Software Specification: Platformer Game

For the next week we will be working on creating a “platform” game that is sort of like a simple Mario Brothers game. Your program must meet the following requirements:

**Basic (70pts)**

1. Have a “Ground” sprite, a horizontal line that is the width of the screen. (10pts)
2. Have a “Hero” sprite, the Mario-like character that the player controls. It does not necessarily need to look like Mario. The Hero should:
   2.1. Start at the top-left of the screen (10pts)
   2.2. Respond to “Gravity”: he falls until he reaches the ground (10pts)
   2.3. Face right and move right when right arrow is pressed (not while falling, only when on ground) (5pts)
   2.4. Face left and move left when left arrow is pressed (not while falling, only when on ground) (5pts)
   2.5. Jump in the direction the Hero is facing and return to the ground when some other key is pressed, with the “jump” part of the script in a custom block. (10pts)
3. Have an obstacle, like a block or log, that the Hero cannot run through, but that she can jump over. (10pts)
4. Have a background costume for the stage. When the Hero reaches the right-hand side of the stage, the background should change to another background, to show the Hero is at another level, and the Hero should be at the left-hand side of the stage. (10pts)

**Intermediate (15pts: do these to get a B)**

5. Have an “Enemy” that is on the Ground and heads towards the Hero. (3pts)
6. If the Enemy reaches the left edge of the screen, he “re-spawns” on the right side of the screen. (3pts)
7. If the Enemy hits the Hero, the game ends with an appropriate message (e.g., “You Lose. Press [key] to restart”). The game should restart completely when that key is pressed. (3pts)
8. The Hero should be able to jump over the Enemy. (3pts)
9. When the Hero is moving, the Hero changes costumes so that he is animated and looks like he is running (3pts)

**Advanced (15+pts: do these to get an A)**

10. Keep and show a score. This can be based on levels passed, objects passed, enemies killed, or some combination of those or other logical achievements. (5pts)
11. Have a powerup, some object that the Hero can grab for additional abilities (jumping higher, not being killed when he hits an enemy one time, or invincible for a set period of time) (5pts)
12. Add at least one other challenge: uneven ground, flying enemies, additional variations between levels, different enemy types, more complex scoring system. (5pts)