The power ups are found in the "?" boxes, and are the best way to stay alive through tough levels. Mario starts out small, and one hit will mean you lose a life and have to start the level again (unless you passed the checkpoint). If you get a normal red and white mushroom you will grow in size. If you get hit while Mario is this size, you will revert to his original size but you will stay alive.

Power Ups: Flowers

You can also get many other power ups across the Mario Bros series, such as the fire and ice flowers, which give you the power to throw fire and ice respectively. These change the color of your suit to red for fire and blue for ice.

Other Power Ups

The wing hat allows you to fly if you get a sufficient run up, and the propeller hat (available on "Super Mario Bros Wii") shoots you up into the air and lets you drift down slowly. Stars give you invincibility for a short period of time.

Movement

Mario has a few basic movements. You can walk, run, duck, jump, "Ground Pound," slide, "Double Jump" and "Wall Jump." These movements have their own specific uses. For instance, when running, you can pass over single block spaces without falling in. If you're big but need to get through a single block gap, run up to it and then duck down.

Submission

Turn in the code for this project by uploading all of the Python source files you created, the images directory, and the sounds directory to a single public repository on GitHub. While you may discuss this homework assignment with other students. Work you submit must have been completed on your own.

To complete your submission, print the following sheet, fill out the spaces below, and submit it to the professor in class by the deadline. Failure to follow the instructions exactly will incur a 10% penalty on the grade for this assignment.

CPSC 386 Project Five, due Monday, 29 Oct 2018 (at 1730)

Your name _____

Repository `https://github.com/`_____/_____

Verify each of the following items and place a checkmark in the correct column. Each item incorrectly marked will incur a 5% penalty on the grade for this assignment.

Completed	Not Completed	**Super Mario**
❑	❑	Implemented a high scores page.
❑	❑	Implemented our hero (including images), Super Mario in his three stages: little Mario, Super Mario, and Fire Mario, who tries to get through the maze, gathering as many coins as possible without losing his three lives.
❑	❑	Implemented the enemies (including images), which incluces evil birds, evil geese, and man-eating plants, using an image editor.
❑	❑	Created the images of the game rewards//weapons/power-ups: Coins, fire-Mario plant, large-Mario mushroom, fireballs using an Image editor.
❑	❑	Created the images of the background: multiple kinds of bricks, clouds, trees, hills, Pipes using an Image editor, using an Image editor. Note that breakable bricks change color to indicate when Mario is exactly below them.
❑	❑	Created the animations of Mario walking, growing, shrinking, leaping, ducking, jumping onto enemies, bouncing into bricks. Created the animations of objects or enemies moving or falling.
❑	❑	Implemented the first three levels of the game, including underground chambers.
❑	❑	Used Audacity to record the music and game sounds, and implemented them.
❑	❑	Pycharm IDE shows green checkmarks for <u>every</u> Python source file.
❑	❑	Project directory pushed to new GitHub repository listed above
❑	❑	Project directory has been pushed using a GitHub client, not by manually dragging-and-dropping files onto the GitHub web page.

Comments on your submission

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