Bellagio Fountain Checklist

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Basic Functionality

- Particles, or two dimensional points, are rendered on screen in two dimensional world
- Particles respond to gravity effects and bounce off of floor
- Particles do not collide with each other
- World includes 4 fountains to launch particles
- The initial velocity of the particles is proportional to the energy of the sound in the fountain's frequency range
- Ball color corresponds to the total energy across the entire frequency range
- Roughly 100 balls can be rendered on screen at a frame rate of 30 frames per second

Intermediate Functionality

- Particles are rendered in a three dimensional world
- Particles respond to gravity effects and bounce off of floor
- Particles can collide with each other
- Particles are shaded accordingly to give better illusion of depth within the world
- World include 8 fountains to launch particles
- The initial velocity of the particles is proportional to the energy of the sound in the fountain's frequency range
- Ball color is controlled through two separate modes: one mode for songs with a strong beat whereby the color is controlled by the presense of a beat, and another mode for songs without a clear beat wherby the color is controlled by the total energy across the entire frequency range
- Roughly 200 particles can be rendered on screen at a frame rate of 30 frames per second

Advanced Functionality

- There are separate modes to select between either rendering particles or sprites to represent three dimensional balls on the screen
- Both particles and balls respond to gravity effects and bounce off of floor
- Both particles and balls collide with each other
- Both particles and balls are shaded accordingly to give better illusion of depth within the world

- The world consists of at least 8 fountains to launch both particles and balls
- The initial velocity of the particles and balls is proportional to the energy of the sound in the fountain's frequency range
- Ball color is controlled through two separate modes: one mode for songs with a strong beat whereby the color is controlled by the presense of a beat, and another mode for songs without a clear beat whereby the color is controlled through the total energy across the entire frequency range
- The fountain directions change in response to peaks and troughs in sound energy
- Roughly 300 balls can be rendered on screen at a frame rate of 30 frames per second