

Software Studio

軟體設計與實驗

Syllabus

Hung-Kuo Chu

Department of Computer Science
National Tsing Hua University

CS2410

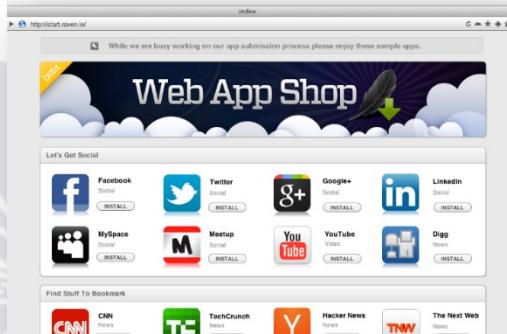


What You Will Learn?



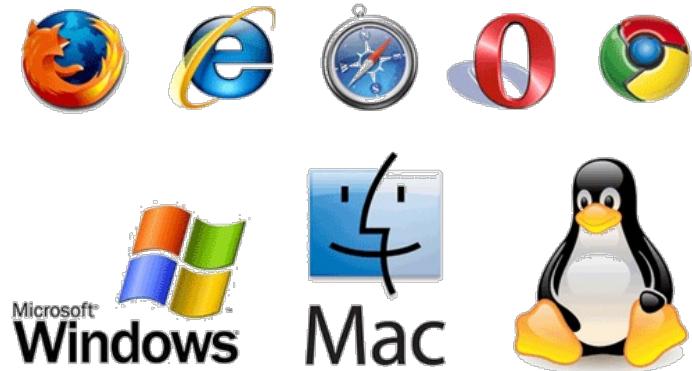
Making Web Applications

- Server-client computing programs
 - Store on remote server, run in local client
- Web programming languages
 - HTML5, CSS3, JavaScript
- Web-based game development tool
 - Cocos Creator



Advantages of Web Application

- Easy deployment and intuitive to play!
 - Just open the program via a web browser
 - Chrome, Firefox, Safari, IE, Opera.
- The data is stored remotely
 - support remote updates
- Cross-platform compatibility
 - Windows, Mac OS, Linux,
iOS, Android.
- Cross-domain application
 - Game, Desktop, Mobile





Fundamental Components

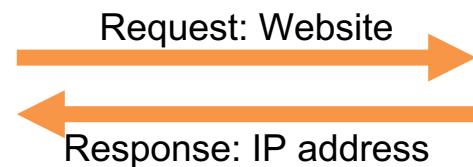
WEB PROGRAMMING



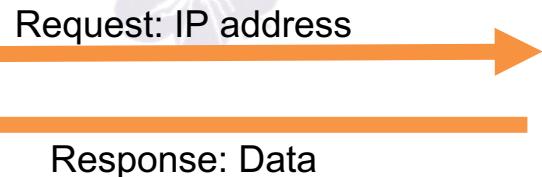
Basic Web Workflow



Client



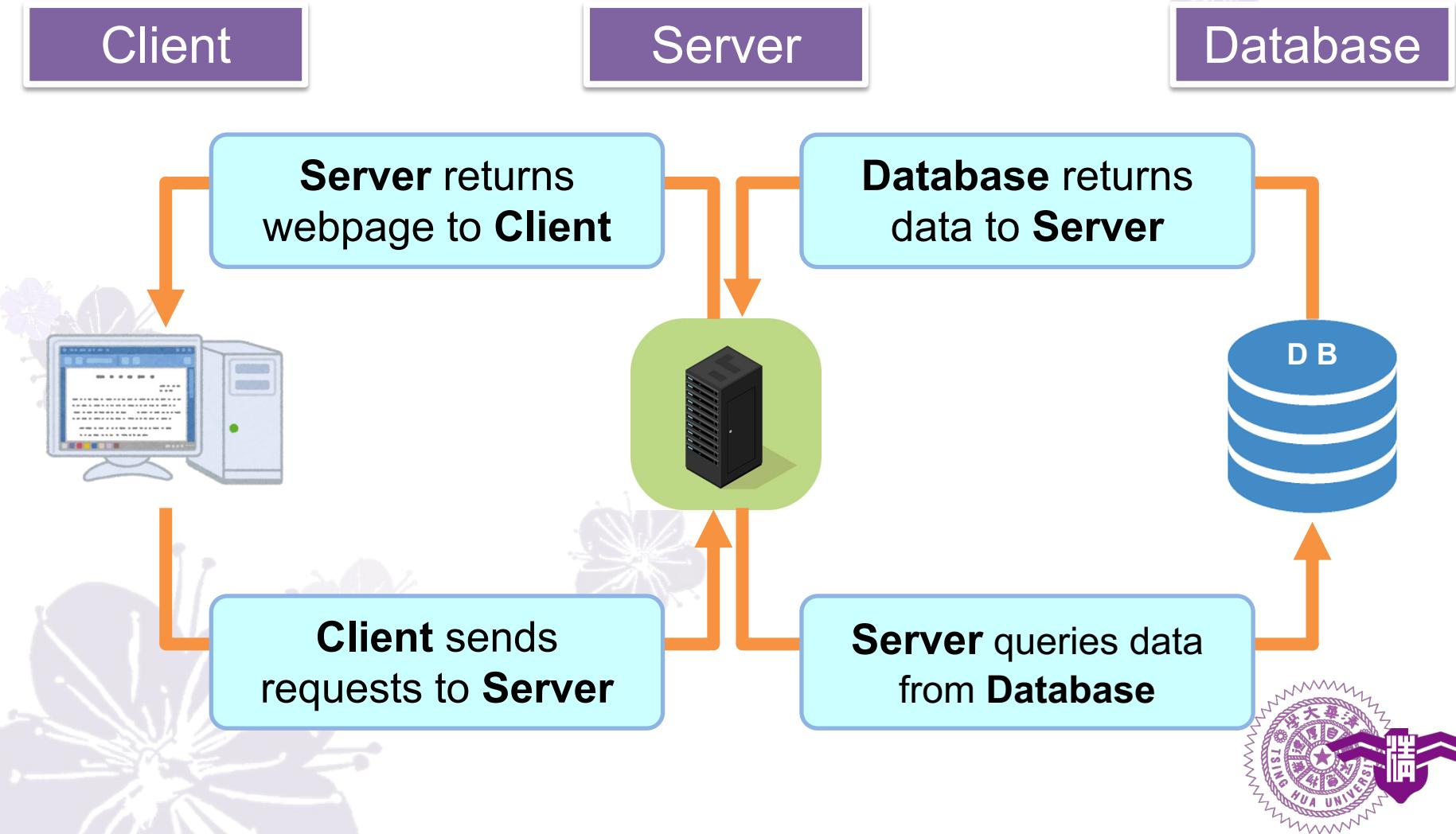
DNS Server



Main Server



Web Architecture



Web Architecture

- **Client (Frontend)**
 - Send requests to Server
 - Process/Display data received from Server via Web Browser
- **Server (Backend)**
 - Place where we put the source codes of web program
 - Send queries to Database
 - Response to the requests from Client
- **Database (Storage)**
 - Place where we put files (images, videos, user profiles, etc)



Client (Frontend)

- **HTML** (HyperText Markup Language)
 - Using a set of **tags** and **attributes** to define the **contents** and **appearance** of web apps.
- **CSS** (Cascading Style Sheets)
 - Formatting the **appearance** of web apps
 - Layout, colors, and fonts.
- **JavaScript**
 - Define the **behaviors** of web apps
 - Adding dynamic effects

HTML



CSS

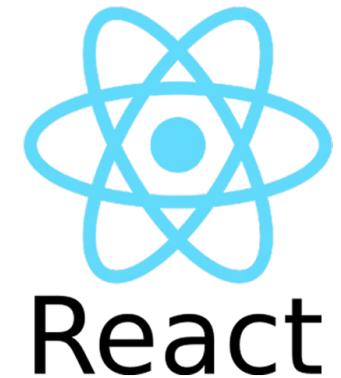
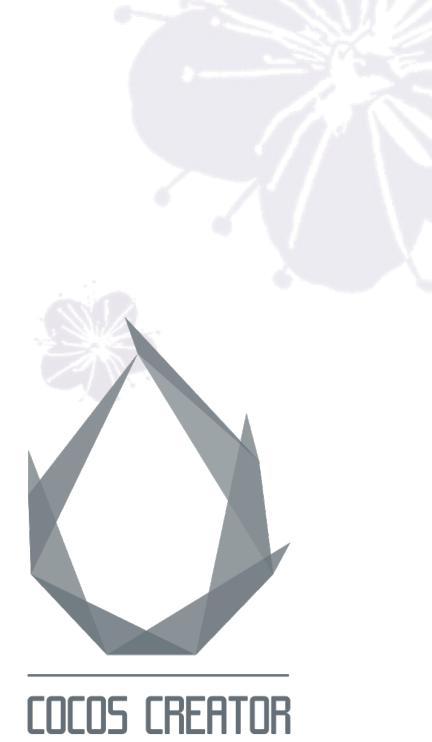


JS



Client (Frontend)

- **TypeScript**
 - A typed superset of JavaScript that compiles to JavaScript
 - Supports object-oriented programming
- **Cocos Creator**
 - A game engine for web game
 - Easy to control object in scene
- **React**
 - A javascript library for building user interfaces

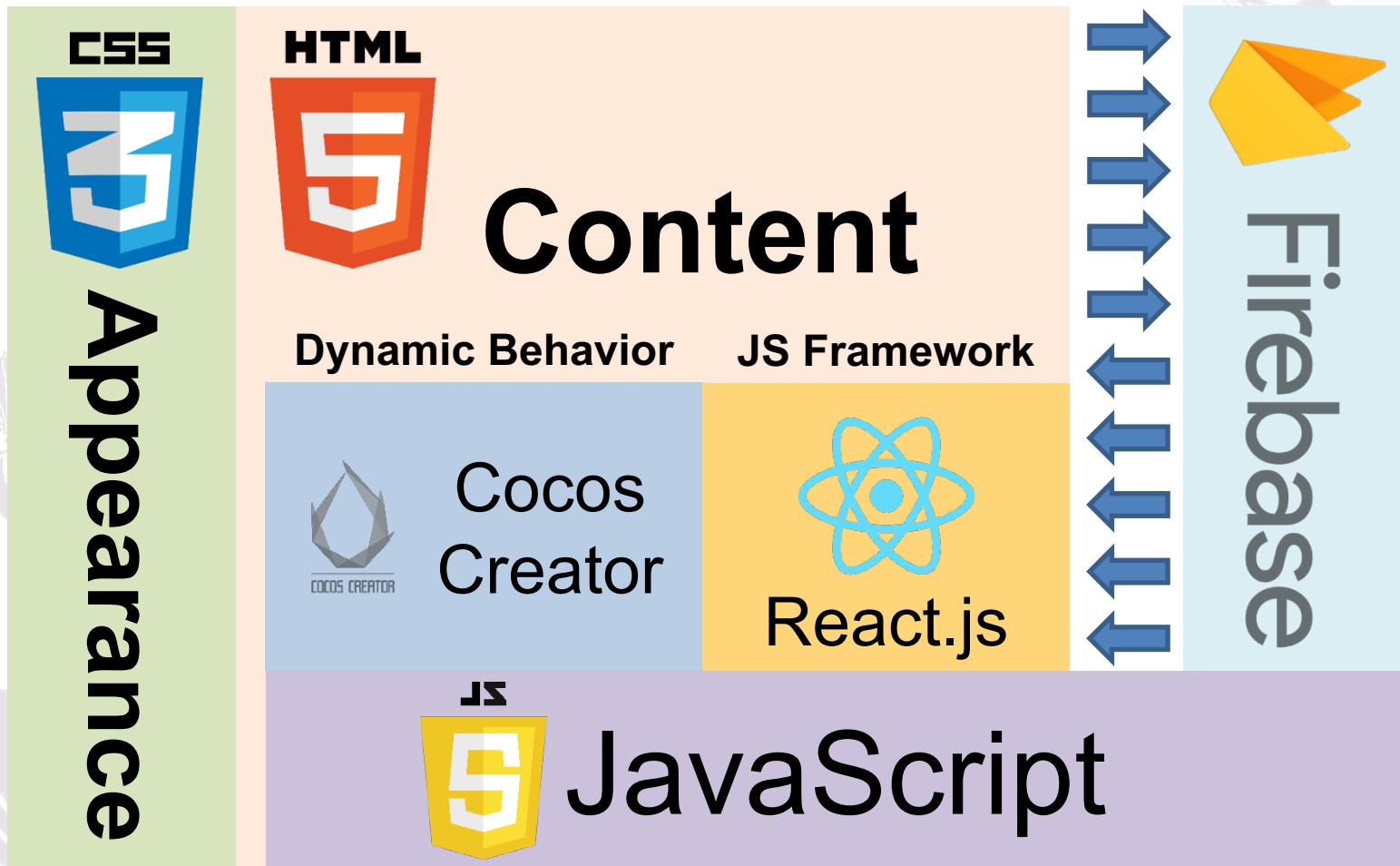


Server (Backend) and Database

- **Firebase**
 - Fully compatible to (wrote by) JavaScript
 - Build apps fast, without managing infrastructure
 - Backed by Google, trusted by top apps
 - Discover more [here](#)
- Other popular web servers we WONT cover
 - PHP
 - Node.js



Web Application (Web App)



Course Outline

1. Introduction to Web Programming
2. HTML5 & CSS3
3. JavaScript
4. React
5. Firebase (Server)
6. TypeScript
7. Cocos Creator
8. Tools, Packages, Coding Skills



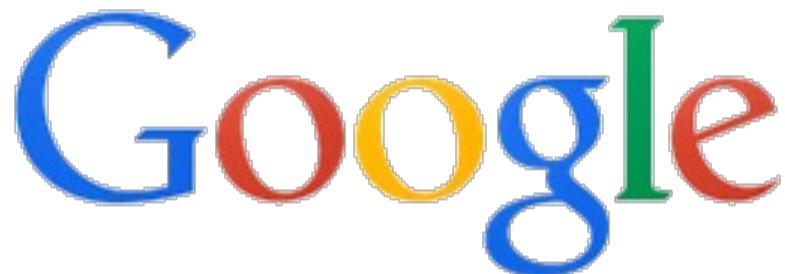
Weekly Schedule (Tentative)

Week	Date (T7T8)	Lab Content	Details		Date (R7R8)	Course Content	Details	video study	Announcement
1	2024/02/20	Environment Setting	VS Code, JS, etc.		2024/02/22	Syllabus + Introduction			
2	2024/02/27	Gitlab	practice how to use git functions (clone, etc)		2024/02/29	HTML 5			
3	2024/03/05	GitPages	git advanced		2024/03/07	CSS3	Intro & Basic + RWD		
4	2024/03/12	CSS + bootstrap	personal intro. page		2024/03/14	Javascript	Intro & Basic		
5	2024/03/19	Javascript	JS Calculator		2024/03/21	Javascript	DOM & jQuery + Promise		HW1 (Canvas)
6	2024/03/26	Javascript	Async + Callback		2024/03/28	React	Intro & Basic		
7	2024/04/02	Firebase (Lecture)	Intro & Basic/Functions		2024/04/04	兒童節			HW1 Deadline
8	2024/04/09	Firebase	Firebase Forum		2024/04/11	React	Functional Components & Hooks		Midterm
9	2024/04/16	React	React Shopping App		2024/04/18	TypeScript Cocos creator	Intro & Basic & OOP		Final Project 發想
10	2024/04/23	TypeScript & Cocos creator	TypeScript OOP in Cocos Creator		2024/04/25	Cocos creator	UI + Scripting	Script&UI	
11	2024/04/30	Cocos creator	UI + Scripting()		2024/05/02	Final Project 發想			Midterm Deadline
12	2024/05/07	Cocos creator	Game Development Tips / Techniques		2024/05/09	Cocos creator	Physics	Physics	HW2 (Mario)
13	2024/05/14	Cocos creator	Physics()		2024/05/16	Cocos creator	Action + Schedule	Action System & Scheduler	
14	2024/05/21	Cocos creator	Action + Schedule()		2024/05/23	Cocos creator	Animation + Particle System	Animation & Particle System	HW2 Deadline
15	2024/05/28	Prototype Demo			2024/05/30	Prototype Demo			
16	2024/06/04				2024/06/06				
17	2024/06/11				2024/06/13	Final Project Demo			
18	2024/06/18	清大期末考週			2024/06/20	清大期末考週			

[Update via google sheet](#)



References



html5, css3, javascript, typescript, codes, tutorial, cocos creator



Class Information (eeclass)

Date	Tuesday (LAB)	Thursday (Lecture)
When	PM 3:30~5:20	PM 3:30~5:20
Where	EECS 326, 328	Delta 105
What	In-class practice / quiz	Lecturing



Instructor & TAs

Name	朱宏國	TAs
Office	台達館 641 室	Contact TAs via eeclass
TEL	03-5731215	Contact TAs via eeclass
E-Mail	hkchu@cs.nthu.edu.tw	邱向辰、王柏涵、謝明浩、周峻平、陳樂穎、劉祐誠 (請至eeclass查詢email)
Office Hours	Contact via email	Contact TAs via eeclass

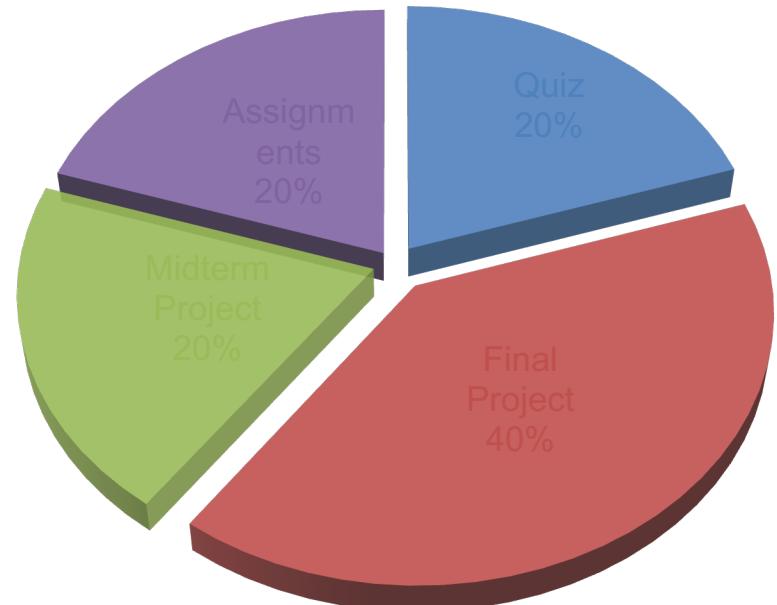


Workload ?



Workload & Evaluation

- **Final project (40%)**
 - Team up!
 - 2D or 3D Web Game
- **Midterm project (20%)**
 - Individual
 - 2D Web App
- **Assignment (20%)**
 - Homework x 2
- **Quiz (20%)**
 - In-class quiz x ~10





How to Get High Score ?

Tips

- Working hard and thinking smart
- Enjoying the programming
- Do as many practices as you can
- Collaborate with your teammates
 - Be a god teammate (神队友)
 - Find good from pig teammate (豬队友)



關於問題詢問

- 為了提升解答的效率，請同學將問題一律發佈在**eeclass的討論區**，助教們有空會上線觀看，並為各位解答。也請同學在發問時先到討論區爬文，對於重複或私下**email詢問的問題，助教將不予以回答**，請各位多見諒。同時也希望同學能不吝在討論區與大家分享你知道的答案，協助同學解決問題。此外同學們可以多利用其他更有效率的管道尋找解答，例如與其他同學討論或google等。



修課須知

- 本學期課程需要同學**熟知C & C++**。
- 務必將**eeclass**信箱設為聯絡人，避免課程相關信件被誤判為垃圾信。
- 每封信請詳讀內容，確保同學自身權益，**不接受以「我沒有注意到那封信」為理由來要分數**。



上機考規則

- 17:20 以前找助教評分。
- 考試期間禁止與人(老師與助教除外)交談。
- 評分方式以日後公布為主。
- 補考規則：
 - 請假需**寄信給老師/助教並附上證明**方得補考。
 - 補考須於**小考當週完成**，請與助教約時間。
 - 補考分數以**八折**計算。



作業規則

- 程式碼嚴禁抄襲，抓到抄襲，抄襲與被抄襲者
直接當掉！直接當掉！直接當掉！
- 繳交期限為兩個星期，不得遲交。
- 沒有屍體分數，遲交零分且不得補交。
- 評分方式以日後公布為主。

**Plagiarism is strictly prohibited;
otherwise, you will get failed in
this course !!!**



作業繳交規則

- 請**務必**透過 MD5 獲得作業checksum 後填入 google 表單。
- 如遇各種原因無法在作業期限前完成上傳，我們將比對 checksum。若 checksum 一致則不算遲交。
- 繳交作業以**MD5為主**，若有多個 checksum 則取時間最晚的為主。
- [MD5 online generator](#)
- [MD5 checksum 登記表單](#)
- [MD5 checksum 登記查看](#)
- [MD5 使用方法](#)



作業繳交流程

請務必遵守以下規則：

1. 將作業打包壓成zip檔，檔名格式以及打包內容以當次作業公告為主。
2. 幫zip檔產生MD5，並填寫google表單。
3. 將zip檔上傳ftp。
4. 將MD5和網址繳交至eeclass。

若違反任何一項繳交作業**SOP**，
一律扣作業總分**10分！！！**

貼心提醒：請同學守護zip檔至作業成績公告或期末。



抄襲定義與判定

- 抄襲者定義
 - 採用現有資源(線上下載、同學or學長姐的code等等)且不經修改直接繳交作業者。
- 以程式碼相似度比對工具比對(**Stanford Moss**)，若相似度達 20%以上 則視為抄襲。
備註: 某某課判定抄襲標準為14%
- 關於Stanford Moss：
 - <https://theory.stanford.edu/~aiken/moss/>
 - [MOSS系统详解-你为什么不要撒谎](#)



真實抄襲案例

- 案例一：小明與小華在同一份作業中，參考了相同網站，由於沒有經過太多修改，就直接引用網站上的程式碼，故被**Moss**判定為抄襲。
- 案例二：小美和小花互不相識，小美有習慣將已經做完的部分一步一步**deploy**出去，但由於忘記設成**private**，所以小花趁虛而入，直接參考小美的程式碼，等小美發現並想要設回**private**時，為時已晚。



真實抄襲案例

- 案例三：小美、小花、小明三位感情融洽，平常就會互相討論作業，在某次作業討論完後，小花跟小明一致認為閨蜜小美寫的程式架構好棒棒，於是**閨蜜變歸Me**，就直接拿小美的程式來改，但由於更動幅度太少，故被**Moss**判定為**抄襲**。



請大家保護好自己的**code**，從網路上參考請
自行消化修改，以免造成不必要的誤會

千萬別抄襲！！！

請大家務必配合！

**Plagiarism is strictly prohibited;
otherwise, you will get failed in
this course !!!**





From Easy to Complicated, Static to Dynamic

WEB APP: EXAMPLES



Static Web App

HTML教學

[01.何謂Html](#)
[02.基本架構](#)
[03.常用標籤](#)
[04.字體大小](#)
[05.字的變化](#)
[06.項目格式](#)
[07.跑馬燈](#)
[08.超連結](#)
[09.貼圖標籤](#)
[10.圖片連結](#)

[11.表格運用](#)
[12.插入音樂](#)
[13.body設定](#)
[14.分割視窗](#)
[15.製作表單](#)
[16.自訂網址前小icon](#)
[17.Meta 十大功用](#)

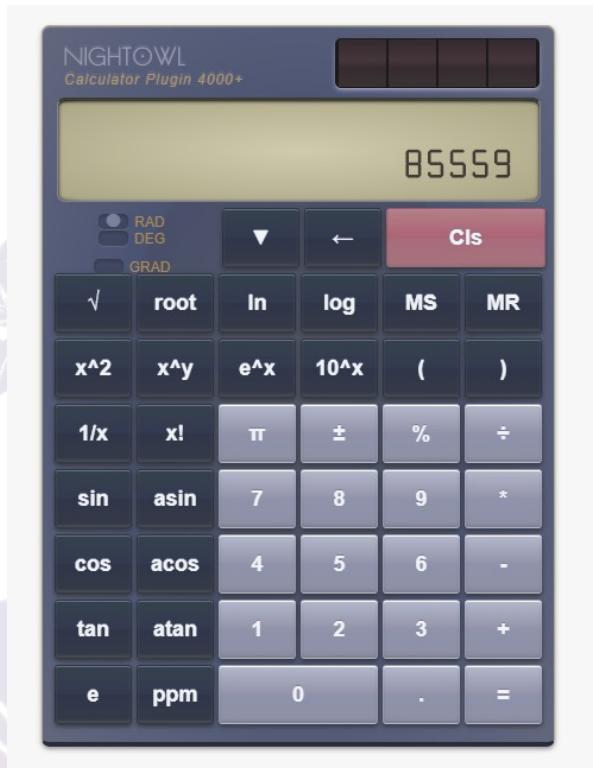


Established since: March 28, 2003
All the design R 2003 by [Admin](#)



Dynamic Web App

Only run on client



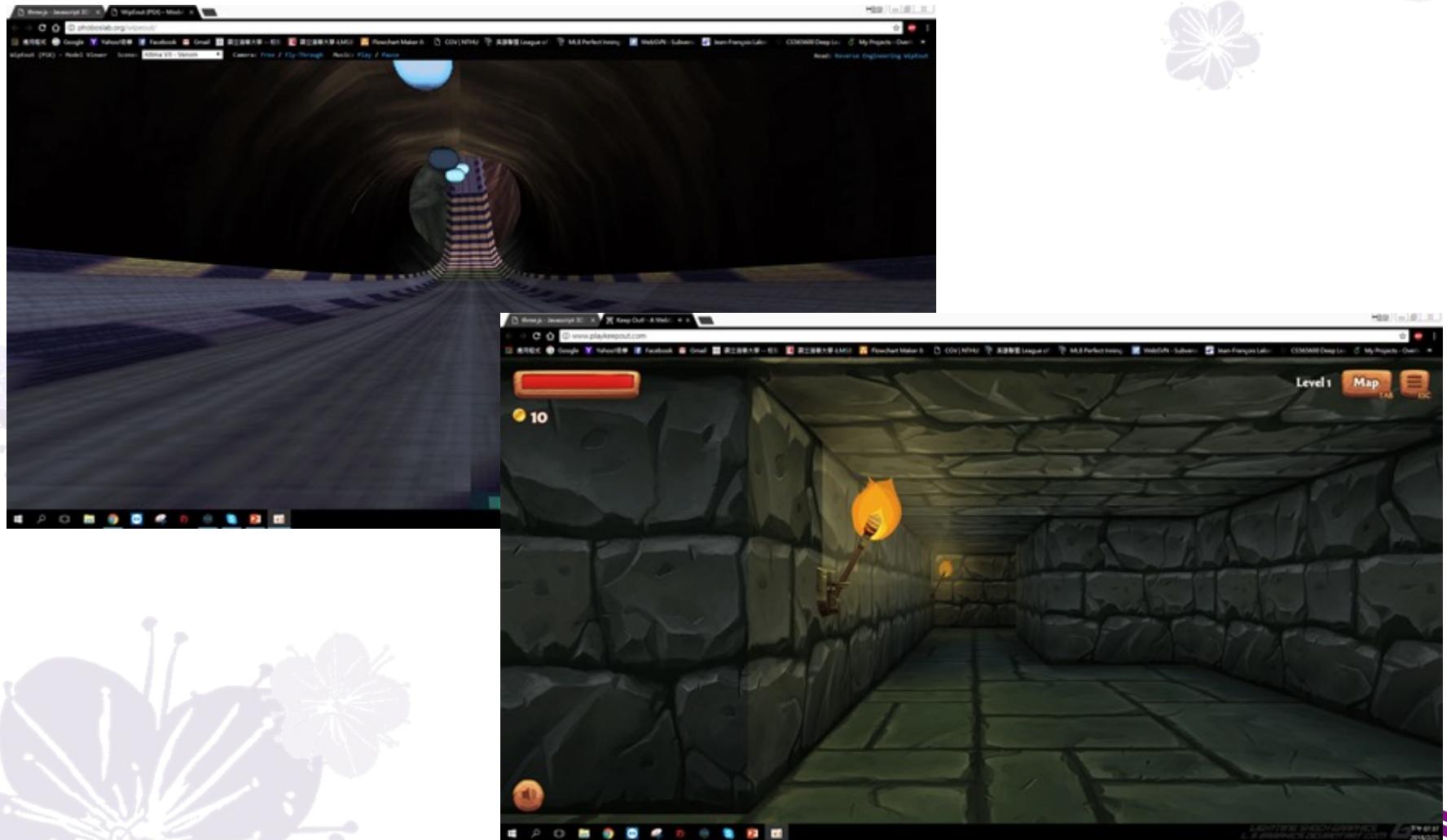
Client updated by server



蝦皮購物



Web App with 3D Graphics



Web Game via Cocos Creator



Web Game via Cocos Creator



Web Game via Cocos Creator



歷屆成果分享



2023 Group 5



<https://youtu.be/7TXBhl5G3YQ>



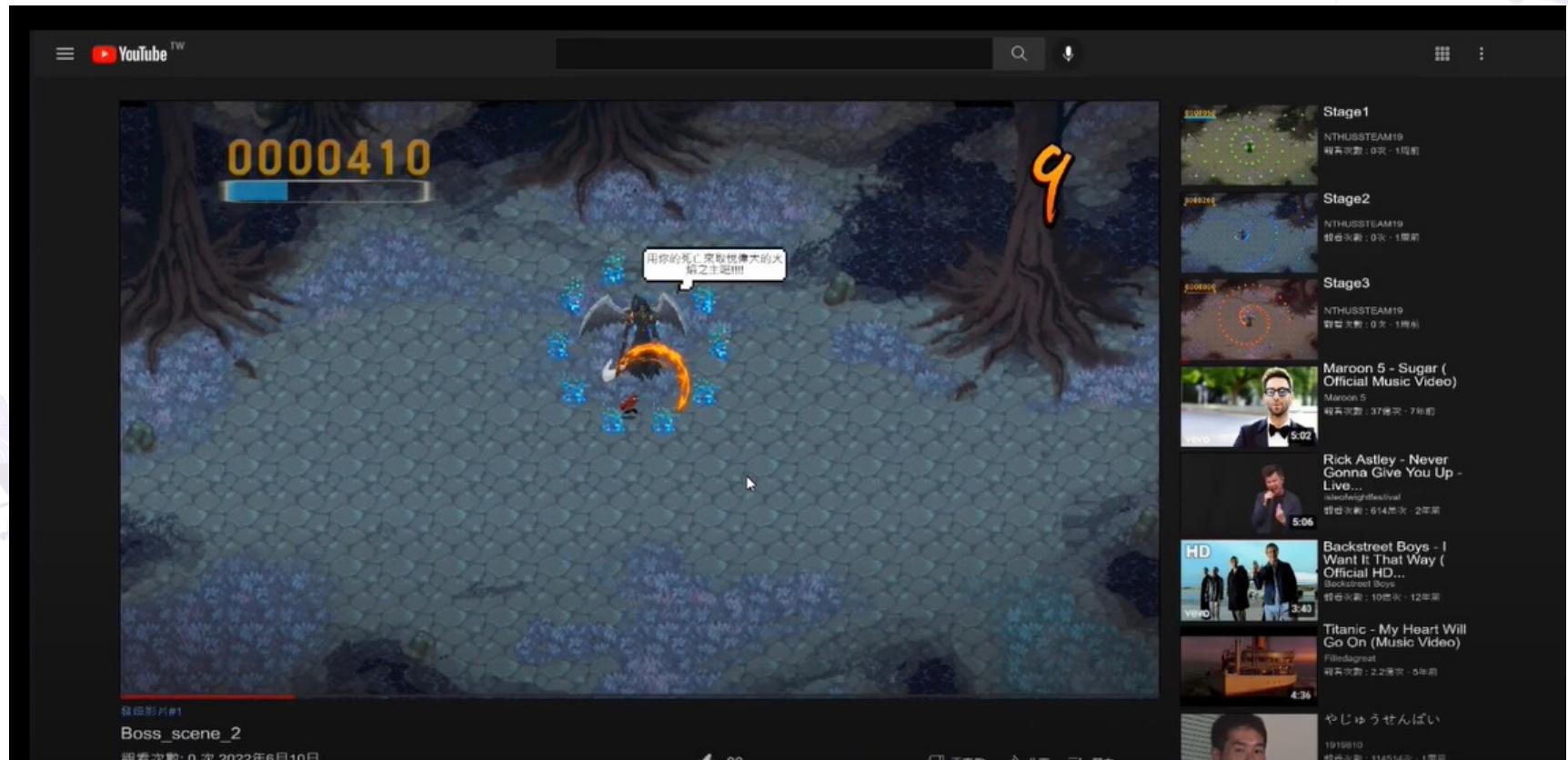
2023 Group 11



<https://youtu.be/TBiSrl3gR44>



2022 Group 19



<https://youtu.be/Sn7rf4how40?t=261>



2022 Group 08



<https://youtu.be/qQoNAAbvK9g>



2022 Group 12



https://youtu.be/ZM2MM_gkLbA



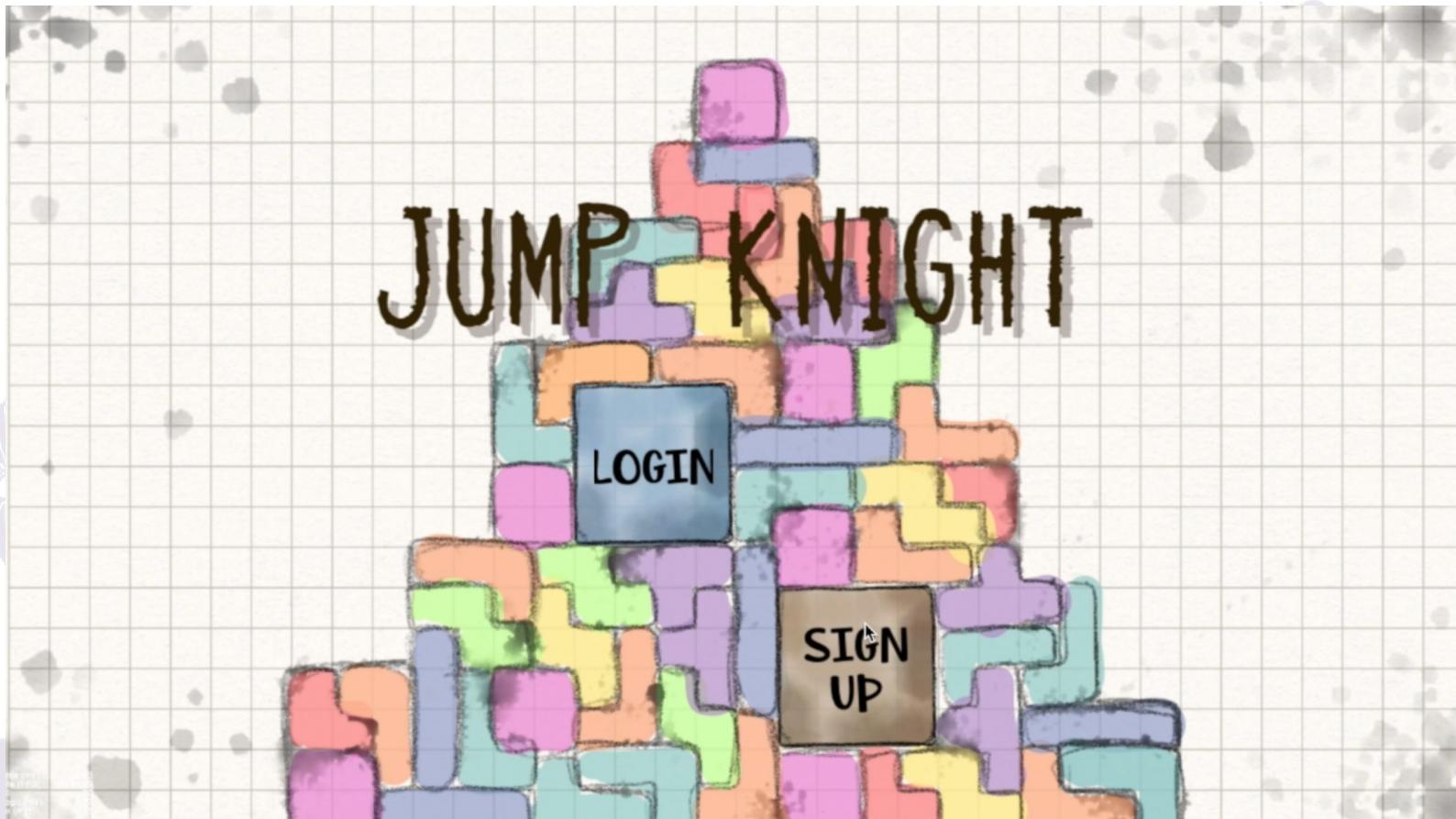
2021 Group 16

ITAI
MASTER

<https://youtu.be/O2tNJYlldjc>



2021 Group 3



<https://youtu.be/9-Xrwbnb1P4>



2018 楓之谷



<https://www.youtube.com/watch?v=pVrwL9ZGAKg&list=PLbGAs1DsKdZMxUIEMpuT1VR7F97bQOqdX&index=5>



thank
you!

Question

?

