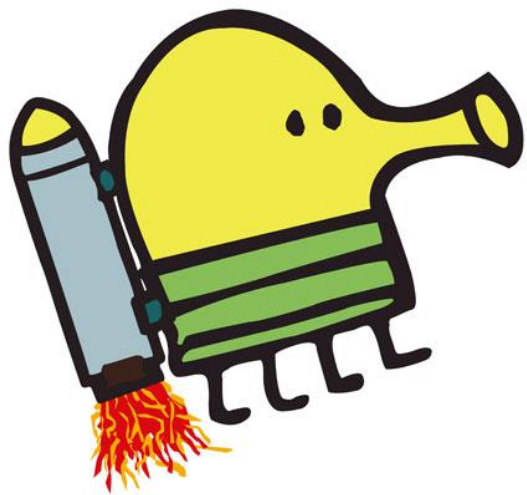


# Project 1: Doodle jump (塗鴉跳躍)



TA: Jing-Wei Wang , Chi-Lun Lu



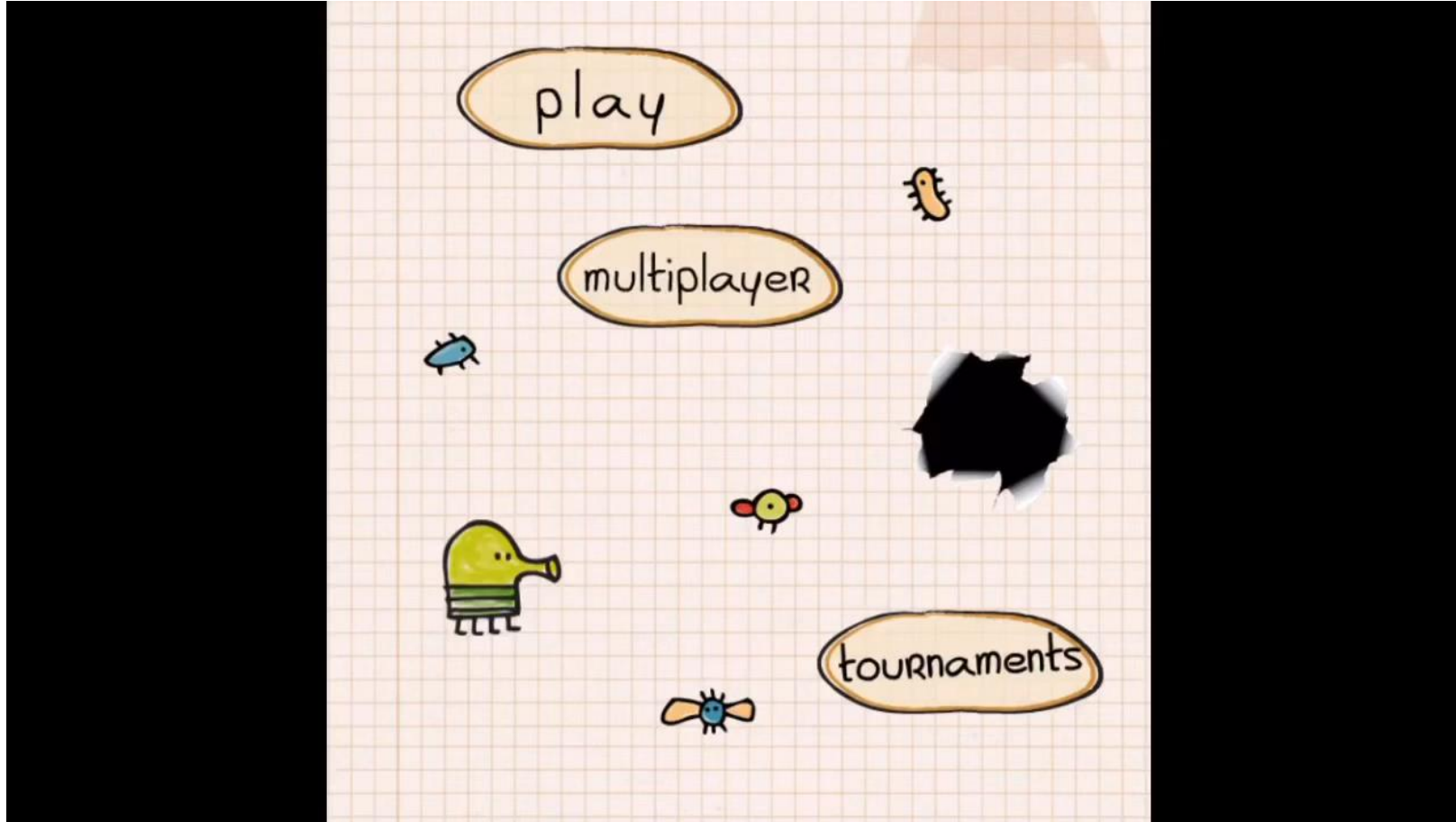
# Outline

- Introduction
- Basic requirements
- Bonus
- File hierarchy
- README vs. Report
- Grading policy
- Reference

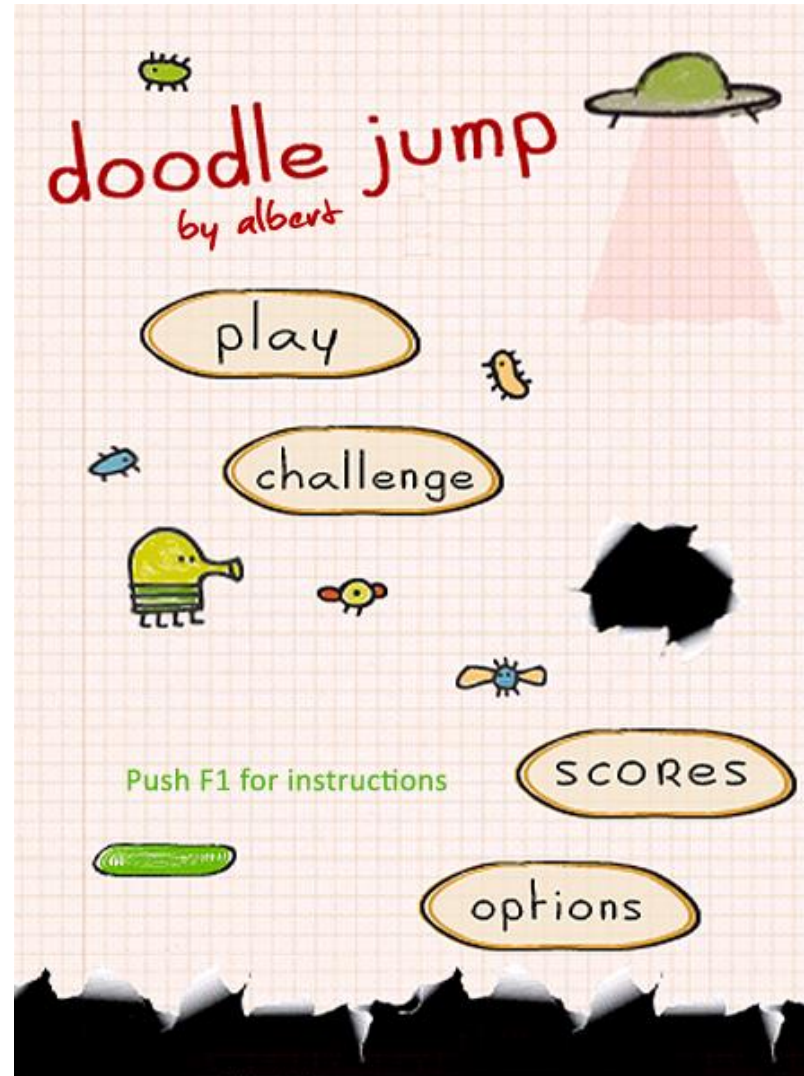
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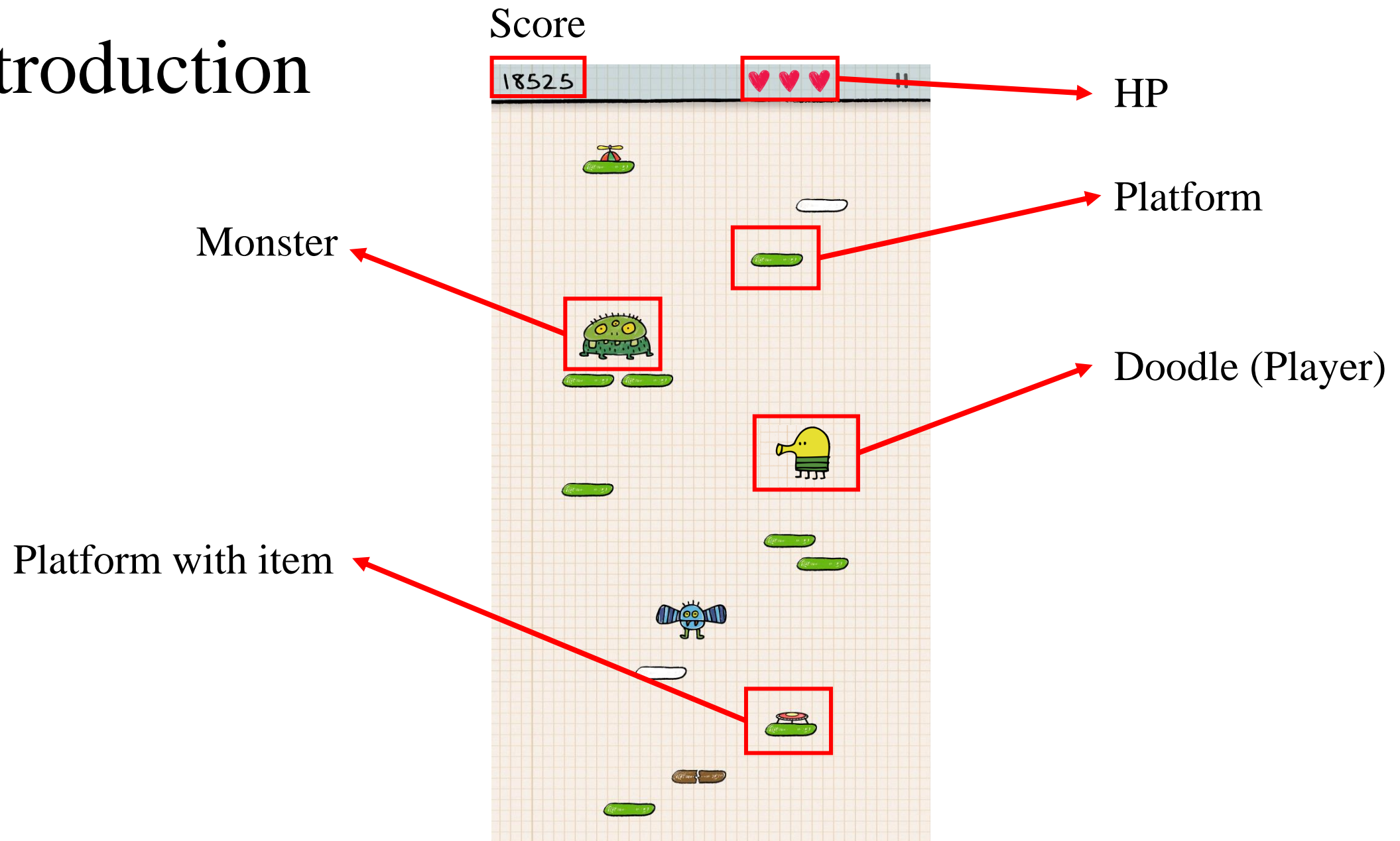
# Introduction



# Introduction



# Introduction







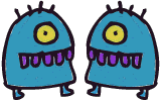

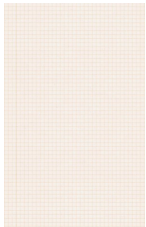


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# Basic requirements

- Show below icon on the screen

- Player (Doodle) 
- Platforms    
- Items    
- Bullet 
- Monster   
- HP 
- Score
- Background 



# Basic requirements

- Game rules
  - player need to control doodle to jump on endless platforms.
  - Score is the maximum height that doodle reached.
  - The higher you reach the higher scores you get.
  - Items would show on platform sometimes which can boost your jump.

# Basic requirements

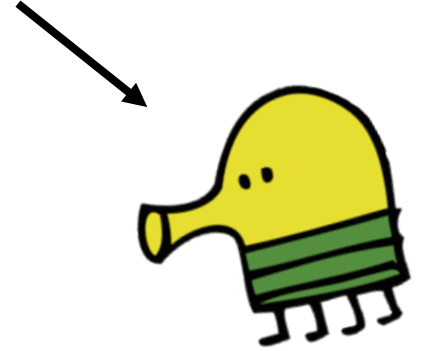
- Game rules
  - There may be monsters blocking your way.
  - Touching monster may cause you to lose HP.
  - Doodle can fire bullets to kill monsters.
  - The game continues until game over.
  - Game over when Doodle reaching the bottom of the screen.
  - Game over when Doodle lose all HP.

# Basic requirements (cont'd)

- About Doodle

- Doodle jump **automatically** when landing on a platform.
- Basic jump height is 320 pixels.
- The jumping process is at a constant speed.
- Jumping process can be divided into three stages:
  1. Jump automatically when landing on a platform.
  2. Rising until Doodle reaches the jump height, and **the rising process passes through and ignores any platform.**
  3. Falling until Doodle lands on a platform, returning to stage 1.

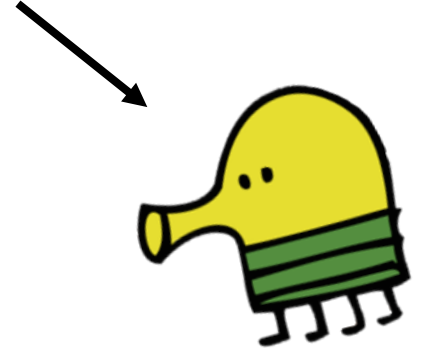
Doodle



# Basic requirements (cont'd)

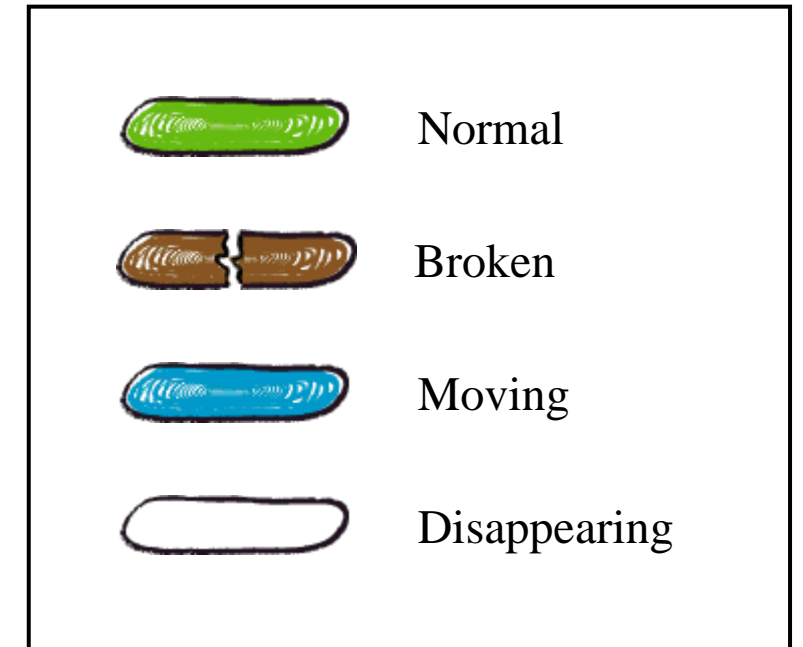
- About Doodle
  - Control Doodle to shift left or right by your keyboard.
  - Control Doodle to fire bullets and aim targets by mouse.
  - The fired bullets can kill the monster.
  - Doodle has 3 HP.

Doodle



# Basic requirements (cont'd)

- About platforms
  - Normal platform.
  - Broken platform.
    - If you step on it, it will break and you will fall.
  - Moving platform.
    - Moving left and right automatically.
  - Disappearing platform
    - Allow to jump once, then it will disappear.

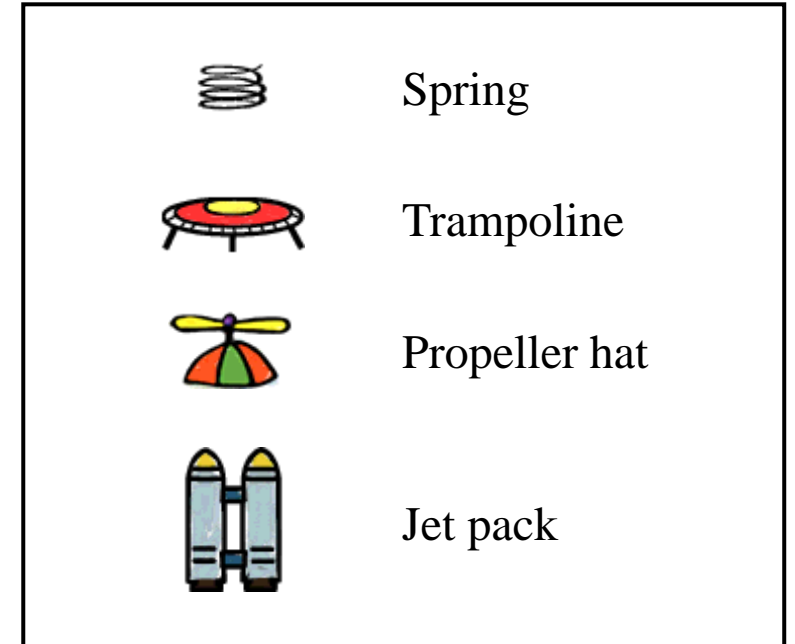


# Basic requirements (cont'd)

- Game score calculation
  - Score = the maximum height that Doodle reached. (Pixel)
- Each height can have **at most** one platform.
- The interval between two platforms is 60 ~ 270 pixels.
- During every 1000 scores, broken platform must appear **at least** once. In other words, 0 ~ 1000, 1000 ~ 2000, 2000~3000, and so on, broken platform must appear at least once in each interval.
- Moving platform unlock after reaching 6000 scores.
  - After unlocking, moving platform must appear **at least** once during every 3000 scores.
  - In other words, 6000 ~ 9000, 9000 ~ 12000, 12000 ~ 15000, and so on, moving platform must appear at least once in each interval.
- Disappearing platform unlock after reaching 9000 scores.
  - After unlocking, disappearing platform must appear **at least** once during every 5000 scores.
  - In other words, 9000 ~ 14000, 14000 ~ 19000, 24000 ~ 29000, and so on, disappearing platform must appear at least once in each interval.

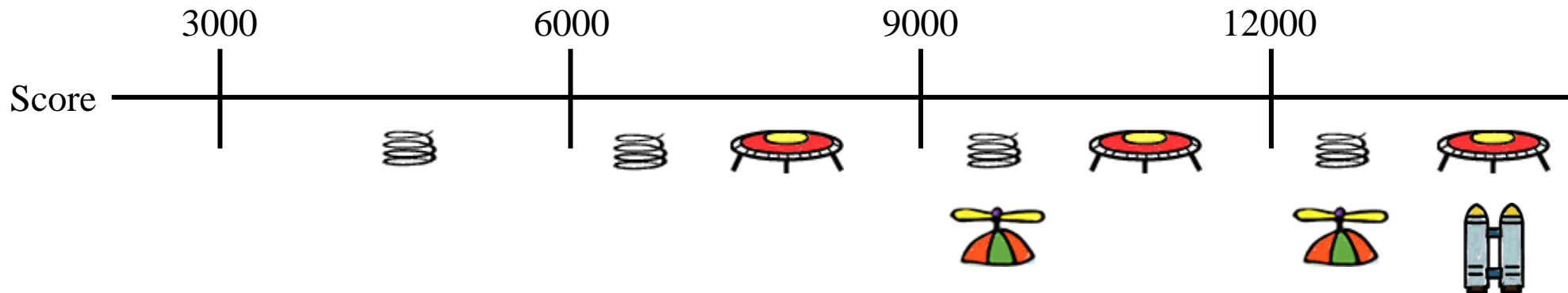
# Basic requirements (cont'd)

- About items
  - Items will only appear on platform.
  - **At most** one item on one platform.
  - Need landing on the item to obtain item effect.
    - Spring. -Jump 960 pixels.
    - Trampoline. -Jump 1920 pixels.
  - Touching the item to obtain item effect.
    - Propeller hat. -Fly 3840 pixels.
    - Jet pack. -Fly 7680 pixels.



# Basic requirements (cont'd)

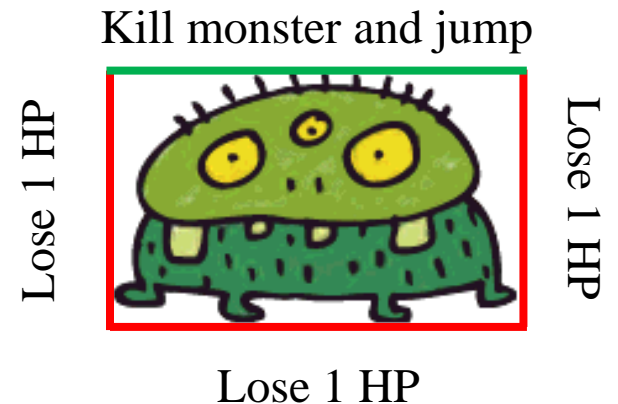
- Game score calculation
  - Score = the maximum height that doodle reached. (Pixel)
- At most two items can appear on the screen at the same time.
- Items have chance to appear after the unlocking score.
  - 3000 : Spring
  - 6000 : Trampoline
  - 9000 : Propeller Hat
  - 12000 : Jet pack





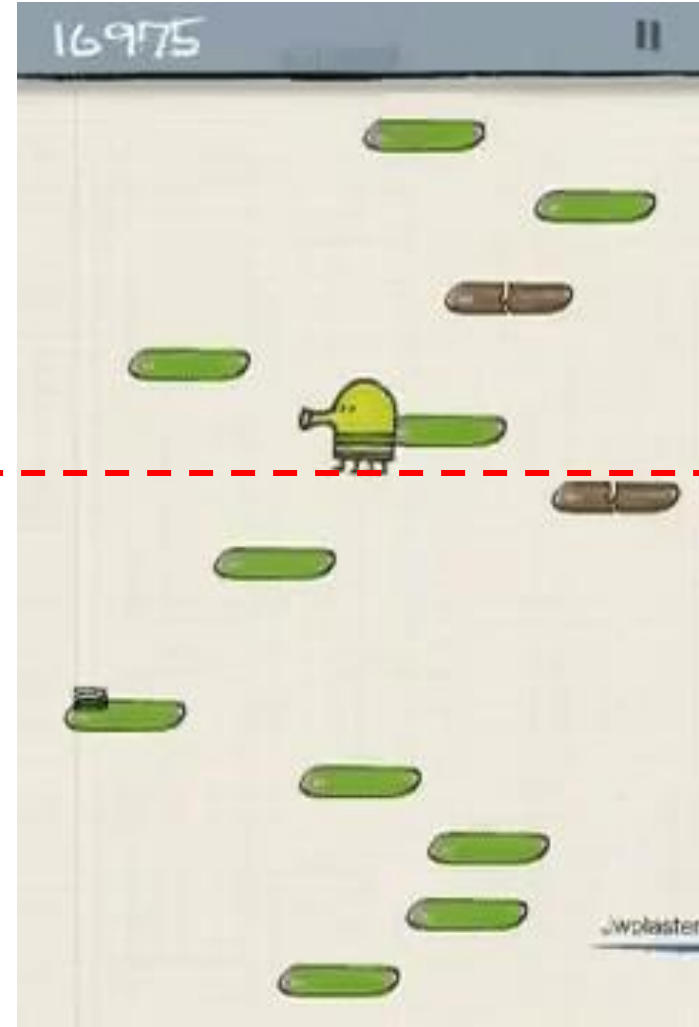
# Basic requirements (cont'd)

- About monsters
  - Loss 1 HP when Doodle touches monster's left, right and bottom part.
  - Doodle can jump on monster's head and monster will be killed.
  - If jumping on monster's head, Doodle will not lose HP.
  - If jumping on monster's head, Doodle will jump again like landing on a platform.
  - Doodle can eliminate monster with a single shot.
  - The monster will disappear upon death.



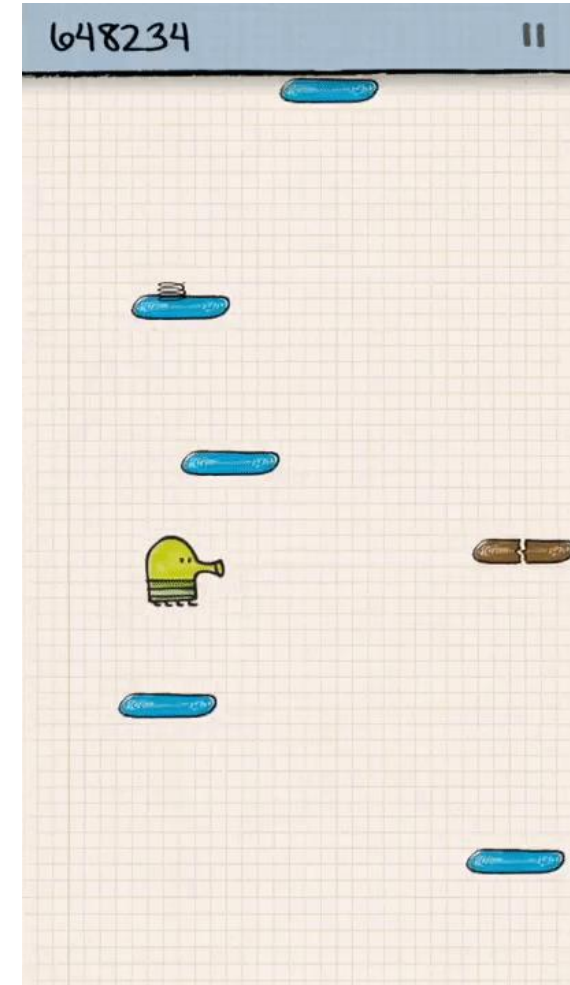
# Basic requirements (cont'd)

- When Doodle jump over a half of screen, game's viewpoint should follow with Doodle.
- No matter how high Doodle jumps or flies, it will never jump out of the screen.



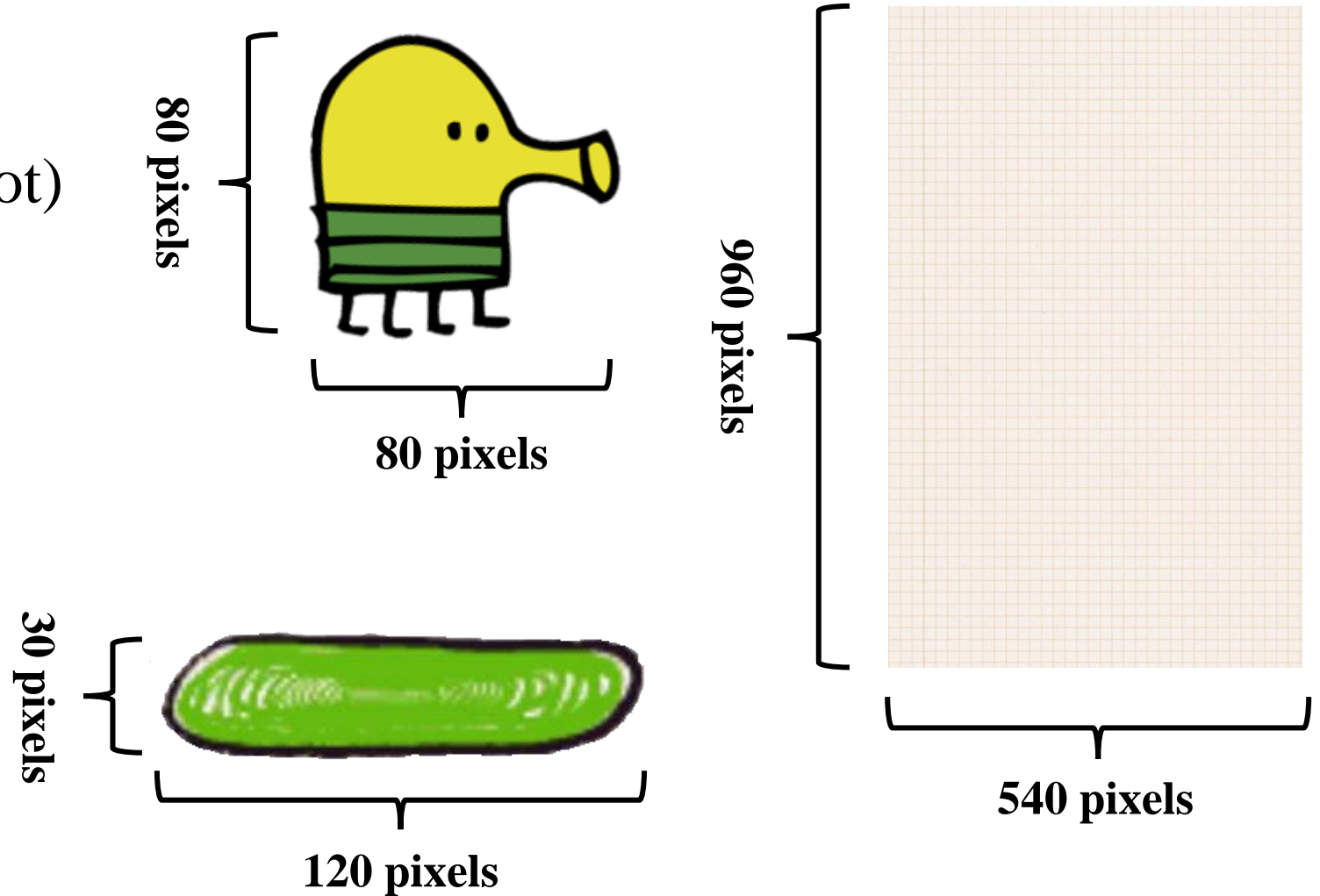
# Basic requirements (cont'd)

- Wraparound
  - When Doodle leaving one side of the screen, it will immediately reappear on the opposite side, maintaining speed and trajectory



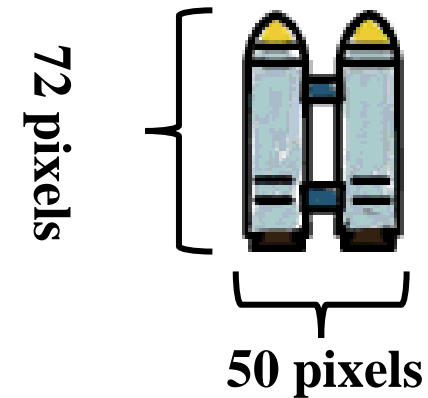
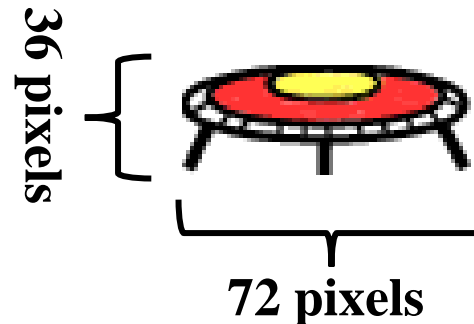
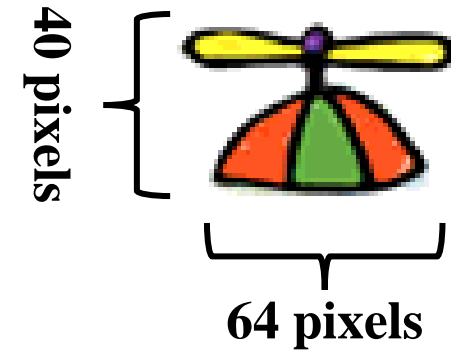
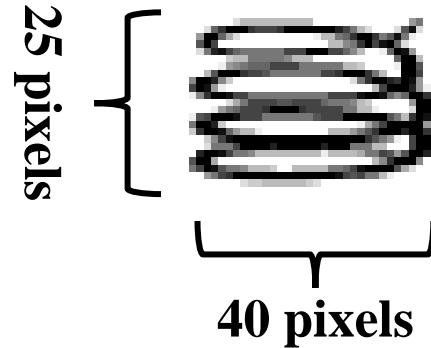
# Basic requirements (cont'd)

- Game start interface
- Game over scoreboard
- Sound effect (jump & shoot)
- Screen size
  - Width : 540 pixels
  - Height : 960 pixels
- Doodle size
  - Width : 80 pixels
  - Height : 80 pixels
- Stair size
  - Width : 120 pixels
  - Height : 30 pixels




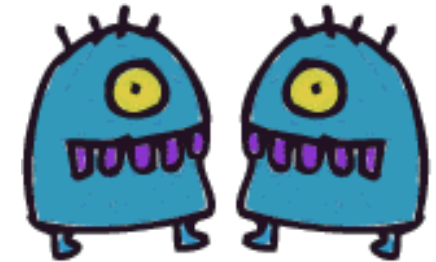
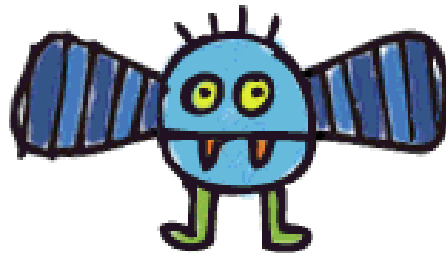
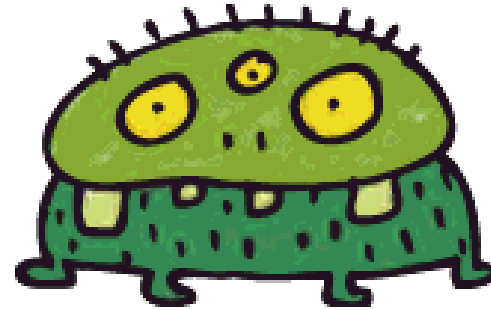
# Basic requirements (cont'd)

- Spring size
  - Width : 40 pixels
  - Height : 25 pixels
- Trampoline
  - Width : 72 pixels
  - Height : 36 pixels
- Propeller Hat
  - Width : 64 pixels
  - Height : 40 pixels
- Jet pack
  - Width : 50 pixels
  - Height : 72 pixels



# Basic requirements (cont'd)

- Bullet size 
  - Height : 20 pixels
  - Width : 20 pixels
- Monster size
  - Height : keep ratio
  - Width : >120 pixels



# Bonus

- Jumping with gravity effect (+2)
- Shield item (+2)
  - Immune damage once.
  - Show item effect on Doodle.
- Spring shoes item (+3)
  - Increase jump height in a period.
  - Show item effect on Doodle.
- Thorn platform (+2)
  - Lose one HP when falling on it.
- Moving platform (up & down) (+2)
- Count down platform (+3)
  - Disappear after countdown.
- Black hole (+1)
  - Game over if Doodle touches it.
- 2 players mode (+5)
  - Can be selected in start interface.
  - No monster and item in 2P mode.
  - Game's viewpoint will follow the player with higher score.
  - The first one to touch the bottom of screen loses.
  - Show winner on the game over interface.
- Other (please send email to discuss with TAs)

# File hierarchy

- Your\_ID.zip (replace it by your student ID)
  - README
  - Your\_ID.pdf (project report)
  - game (a folder put your source code here)
    - \*.cpp
    - \*.h
    - \*.pro
    - Makefile (generate by qmake)
    - Dataset (You can use material provided by TAs)



# README vs. Report

- README

- Introduce your project **briefly** (How to control , How to play & etc.)
- How to compile your code (e.g. g++, make)
- What optional command should be used when running your executable file (e.g. ./test123)
- List down what you had done in the project (i.e. basic requirements, bonus)

- Report

- Explain how you implement the specification **in detail** (no code!)
- Propose your framework
- What difficulties you have overcome
- Incomplete description and information will reduce your chances to get more credits.

# Grading Policy

$$\text{Project Score} = \text{report} + \text{code} + \text{bonus}$$

- Due on 5/3 15:00 (Wed.)
- Basic Requirement
  - Report – 25pts
  - Code – The upper limit of the score will be different depending on the number of people in the team.
    - 75pts for 1 person team.
    - 70pts for 2 people team.
    - 65pts for 3 people team.
- Bonus score will be directly added to your project score (at most 20 pts).
- If delay,  $\text{scores} = \text{original} \times 0.9^{\text{delay\_days}}$

# Grading Policy - Code similarity checker

- If the code similarity checker shows that your code is very similar to another student, **both of you need demo and modify your program according to our new requirements on site.**
- If you cannot complete our request, we will adjust total project score.

# Reference

- Doodle jump wiki
  - [https://doodle-jump.fandom.com/wiki/Doodle\\_Jump\\_Wiki](https://doodle-jump.fandom.com/wiki/Doodle_Jump_Wiki)
- Youtube
  - <https://www.youtube.com/watch?v=0XdmTGBAs-k>
- Play store: Doodle jump
  - <https://play.google.com/store/apps/details?id=com.lima.doodlejump>
- Apple store: Doodle jump
  - <https://apps.apple.com/tw/app/doodle-jump-insanely-good/id456355158>
- Suggestion
  - If you have no idea how to start, you can refer other qt5 games online.
    - Tank war
    - NS-shaft
    - Uno