

# C++程式設計基礎

## lesson 10

陳毅

# 本週概要

- 物件導向程式設計基本概念 – 最初的需求
- 專案管理 : Sourcetree + GitHub
- 其他程式語言簡介
- 課程回顧

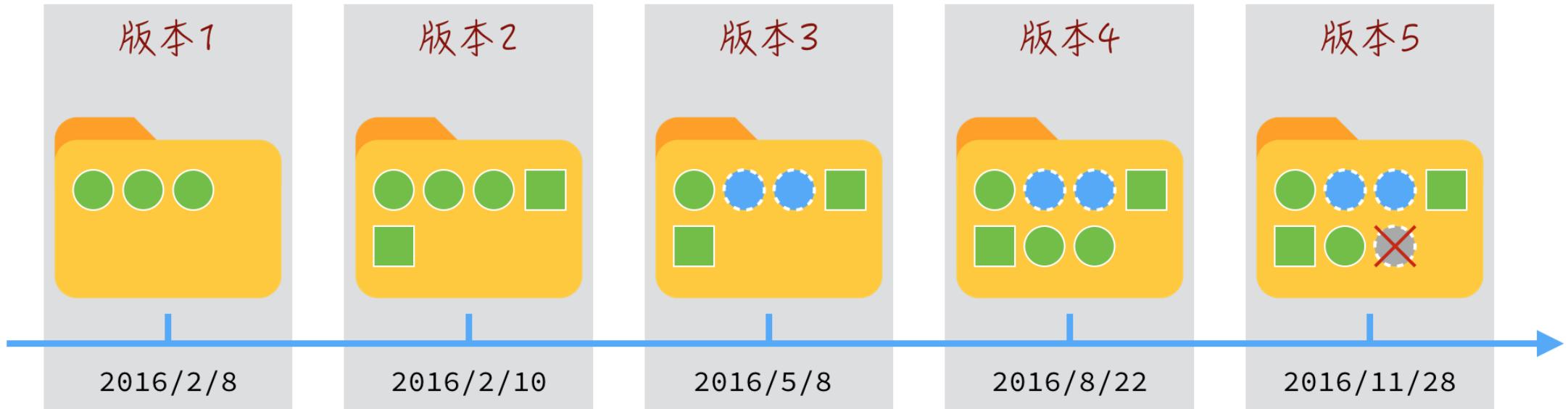
# 需求

- 請為銀行設計一個管理程式，用以管理客戶的帳戶及資料，並處理相關業務。
  - 一間銀行擁有許多客戶和許多帳戶。客戶名稱不會重複。帳戶的帳號也不會重複。
  - 客戶有名稱、出生年月日。
  - 每個客戶可以向銀行開設一個以上的帳戶。
  - 每個帳戶記載著帳號、客戶、歷史交易紀錄等資料。
  - 交易紀錄有2種類型：存入、提出。當客戶向銀行提出交易時，若交易成功，會將交易紀錄記載在帳戶中。
  - 客戶可以向銀行查詢自己帳戶的歷史交易紀錄。

專案管理：Sourcetree + GitHub

# Git是什麼？

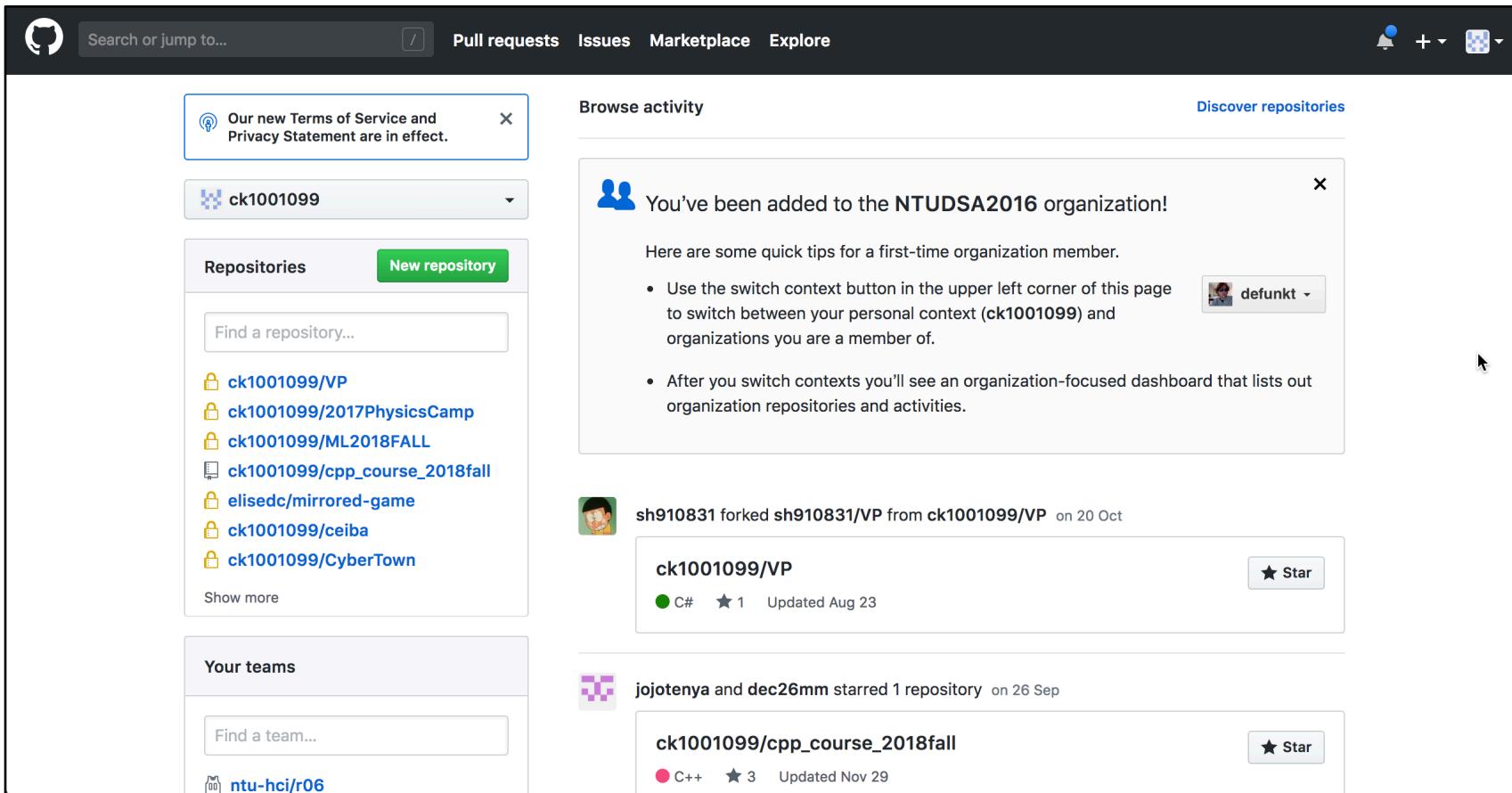
- Git是一種分散式版本的**版本控制系統(Version Control System)**。



- 常見的線上版本控制平台：GitHub、BitBucket等。

# GitHub 介紹

- GitHub: <https://github.com/>



# Sourcetree 介紹

- Sourcetree: <https://www.sourcetreeapp.com/>

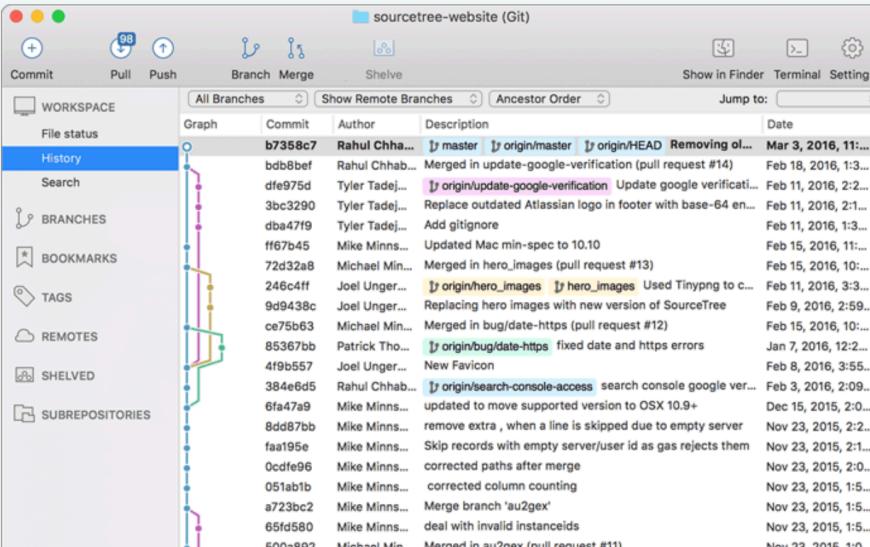
 Sourcetree

[Download free](#)

**Simplicity and power in a beautiful Git GUI**

[Download for Mac OS X](#)

Also available for Windows

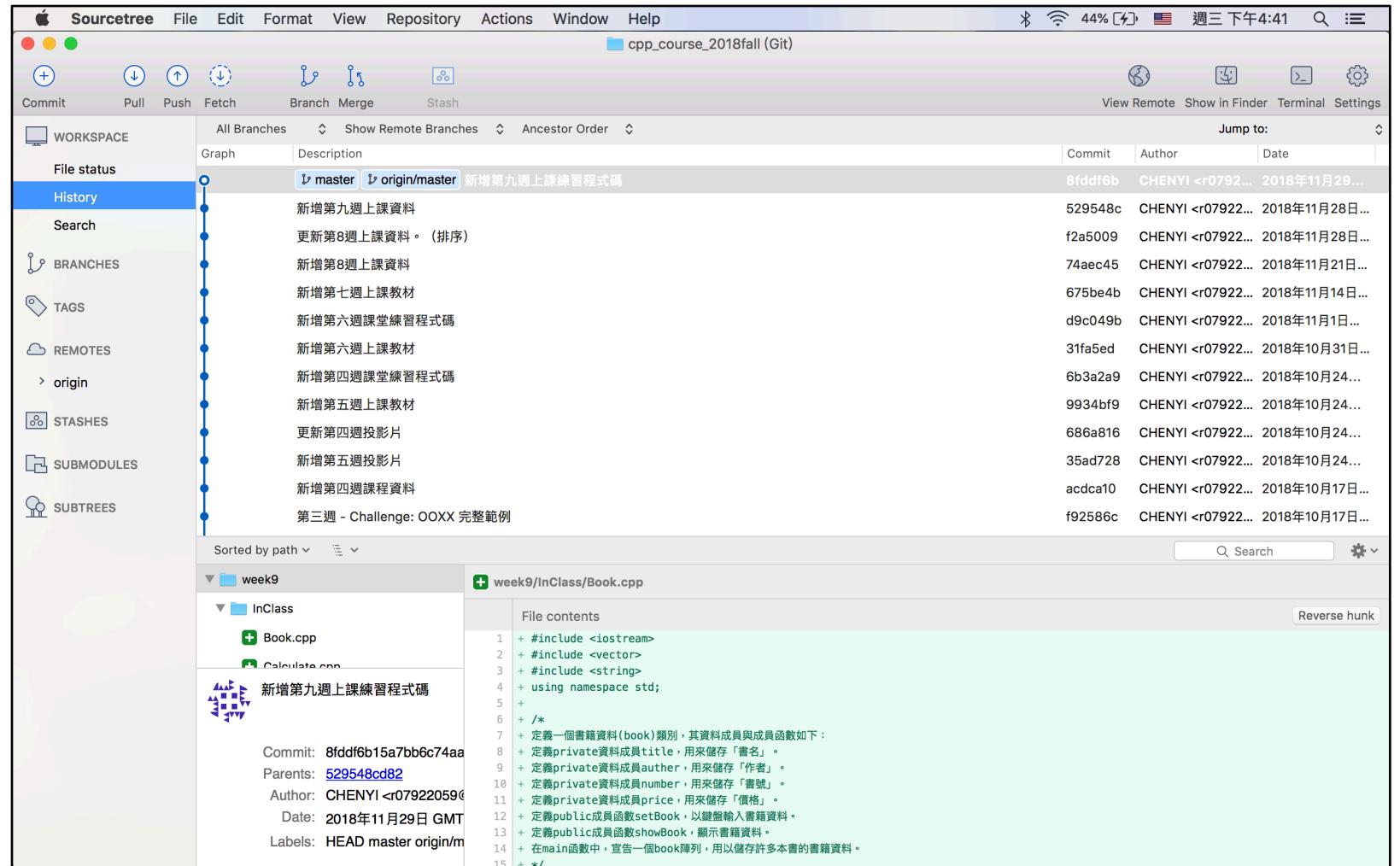
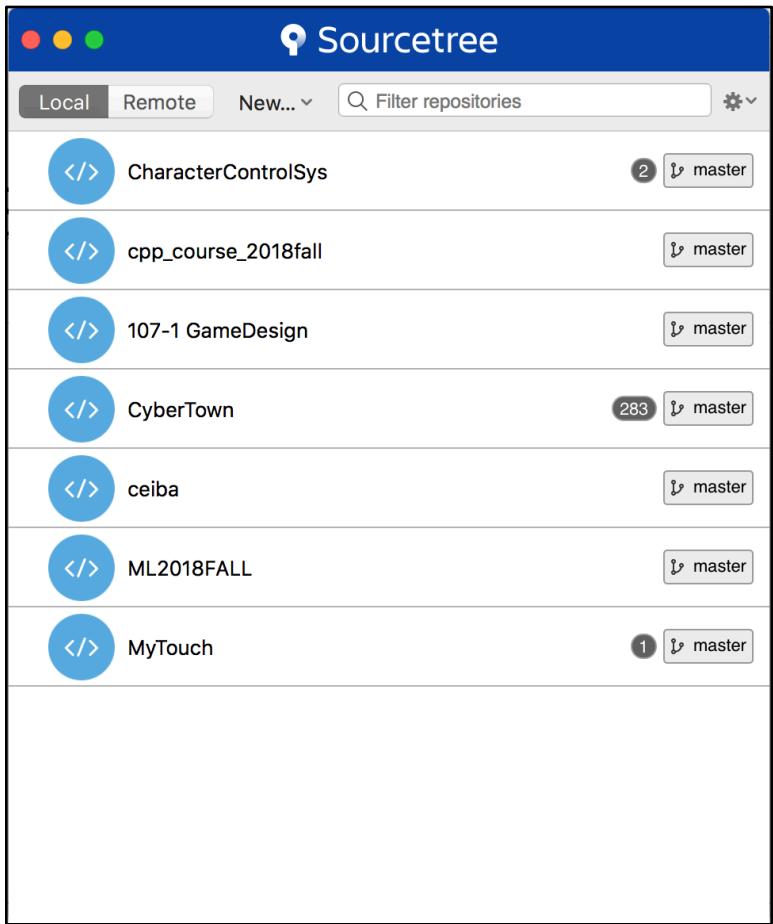


Commit	Author	Description	Date
b7358c7	Rahul Chhab...	master   origin/master   origin/HEAD Removing ol...	Mar 3, 2016, 11...
bdb8bf	Rahul Chhab...	Merged in update-google-verification (pull request #14)	Feb 18, 2016, 1:3...
dfe975d	Tyler Tadej...	origin/update-google-verification Update google verificati...	Feb 11, 2016, 2:2...
3bc3290	Tyler Tadej...	Replace outdated Atlassian logo in footer with base-64 en...	Feb 11, 2016, 2:1...
dba47f9	Tyler Tadej...	Add gitignore	Feb 11, 2016, 1:3...
ff67b45	Mike Minns...	Updated Mac min-spec to 10.10	Feb 15, 2016, 11...
72d32a8	Michael Min...	Merged in hero_images (pull request #13)	Feb 15, 2016, 10...
246c4ff	Joel Unger...	origin/hero_images   hero_images Used TinyPNG to c...	Feb 11, 2016, 3:3...
9d9438c	Joel Unger...	Replacing hero images with new version of SourceTree	Feb 9, 2016, 2:59...
c675b63	Michael Min...	Merged in bug/date-https (pull request #12)	Feb 15, 2016, 10...
85367bb	Patrick Tho...	origin/bug/date-https fixed date and https errors	Jan 7, 2016, 12:2...
419b557	Joel Unger...	New Favicon	Feb 8, 2016, 3:55...
384e6d5	Rahul Chhab...	origin/search-console-access search console google ver...	Feb 3, 2016, 2:09...
6fa47a9	Mike Minns...	updated to move supported version to OSX 10.9+	Dec 15, 2015, 2:0...
8dd87bb	Mike Minns...	remove extra , when a line is skipped due to empty server	Nov 23, 2015, 2:2...
faf195e	Mike Minns...	Skip records with empty server/user id as gas rejects them	Nov 23, 2015, 2:1...
0cde96	Mike Minns...	corrected paths after merge	Nov 23, 2015, 2:0...
051ab1b	Mike Minns...	corrected column counting	Nov 23, 2015, 1:5...
a723bc2	Mike Minns...	Merge branch 'au2gex'	Nov 23, 2015, 1:5...
65fd580	Mike Minns...	deal with invalid instanceids	Nov 23, 2015, 1:5...
500a892	Michael Min...	Merged in au2gex (pull request #11)	Nov 23, 2015, 1:0...

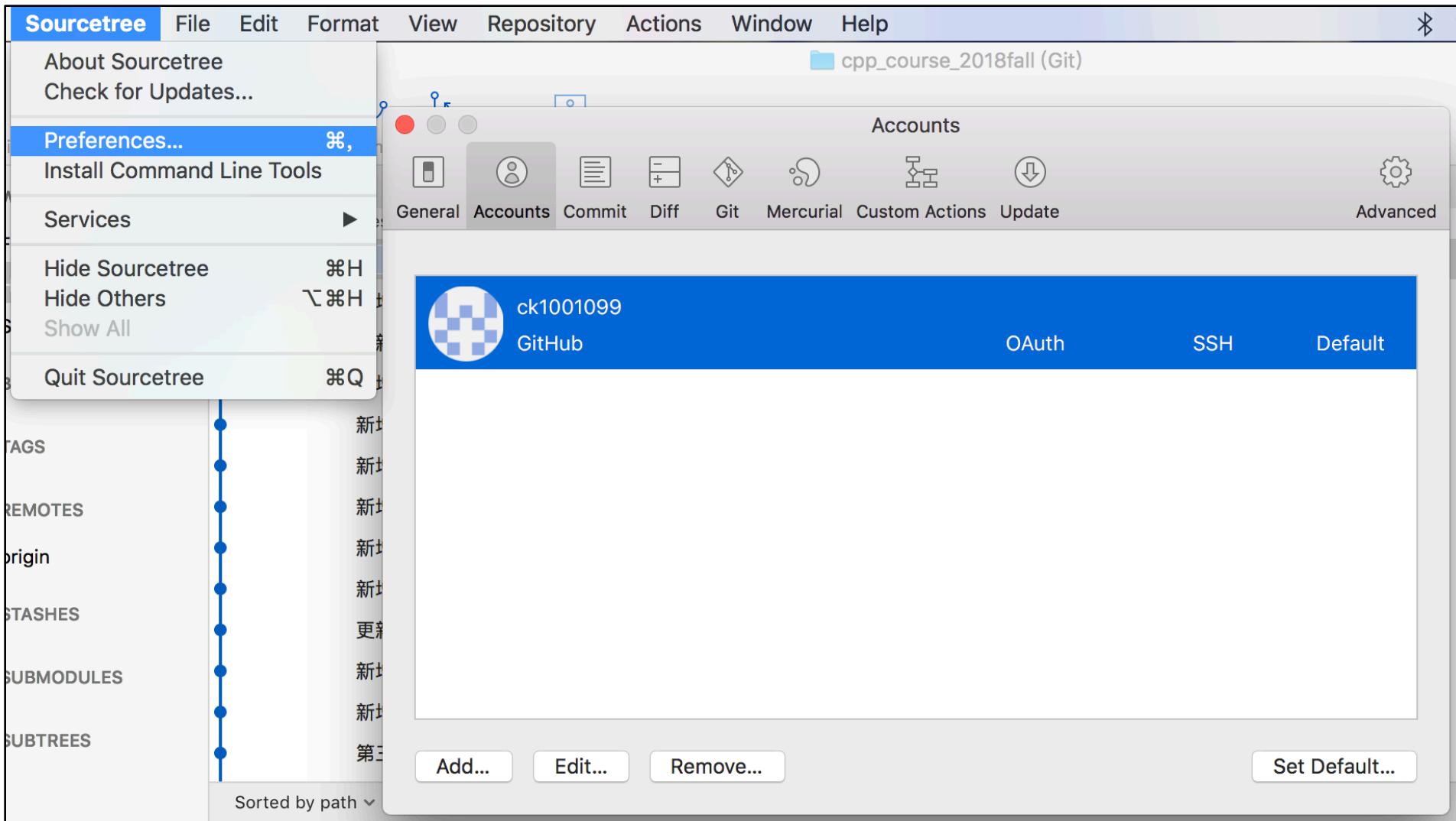
**A free Git client for Windows and Mac**

Sourcetree simplifies how you interact with your Git repositories so you can focus on coding. Visualize and

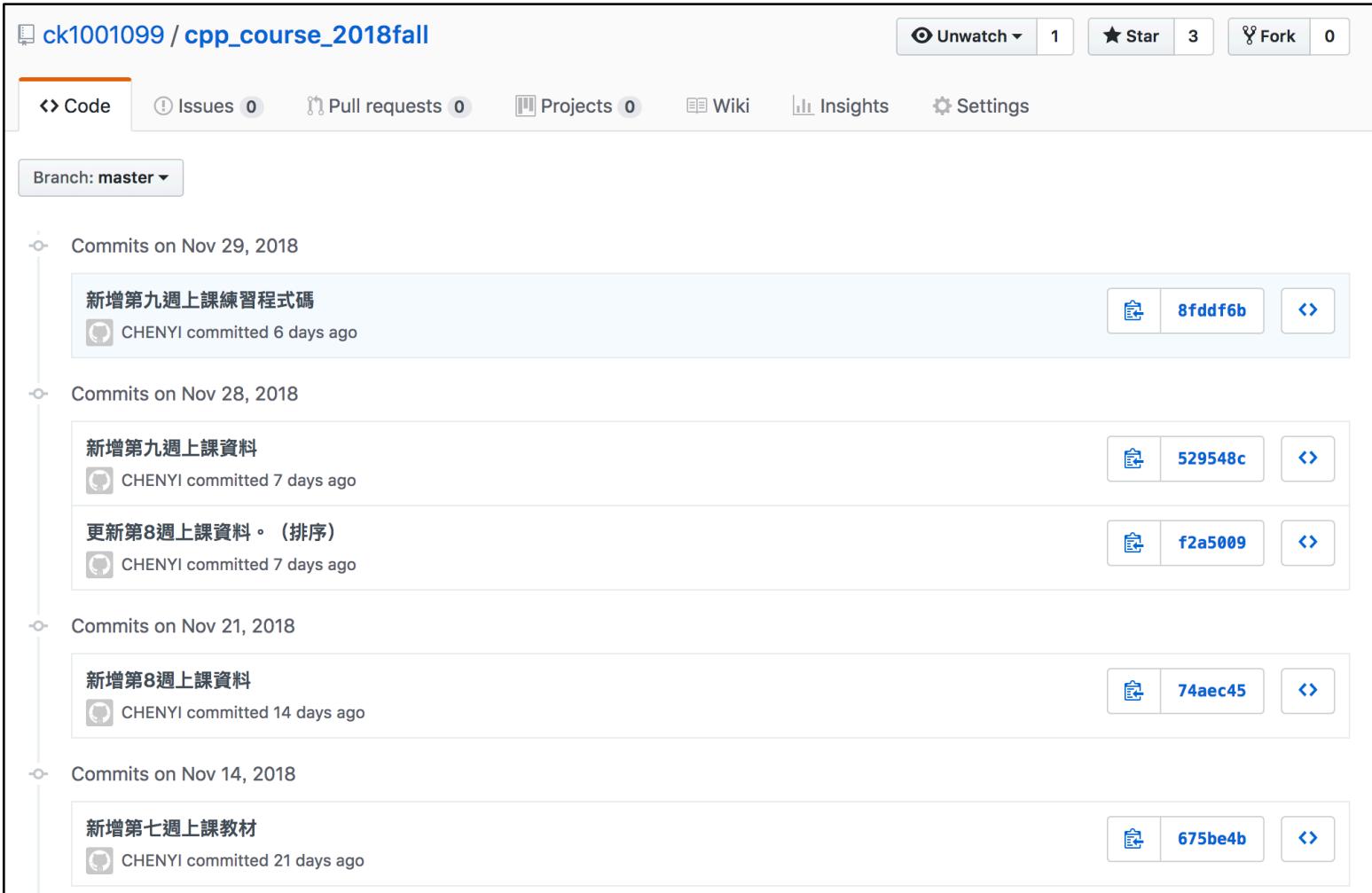
# Sourcetree + GitHub



# Sourcetree + GitHub



# Sourcetree + GitHub



# 補充資料

- 30 天精通 Git 版本控管  
<https://github.com/doggy8088/Learn-Git-in-30-days>
- GitHub 版本控制  
<https://hackmd.io/s/Bk2AaU6o>
- Git 的基本介紹  
[https://backlog.com/git-tutorial/tw/intro/intro1\\_1.html](https://backlog.com/git-tutorial/tw/intro/intro1_1.html)
- 一步一步教你用 GitHub + SourceTree 做版本控制  
<https://hackmd.io/s/Bymbf3y2>

# 其他程式語言簡介

# 常用程式語言

語言名稱	用途
C	數據處理、研究用
python	機器學習、爬蟲、數據處理
C#	遊戲開發（Unity主要使用語言）
swift	iOS開發
java	Android開發
R	統計專用
php	網頁後端
javascript	網頁前端

# python (ML)

Show data

In [4]:

```
input_shape = (256,256,3)

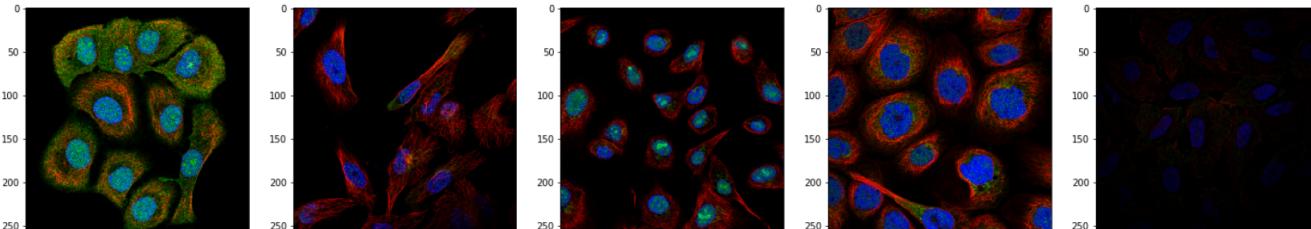
# create train datagen
train_datagen = data_generator.create_train(
    train_dataset_info, 5, input_shape, augment=True)
```

In [5]:

```
images, labels = next(train_datagen)

fig, ax = plt.subplots(1,5,figsize=(25,5))
for i in range(5):
    ax[i].imshow(images[i])
print('min: {}, max: {}'.format(images.min(), images.max()))
```

min: 0.0, max: 1.0



Featured Prediction Competition

## Human Protein Atlas Image Classification

Classify subcellular protein patterns in human cells

Human Protein Atlas · 1,440 teams · a month to go (a month to go until merger deadline)

Overview Data Kernels Discussion Leaderboard Rules Team My Submissions Submit Predictions

### Overview

**Description**

In this competition, Kagglers will develop models capable of classifying mixed patterns of proteins in microscope images. [The Human Protein Atlas](#) will use these models to build a tool integrated with their smart-microscopy system to identify a protein's location(s) from a high-throughput image.

**Evaluation**

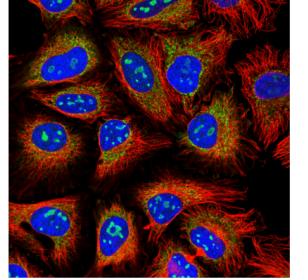
**Prizes**

**Timeline**

**Special Prize Instructions**

Proteins are “the doers” in the human cell, executing many functions that together enable life. Historically, classification of proteins has been limited to single patterns in one or a few cell types, but in order to fully understand the complexity of the human cell, models must classify mixed patterns across a range of different human cells.

Images visualizing proteins in cells are commonly used for biomedical research, and these cells could hold the key for the next breakthrough in medicine. However, thanks to advances in high-throughput



# C# (Unity)

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;
using UnityEngine.SceneManagement;

public class GameController : MonoBehaviour {

    public static GameController _GameController;

    public GameObject loadingScreen;
    public float loadingTimeMin = 1.0f;

    public string chapterName;

    void Awake(){
        _GameController = this;
        DontDestroyOnLoad(this.gameObject);
        DontDestroyOnLoad(loadingScreen);
    }

    // Use this for initialization
    void Start () {
        Screen.SetResolution(1920, 1080, FullScreenMode.Windowed);
    }

    // Update is called once per frame
    void Update () {

    }
}
```



# 關於學習程式語言

- Google 上幾乎可以找到任何你想學的語言的教學。
- 我們使用過的一些網站也可以幫助你學習
  - Zerojudge
  - HackerRank
  - LeetCode
- 學程式語言不外乎就是：**多看，多想，多練習**。
- 實戰也可以大幅提升你對特定語言的熟悉度。

# 課程回顧

# 學習目標

- 能夠獨自撰寫簡易的C++程式
- 了解基礎的物件導向程式設計方法
- 閱讀程式碼的能力

# 時間表

- 3/2
  - 3/9
  - 3/16
  - 3/23
  - 4/13
  - 4/20
  - 5/11
  - 5/18
  - 5/25
  - 6/1
- 資料型態、變數、基本輸入輸出
  - 流程控制（條件控制、迴圈控制）
  - 函式與陣列
  - 字元與字串、結構
  - 指標
  - 資料結構
  - 物件導向程式設計基礎

- Reading: 課本 Ch11.5.3, Ch12
- 若遇到程式相關問題，歡迎隨時寄信至：[ck1001099@gmail.com](mailto:ck1001099@gmail.com)

課程結束！