

50.033

Foundations of
Game Design
and Development

PRINCIPLES

of game design (Part 1)

WHAT WE HAVE LEARNED SO FAR

- **Introduction:** history, current trends, 100 rules of game mechanics
 - Informal ‘must-have’ rules according to popular beliefs, as an introduction to the course
 - Goal: to learn how to design a game

WHAT WE HAVE LEARNED SO FAR

- The ‘**what**’: formal elements, rules, core game mechanics, and game genres:
 - Basic stuff about *what makes up a game, what types of games, and what types of players* are out there
- The ‘**why**’: Octalysis
 - Explains *why some games are successful*
 - and *why some people are attracted / addicted to certain games*

WHAT WE ARE GOING TO LEARN

- The ‘**how**’ (part I): *Generic (today) & genre-specific design principles (next lesson)*
 - They serve as a guidance when designing and developing games
 - So that we *can avoid errors ahead of time*

GENERIC PRINCIPLES

- These are principles that generally apply on games of all genres
 - Next lesson we will learn genre-specific design principles & issues
- Main purpose: **avoid errors** ahead of time when designing games
 - Basically few things to keep in mind when you're starting to design a game

THE PRINCIPLES

- Player empathy
- Feedback
- Grounding the player
- Moment to moment experience
- Immersion
- Writing
- Design within limits
- Removing impediments
- Interface design
- The start-up screen
- Customizable controls
- Cheat codes & tutorials
- Structure and progression
- Taking care of the player

THE PRINCIPLES

- **Player empathy**

- **Feedback**

- **Grounding the player**

- **Moment to moment experience**

- Immersion

- Writing

- Design within limits

- **Removing impediments**

- Interface design

- The start-up screen

- Customizable controls

- Cheat codes & tutorials

- **Structure and progression**

- Taking care of the player

PLAYER EMPATHY

- Develop the ability to **put yourself in the player's shoes** and **anticipate** his reaction to each element of the game.
- Naturally, no designer has completely accurate foresight. That's one reason you have *testers* :
 - Test for *bugs* and
 - Feedback on things that they *want to try but aren't available* in the game
 - Tips: *do not guide* testers / tell them what to do when they're trying out your game

FEEDBACK

- **Give discernible** response to **every** action that the player can make
- Feedback gives **interactivity**
 - Games have interactivity. It distinguishes games from other forms of entertainment

50.033

FEEDBACK

- Give responses to any possible action



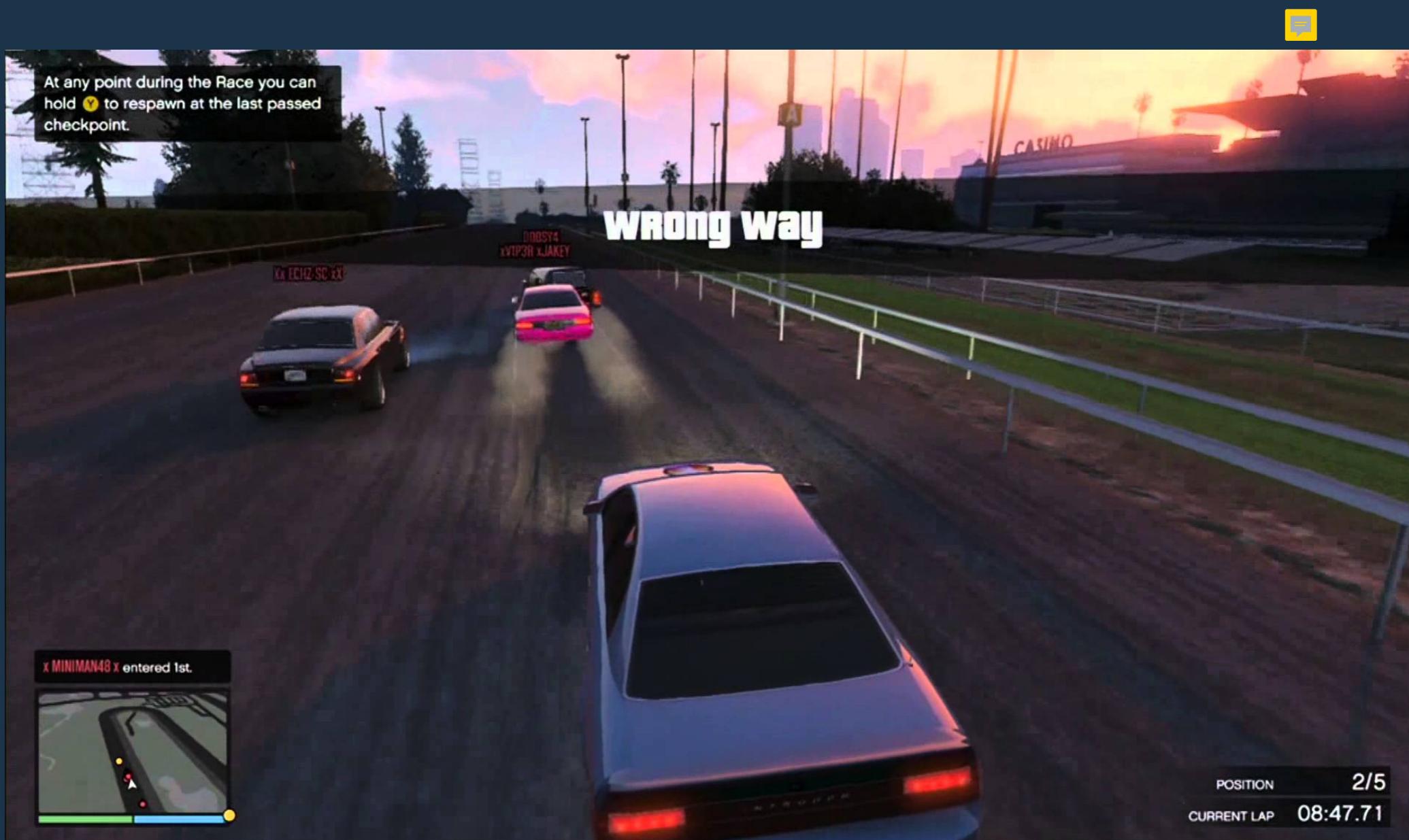
FEEDBACK

- Give positive responses to actions that are in the right direction



FEEDBACK

- Give negative response to actions that are not right, and guide the player





GROUNDING THE PLAYER

- Players should **know** where he is in the game & what is he doing **at all times**



- Recall rule#6: provide clear short-term goal, and rule#61: players should see their goal before they achieve it

GROUNDING THE PLAYER

- At any given point, the player should have:
 - a long-term goal,
 - a medium-range goal, and
 - an immediate goal.



MOMENT TO MOMENT EXPERIENCE

- Constantly **hold** players' attention and **entertain** them from moment to moment.
- At every point in the game, the player should *have something interesting to do*
- *Tips:* we are not trying to capture their attention *forever*, but enough to finish the game (recall **rule#1** fight player fatigue)

MOMENT TO MOMENT EXPERIENCE

- *Do:*

- gradually add more actions (walk, jump, crawl, shoot, rappel, climb, flirt, stealth kill, assassinate, etc),
- simplify the complex actions after its done once

- *Don't:*

- ask players perform complex action twice,
- long ‘travelling’ with nothing to do but forward button to press,
- present them with long dialogues and chunks of texts

50.033

MOMENT TO MOMENT EXPERIENCE



MOMENT TO MOMENT EXPERIENCE



MOMENT TO MOMENT EXPERIENCE



MOMENT TO MOMENT EXPERIENCE



50.033

MOMENT TO MOMENT EXPERIENCE



50.033

MOMENT TO MOMENT EXPERIENCE



REMOVING IMPEDIMENTS

- **Remove technical impediments** to the player's enjoyment, such as long load times, game interruptions, limited saves, bugs, or a poor interface
- Do:
 - When a character dies, spawn at the nearest checkpoint,
 - Don't wait too long to restart a game
 - Players should be able to pause, load, quit, and customise necessary controls easily
 - Test your UI repeatedly, ensuring that it is simple, intuitive, and therefore elegant



REMOVING IMPEDIMENTS

- Simple UI
- Fast restart game
- Clear indication on who wins the round



STRUCTURE & PROGRESSION

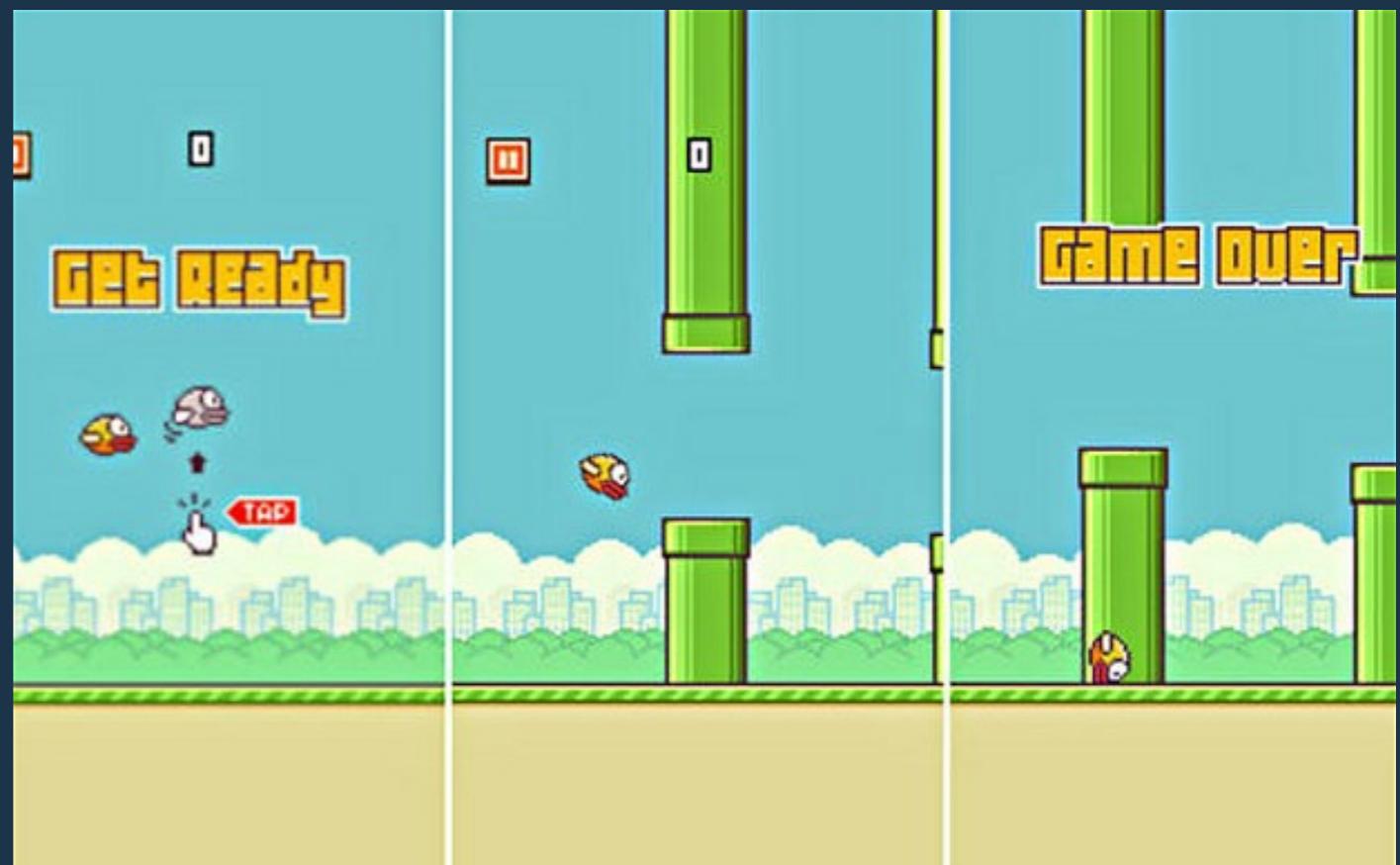
- “*A game should be easy to learn, but difficult to master.*”
- Why?
 - So that players don’t feel intimidated when starting the game, recall core drive: empowerment
 - So that it hooks people into it, recall core drive: scarcity, and development/achievement

STRUCTURE & PROGRESSION

- Later, **after** the player has figured out the basic gameplay mechanics, it's time to **raise** the stakes
- Become the players' **ally**, game designer's purpose is *not to defeat them*. Let them have an enjoyable experience, give **subtle hints and guides** if you detect that they're stuck (subtle so as to not annoy players who are just fooling around the level)
- **Flow control:** contain a player in a given area or level until he or she is finished
- *The final levels should be the hardest of all, but not impossible* (recall: pick 1 or 2 core mechanics)

FLAPPY BIRD

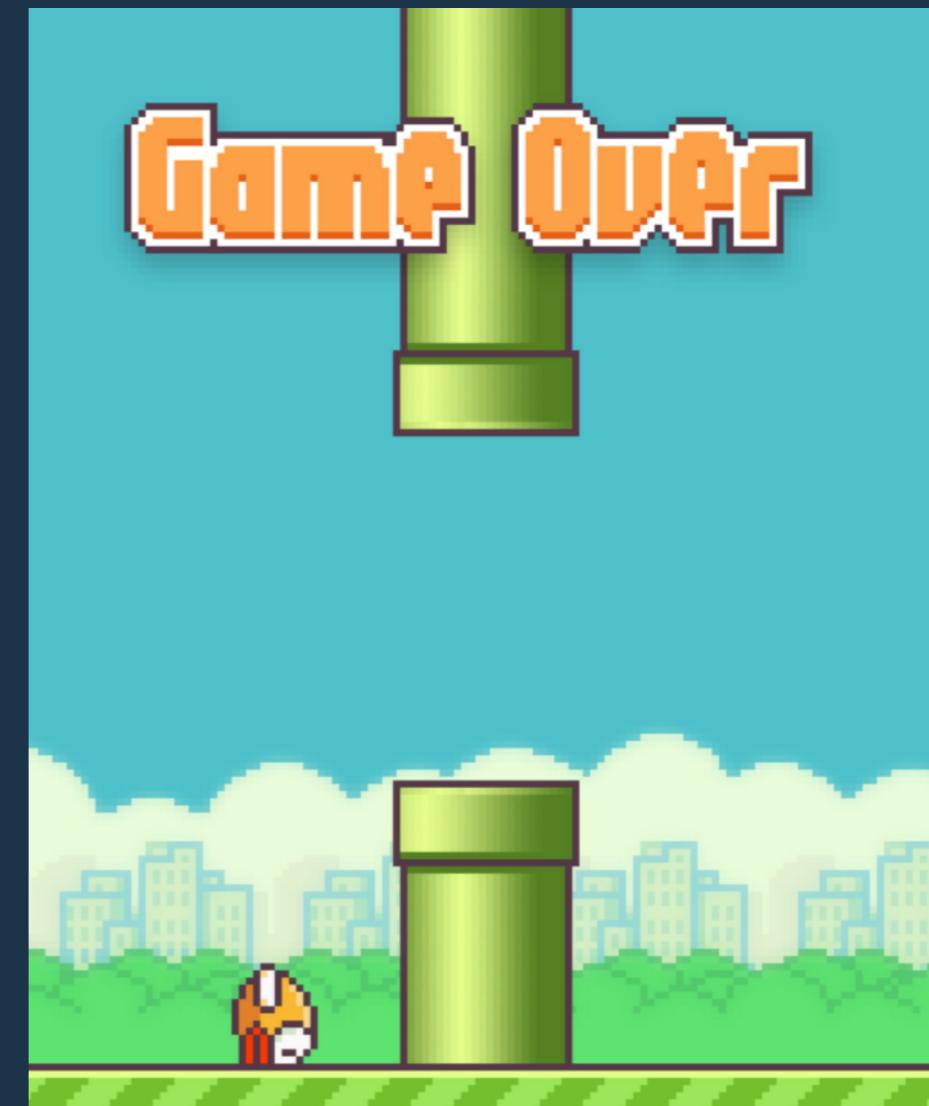
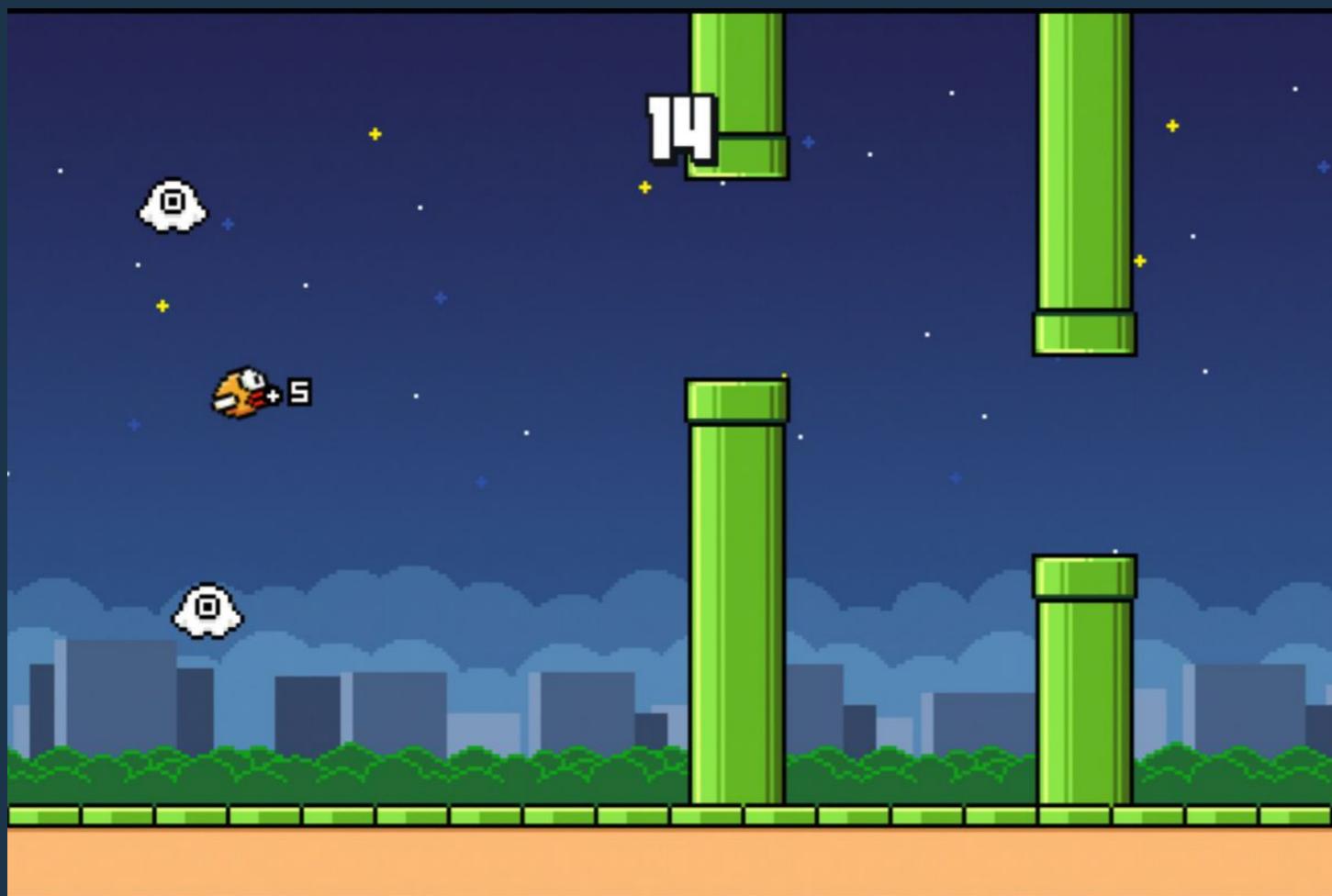
- We have been looking at big games for example
- Lets take a look at a project that can be done by one person
- Can be coded in a few hours



FLAPPY BIRD

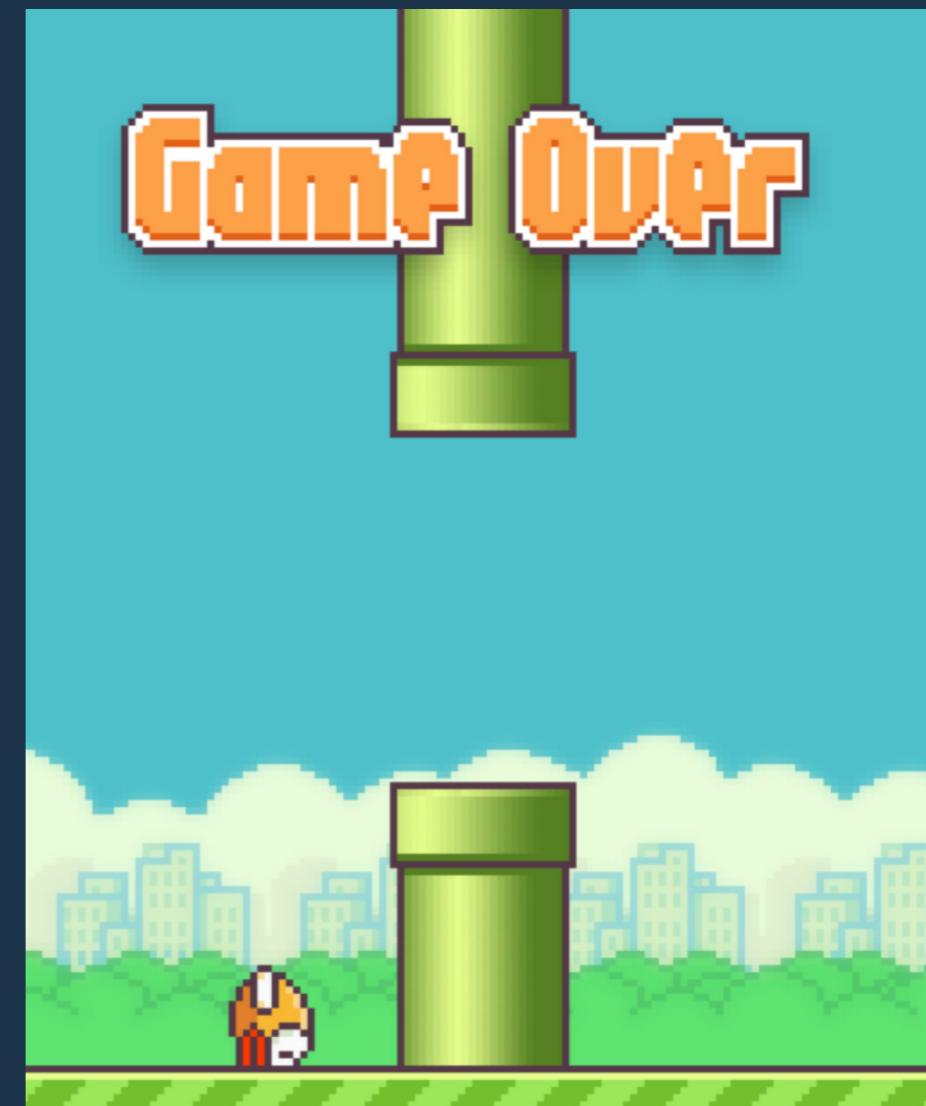
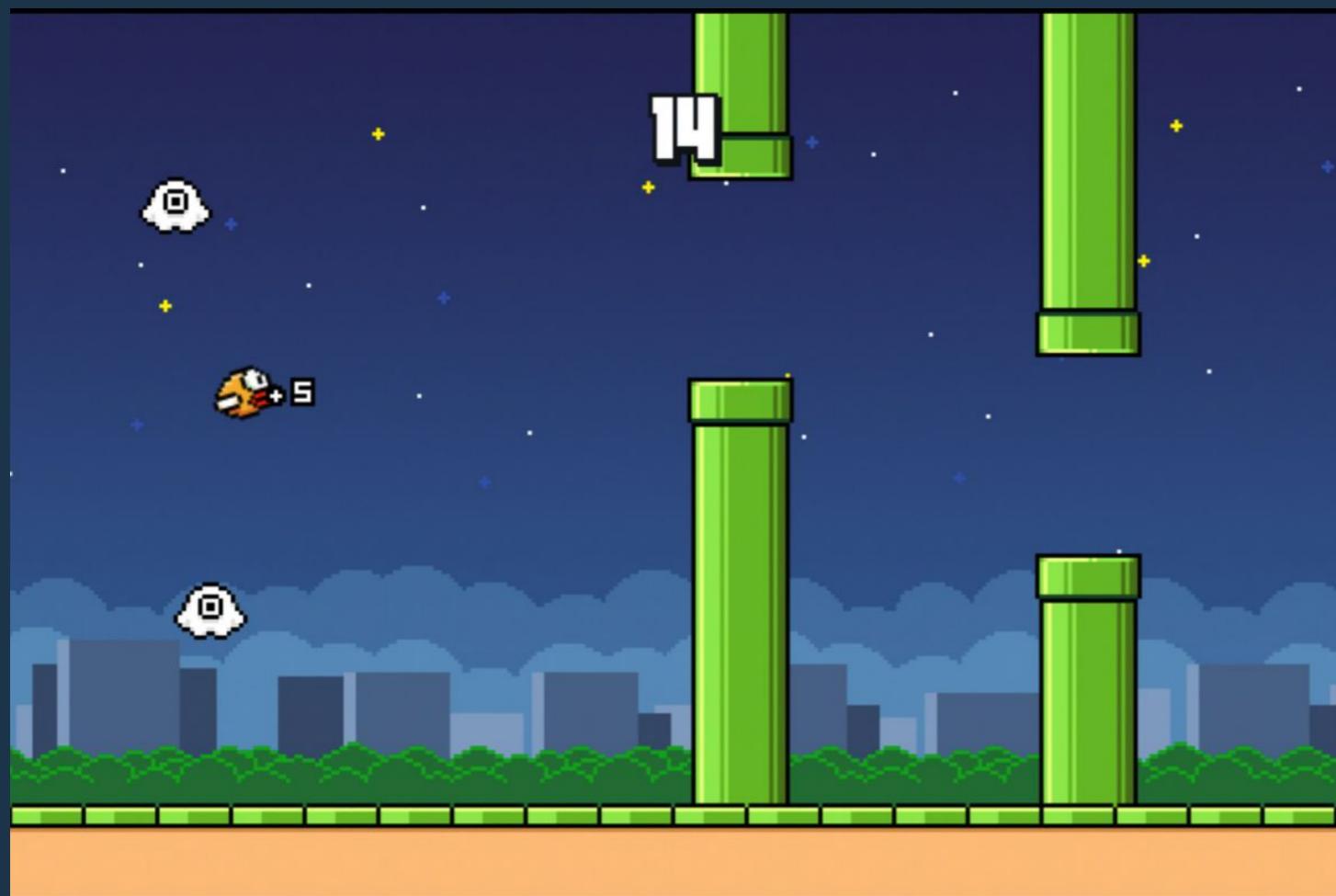
- Core drive(s): Achievements and social influence (it went viral)
- Core mechanic(s): reflex
- Player empathy?
 - Gameplay is so simple, nothing can go wrong (tap to fly, don't hit the columns, gravity applies at all time)
 - Endless scrolling, survival game

FLAPPY BIRD



- Feedback?
 - Well, the bird collapses when it died
 - You have scores displayed at all times, flap sound when flying and ‘ding’ sound when the score rises (satisfying)

FLAPPY BIRD



- Feedback?
 - Gave medals depending on scores
 - World leaderboards for android users

FLAPPY BIRD

- Grounding the player?
 - There's only one main objective: survive as long as you can
- Note: feedback & grounding the player principles here appeals to 'achievements' core drive

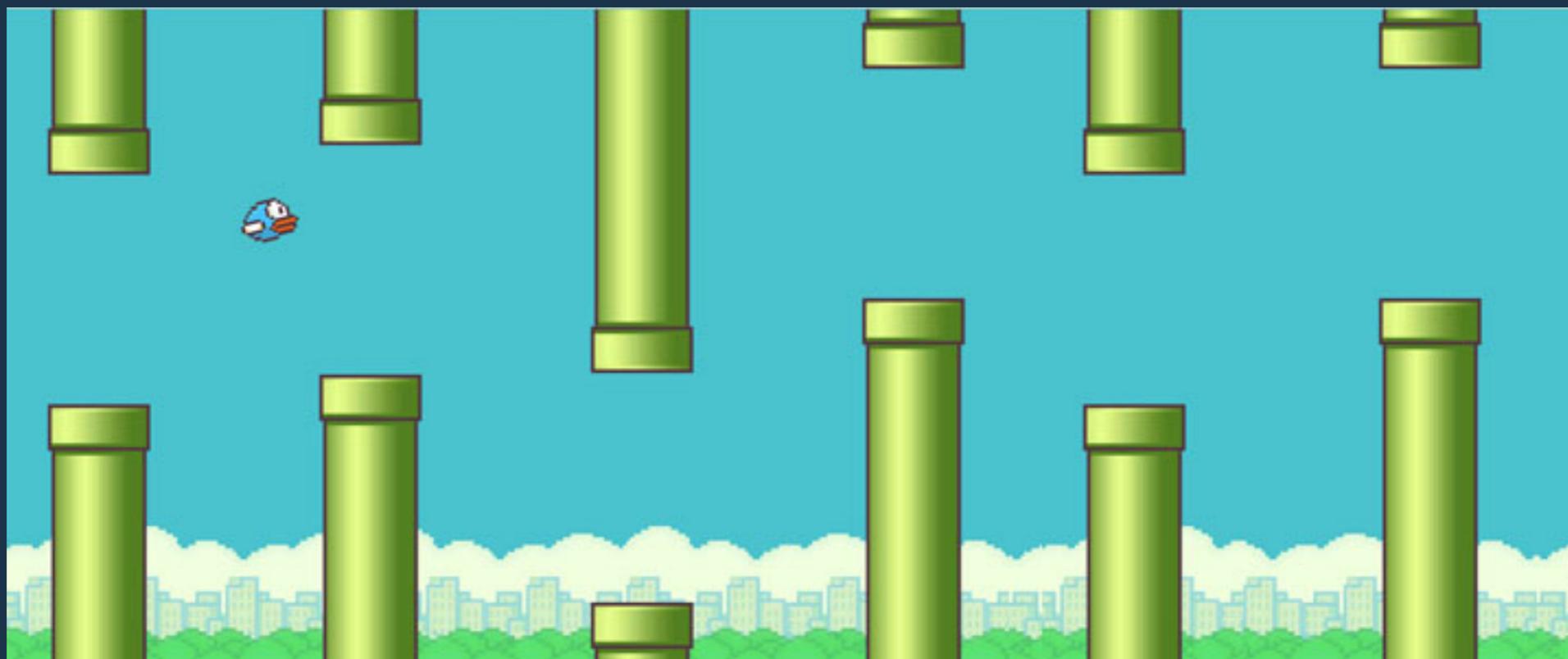
FLAPPY BIRD

- Moment to moment experience?
 - There's only 1 scene in the game, no need to worry that we might have a 'boring' scene in relative to other scenes
 - You can't take your attention off the game, otherwise the character hits the pillars / drops

FLAPPY BIRD

- Removing impediments?
 - Almost non-existent load time
 - Easy to install on mobile phones
 - Simple UI
 - Game mechanics are simple: tap to fly
 - Clear texts and progress, easy quit / restart game

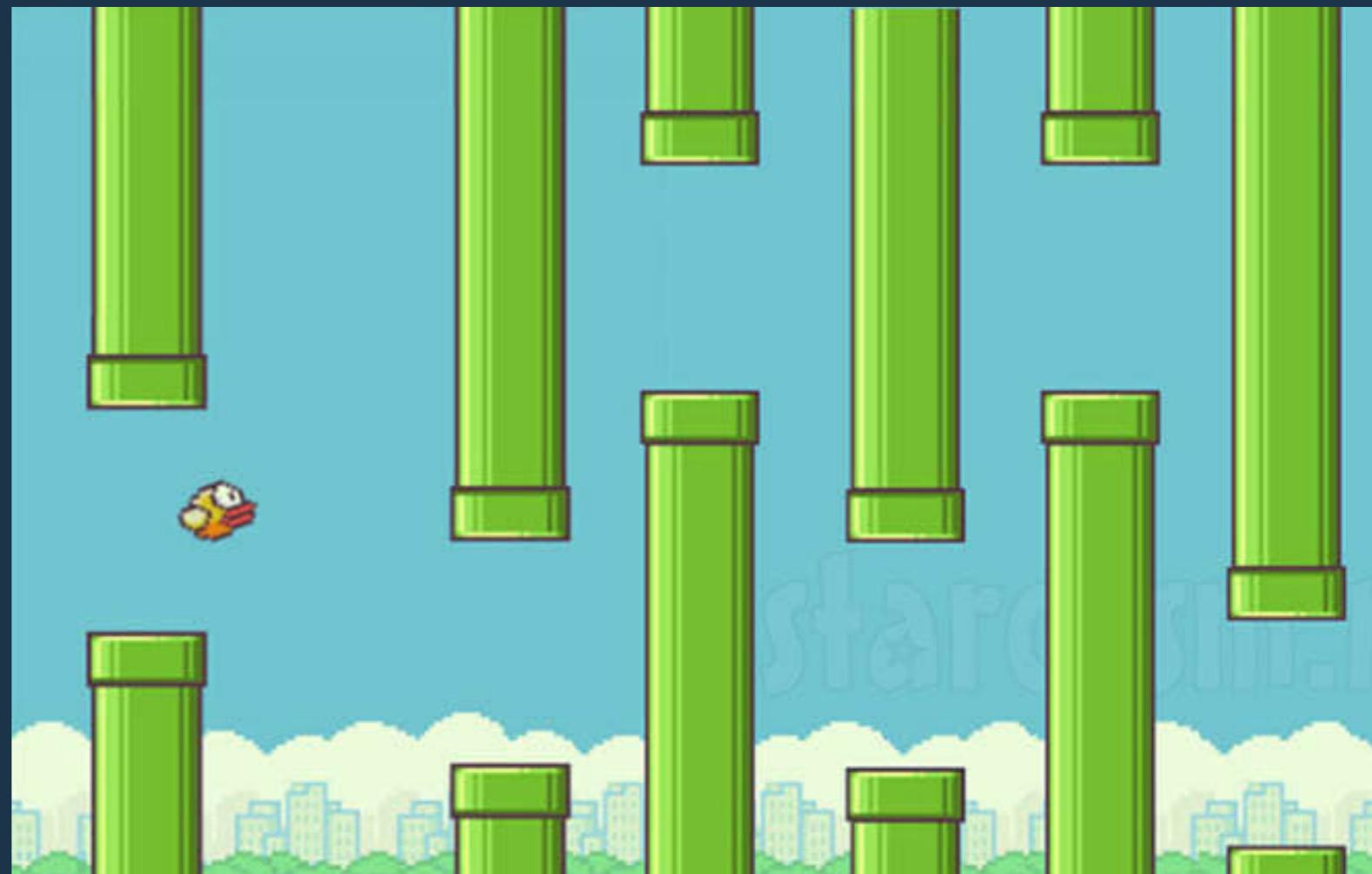
FLAPPY BIRD



- Structure and progression?
 - No variation, no evolution
 - Simple ‘survive as long as you can’ game

FLAPPY BIRD

- Structure and progression?
 - Can be improved by varying column spaces, making it gradually more difficult
 - Increasing bird speed, powerups etc



APPLYING THE PRINCIPLES

- Create an integrated whole: think about the the *high concept first*, and then apply logic, finally apply textbook principles
- Economy of design: *include only things that are absolutely necessary in the game.* If it doesn't help you in achieving the **game basic goal**, ditch it
- ‘The best games are **compact** and **focused**’
- Where to get ideas: the game should be something you enjoy and are *familiar with*

SUMMARY

- Generic principles of game design
- Very simple example: Flappy bird
- Apply these principles