

Case Study: Platformers

Jumpin' and Shoooin'

Game Development Foundations

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What is a Platformer?

- Gameplay revolves around moving from one platform to another
 - In older games (Donkey Kong) this involved using ladders
 - Modern platformers typically focus on jumping
 - May also include swinging (Bionic Commando) or elevators
- Focus on how skillfully the player can move between platforms
 - The environment is your greatest enemy
 - You are more likely to die by falling off a platform than by being hit by an enemy

Seminal Platformers

- Platformers that define the genre:
 - Donkey Kong (Arcade, 1981)
 - Pitfall (Atari 2600, 1982)
 - Super Mario Brothers (NES, 1985)
 - Prince of Persia (Amiga, 1990)
 - Sonic the Hedgehog (Genesis/Megadrive, 1991)



Seminal Platformers

- Earthworm Jim (SNES, 1994)
- Crash Bandicoot 3: Warped (PS, 1998)
- Castlevania: Symphony of the Night (PS, 1997)



Modern Platformers

- Although 2D platformers are still popular, today the genre focuses around 3D platformers
 - Tomb Raider
 - Uncharted
 - Mirror's Edge
 - Super Mario Galaxy

Platformer Mechanics

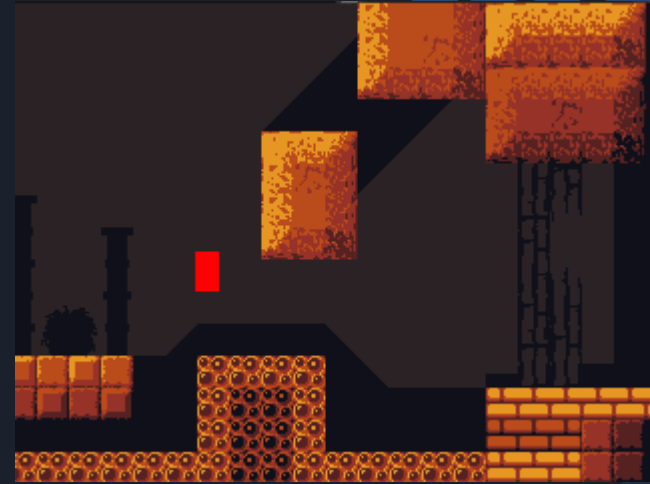
- Jumping:
 - In Super Mario Bros., Mario is affected by inertia and gravity. (At the apex of his jump he slows down a bit, then speeds up as he returns to earth)
 - Getting the jump to ‘feel’ right is one of the most difficult things in this genre
 - Gravity-driven jumps and inertia driven momentum are important design considerations for platformers

Platformer Mechanics

- Double Jumping:
 - Allows the player to do a second jump in mid-air
 - Player can get extra elevation, or change direction during jump
 - Can make your platformer much less frustrating to play

Platformer Mechanics

- Scrolling Graphics:
 - The level is larger than a single screen
 - The level is scrolled into view according to the position and movement of the player
 - Moving the game camera correctly is one of the most challenging aspects of making a platformer



Platformer Mechanics

- Collectibles
 - Coins or rings, as in Mario and Sonic
 - Fragments of a person's mind, as in Psychonauts
 - Collect items to earn extra lives
 - Find and unlock rewards

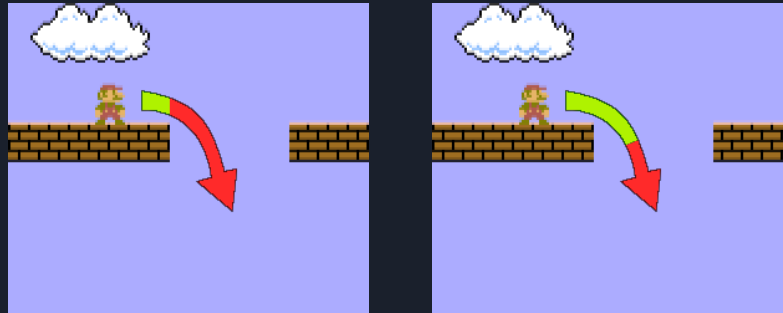
Making a Great Platformer

- Keep the user interface simple
 - Press the jump button to jump... simple
 - Menu navigation and on-screen HUD should also be simple
- Watch collision boundaries
 - Make the collision boxes of friendly objects slightly bigger than the object, and enemies slightly smaller



Making a Great Platformer

- Make it easy to jump over gaps
 - Be forgiving if the player jumps late
 - For example, you could allow the player to jump in mid-air, or still jump after just falling off a platform
 - (increase the size of the green area to make jumping easier)



Making a Great Platformer

- Provide plenty of power-ups and collectibles
 - Collecting stuff is fun
 - There is no logical reason for it. Its just fun.
- Have a story and atmosphere in mind
 - You don't have to include hours of backstory in your game, but a story or specific atmosphere can help your game stand out

Summary

- Platformers are designed around the player moving from one platform to another
- The environment is the player's worst enemy
- Gravity and inertia can contribute to getting the jumping to feel right
- Many elements combine to make a good platformer, but chief among them is a good jump mechanic, and a responsive camera

Extra Reading

- Video: Design Club - Super Mario Bros: Level 1-1 - How Super Mario Mastered Level Design
<https://www.youtube.com/watch?v=ZH2wGpEZVgE>
- Article: Platforming Games 101: Running, Jumping & More
<http://www.racketboy.com/retro/platformers/platforming-games-101-all-you-need-to-know>
- Article: Super Mario Bros. 101: LESSONS IN 2D GAME DESIGN
<http://8bithorse.blogspot.com.au/2010/11/super-mario-bros-101.html>
- Article: Making Platforming Games
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References

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- Dev.Mag. 2016. *11 Tips for making a fun*. [ONLINE] Available at: <http://devmag.org.za/2011/01/18/11-tips-for-making-a-fun-platformer/>. [Accessed 02 February 2016].
- Kyle Pulver. 2016. *kpulv . Dev Log: Platforming Camera*. [ONLINE] Available at: http://kpulv.com/89/Dev_Log_Platforming_Camera/. [Accessed 02 February 2016].