

# Lab 05

# Java Cocktail

**NetDB**

CS, NTHU,  
Fall, 2013

# Outline

- Trace Java Source Code in Eclipse
- TortoiseSVN
- Polymorphism Revisited
- Encapsulation
- Today's Mission

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# View Source Code

- Hold “Ctrl” key (cmd for Mac) and click the class/method/variable. It will bring you to the declaration source code of the class/method/variable

# The java source codes are compressed and cannot be found

## Class File Editor

### Source not found

---

The JAR file C:\Program Files\Java\jre7\lib\rt.jar has no source attachment.  
You can attach the source by clicking [Attach Source](#) below:

[Attach Source...](#)

---

```
// (version 1.7 : 51.0, super bit)
public final class java.lang.StringBuffer extends java.lang.AbstractStringBuilder implements java.io.Serializable, java.lang.CharSequence {

    // Field descriptor #32 J
    static final long serialVersionUID = 3388685877147921107L;

    // Field descriptor #37 [Ljava/io/ObjectStreamField;
    private static final java.io.ObjectStreamField[] serialPersistentFields;

    // Method descriptor #7 0V
    // Stack: 2, Locals: 1
    public StringBuffer();
    0 aload_0 [this]
    1 bipush 16
    3 invokespecial java.lang.AbstractStringBuilder(int) [285]
    6 return
```

## Class File Editor

### Source not found

---

The JAR file C:\Program Files\Java\jre7\lib\rt.jar has no source attachment.  
You can attach the source by clicking Attach Source below:

[Attach Source...](#)

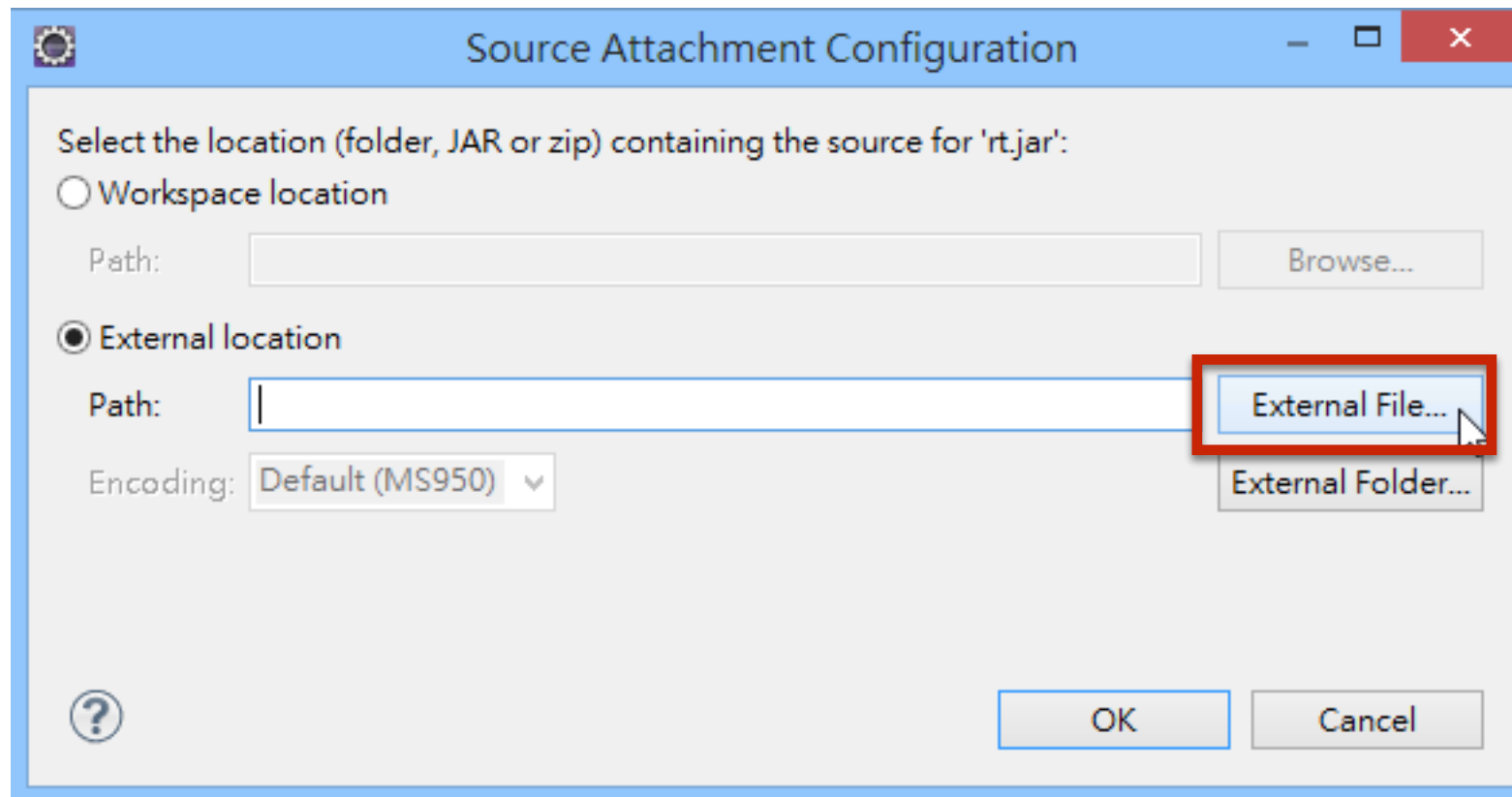
---

```
// (version 1.7 : 51.0, super bit)
public final class java.lang.StringBuffer extends java.lang.AbstractStringBuilder implements java.io.Serializable, java.lang.CharSequence {

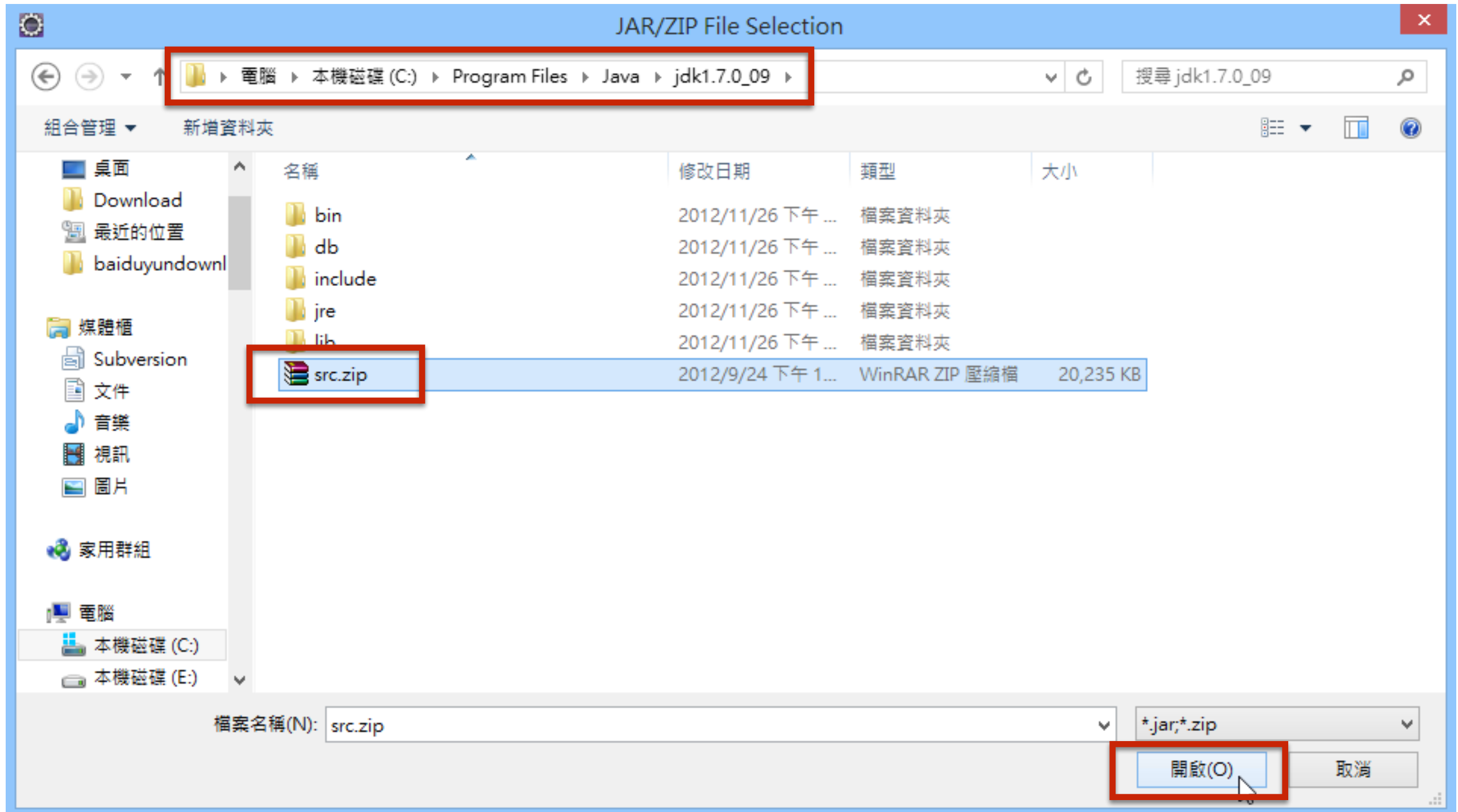
    // Field descriptor #32 J
    static final long serialVersionUID = 3388685877147921107L;

    // Field descriptor #37 [Ljava/io/ObjectStreamField;
    private static final java.io.ObjectStreamField[] serialPersistentFields;

    // Method descriptor #7 0V
    // Stack: 2, Locals: 1
    public StringBuffer();
    0 aload_0 [this]
    1 bipush 16
    3 invokespecial java.lang.AbstractStringBuilder(int) [285]
    6 return
```



Go to the jdk directory and pick src.zip





Source Attachment Configuration

Select the location (folder, JAR or zip) containing the source for 'rt.jar':

☐ Workspace location

Path:  Browse...

☒ External location

Path:  External File...

Encoding:  External Folder...

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# TortoiseSVN




- A SVN client (Windows only)
  - For Mac users, you can try to use command-line
    - a short installation note [here](#)
- You can access the svn repository like a file directory

http://tortoisesvn.net/downloads.html

# TortoiseSVN

the coolest interface to (Sub)version control

[Home](#)[About](#)[Downloads](#)[Translations](#)[Support/Docs](#)[Other tools](#)



## TortoiseSVN

### Info

- [About](#)  
*About TortoiseSVN*
- [Features](#)  
*Highlights of TortoiseSVN*
- [Screenshots](#)  
*Screenshots of various dialogs*
- [Testimonials](#)  
*What users say about TortoiseSVN*
- [News Archive](#)  
*News archive*


### Downloads


The current version is 1.8.3

For detailed info on what's new, read the [changelog](#) and the [release notes](#).


The current version 1.8.3 is linked against the Subversion library 1.8.4.

Please make sure that you choose the right installer for your PC, otherwise the setup will fail.

**for 32-bit OS**  
 **Download Now**  
sourceforge - Trusted for Open Source  
TortoiseSVN 1.8.3 - 32-bit

**for 64-bit OS**  
 **Download Now**  
sourceforge - Trusted for Open Source  
TortoiseSVN 1.8.3 - 64-bit

To verify the file integrity follow [these instructions](#).




LOOKING FOR AN SVN CLIENT FOR **MAC** OR **LINUX**?  
**Download SmartSVN**

### Support


- [FAQ](#)  
*Frequently asked questions*
- [Help files](#)  
*The complete documentation*
- [Useful tips](#)  
*Tips about not well known features*
- [Mailing lists](#)  
*Where to find the mailing lists*
- [Report bugs](#)  
*How and where to report a bug*
- [Translations](#)  
*Help translate*
- [Project status](#)  
*Overview of releases*

### Misc

- [Issue tracker plugins](#)  
*Plugins to connect with issue*

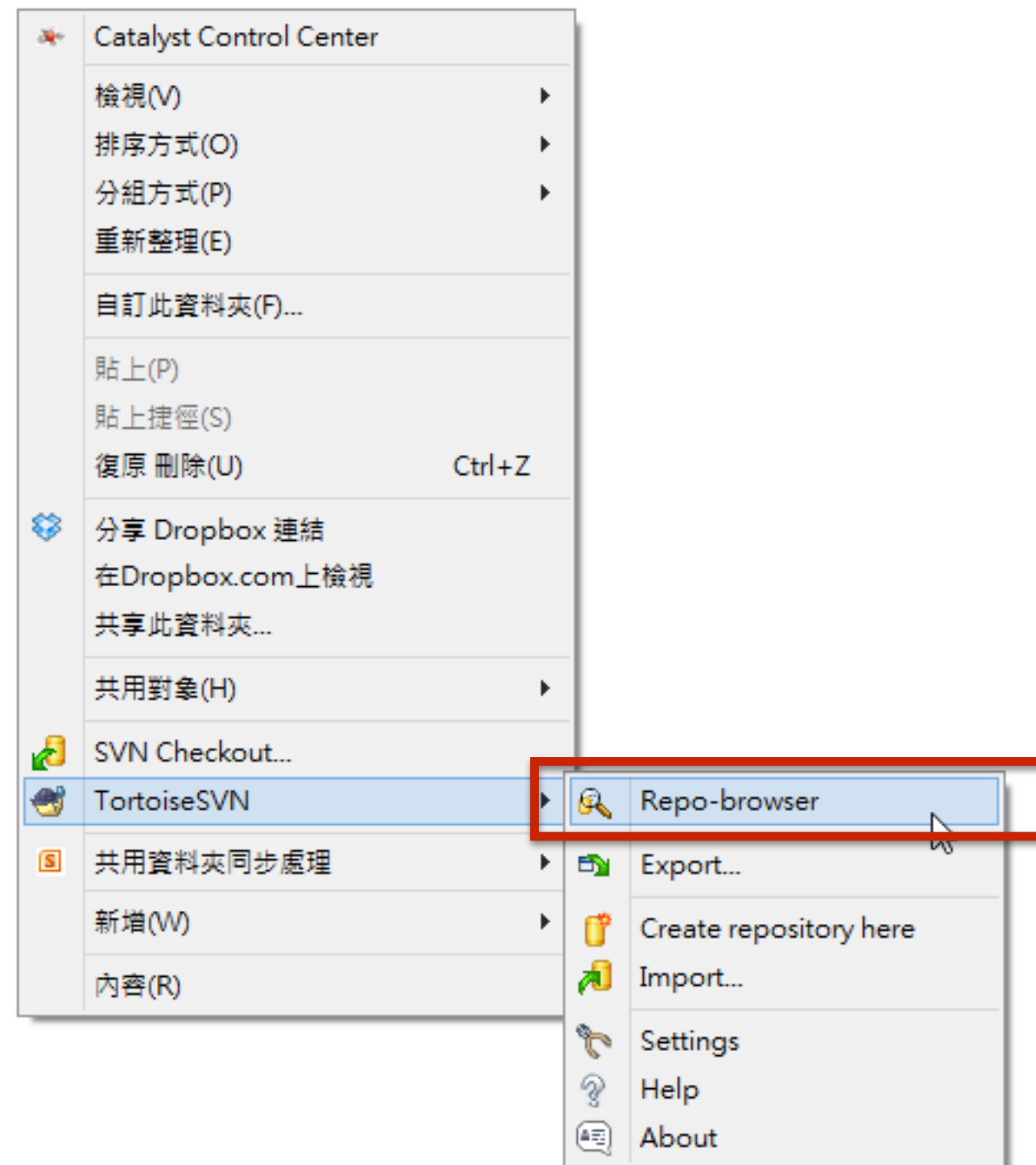
**Windows XP**

If you're installing TortoiseSVN 1.8 on Windows XP SP3, you must have the latest msi installer installed. You can get that installer from Microsoft:  
[Windows Installer 4.5 Redistributable](#)

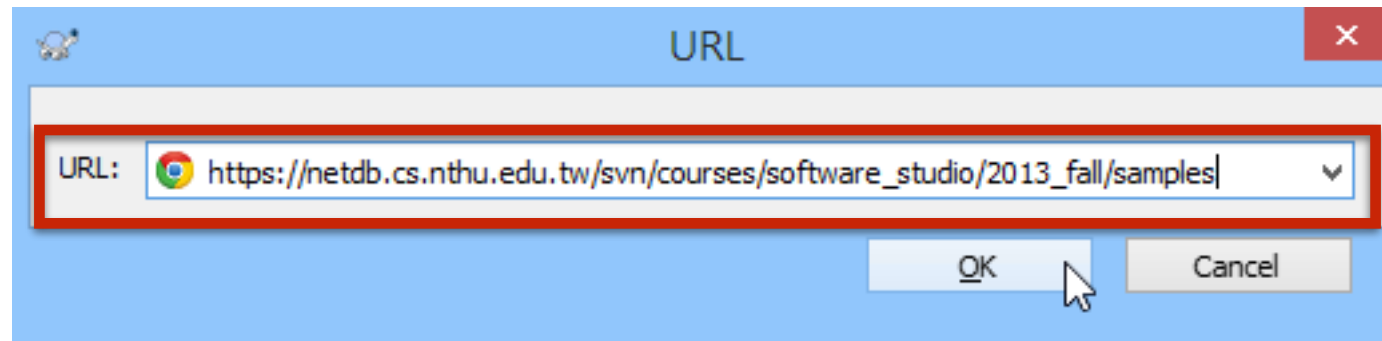
**Pre-Release Builds**

If there is a bug in the latest released version which you really cannot live with, and which has already been reported as fixed, then you can try installing a [pre-release build](#) from the stable release branch.

Right click on an arbitrary file directory or desktop



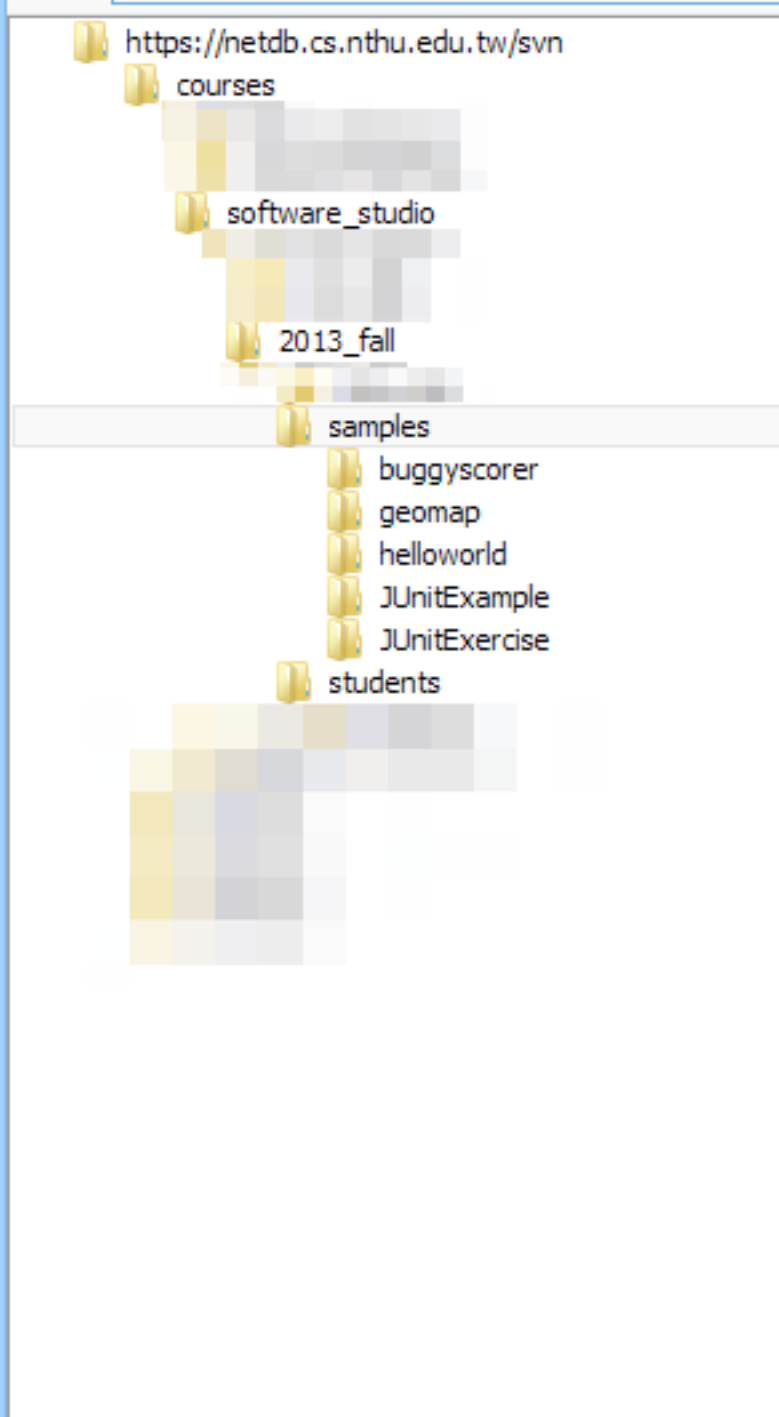
Enter the SVN repository url



URL: [https://netdb.cs.nthu.edu.tw/svn/courses/software\\_studio/2013\\_fall/samples](https://netdb.cs.nthu.edu.tw/svn/courses/software_studio/2013_fall/samples)

Revision:

HEAD



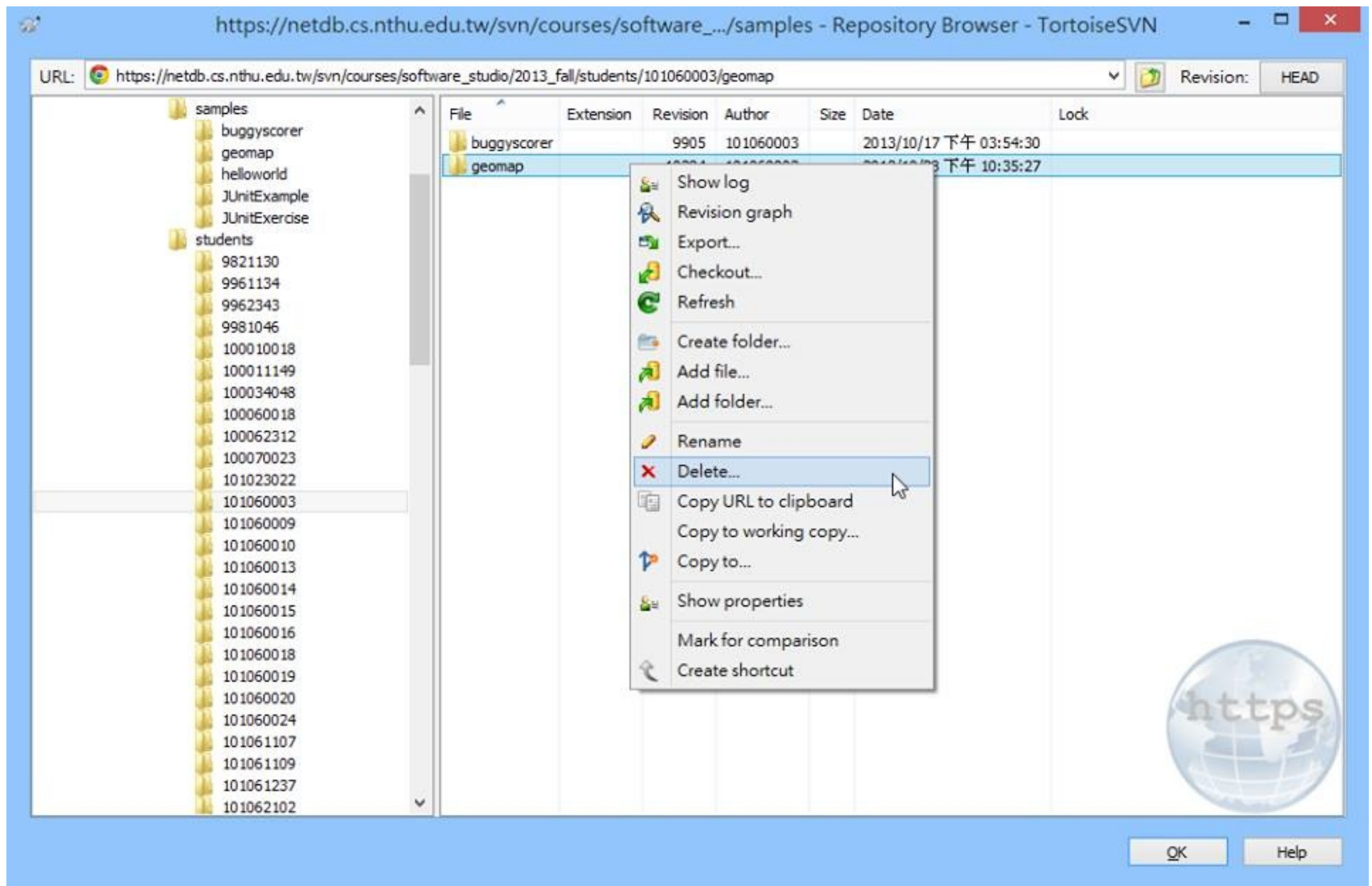
File	Extension	Revision	Author	Size	Date	Lock
buggyscorer		9723	yfliu		2013/10/16 下午 04:34:45	
geomap		10061	amy		2013/10/23 下午 05:01:47	
helloworld		9816	amy		2013/10/16 下午 07:21:21	
JUnitExample		10077	marcus		2013/10/24 下午 02:10:05	
JUnitExercise		10080	yfliu		2013/10/24 下午 02:29:06	



OK

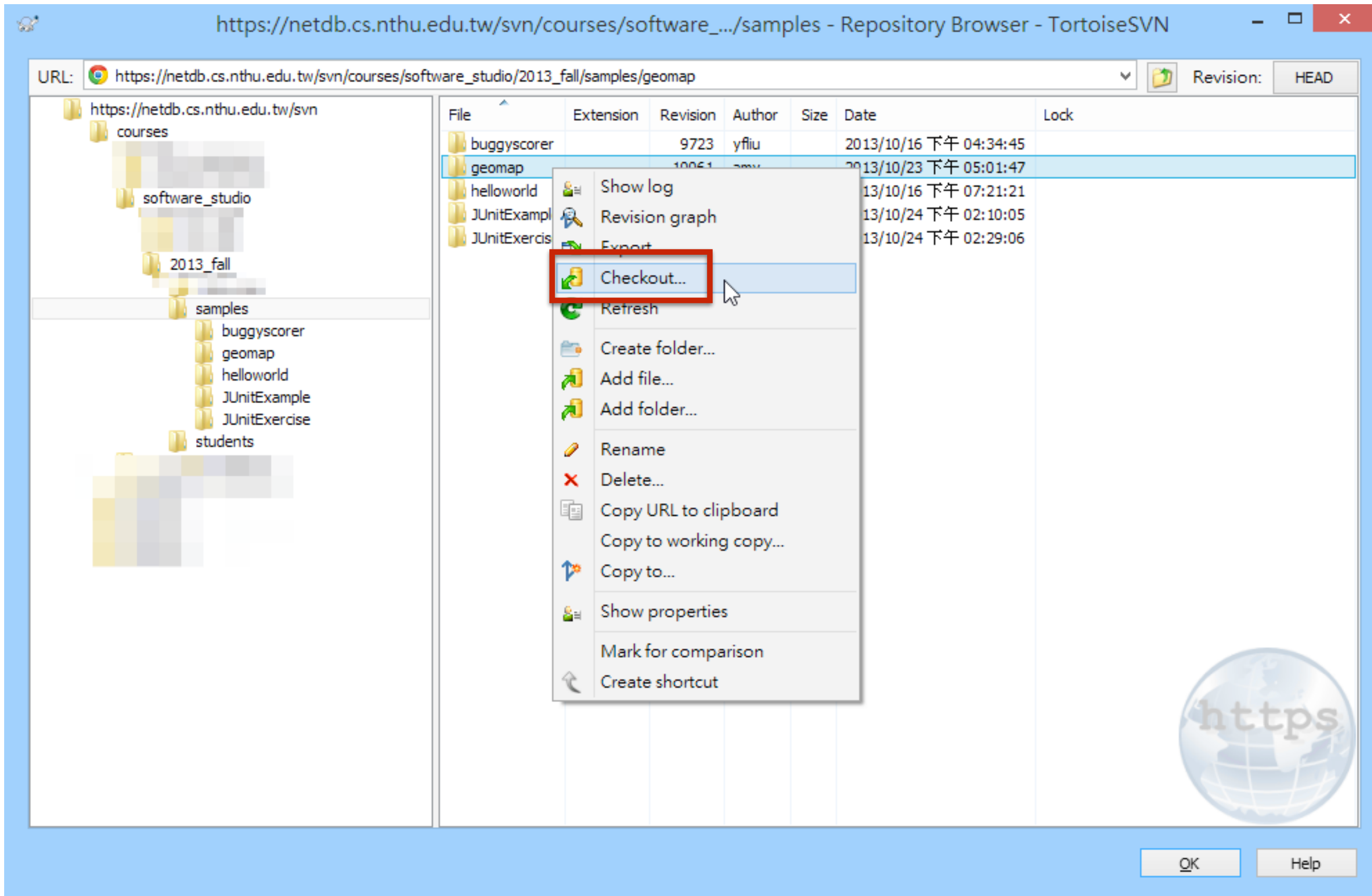
Help

# Delete project

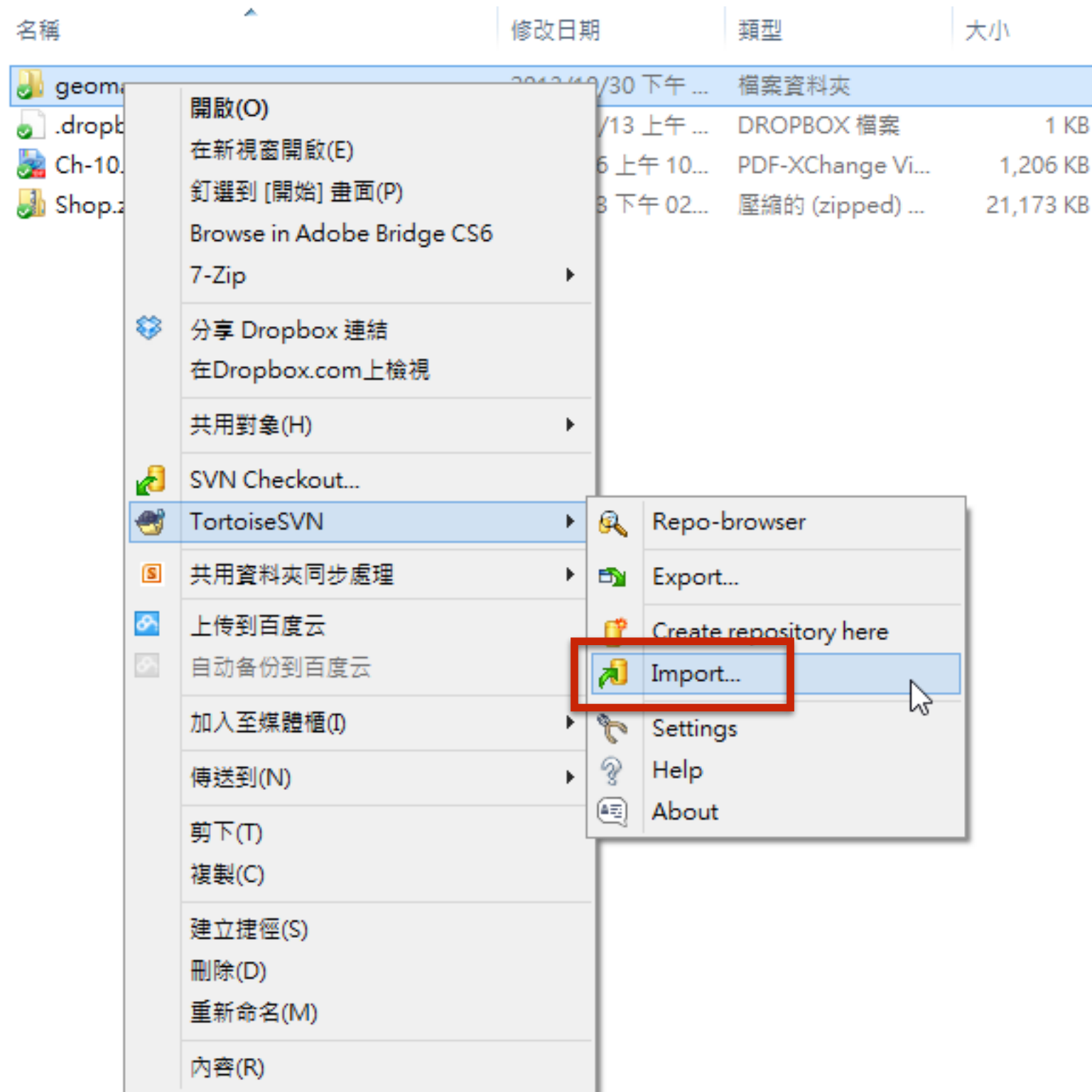


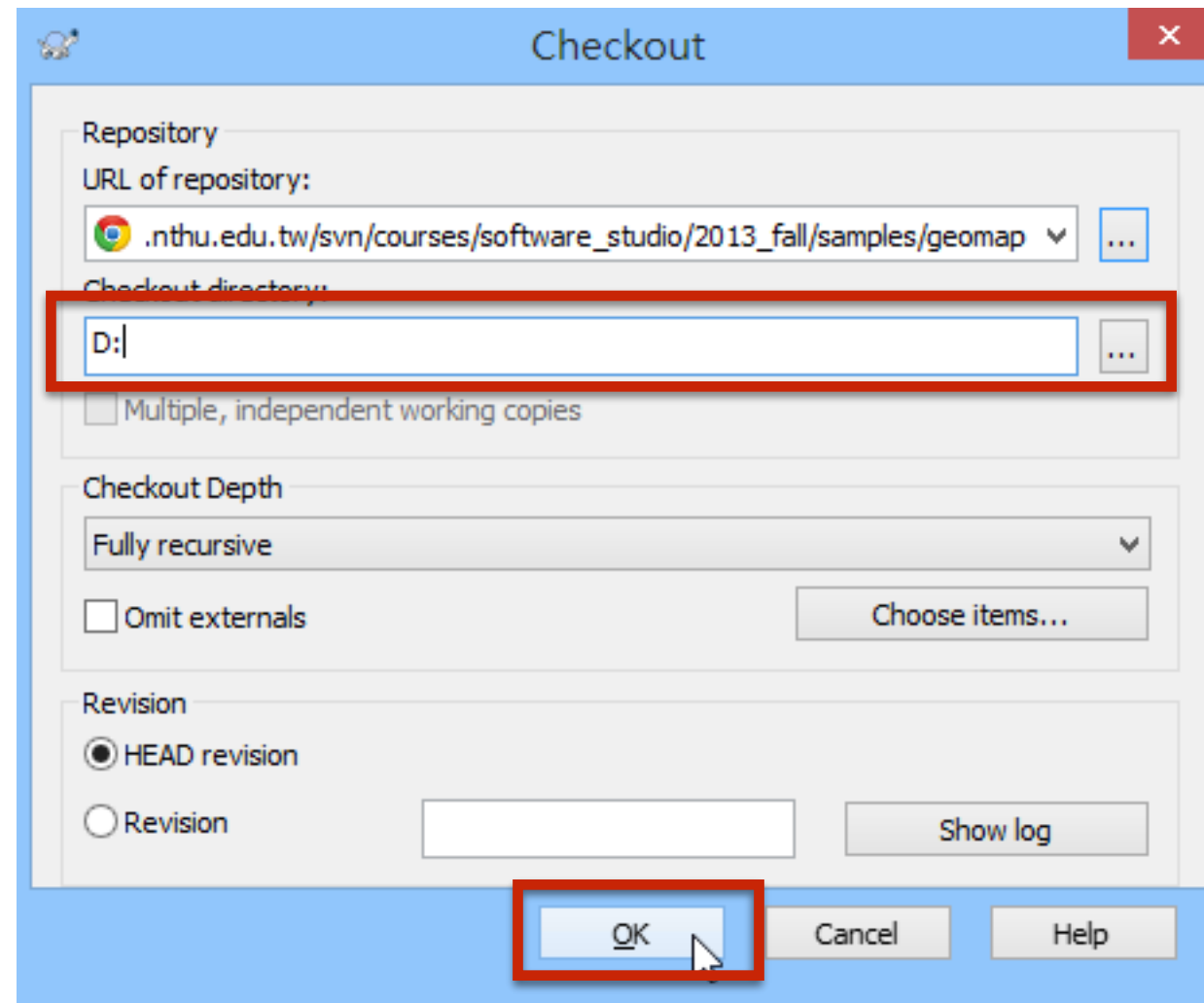


# Checkout project

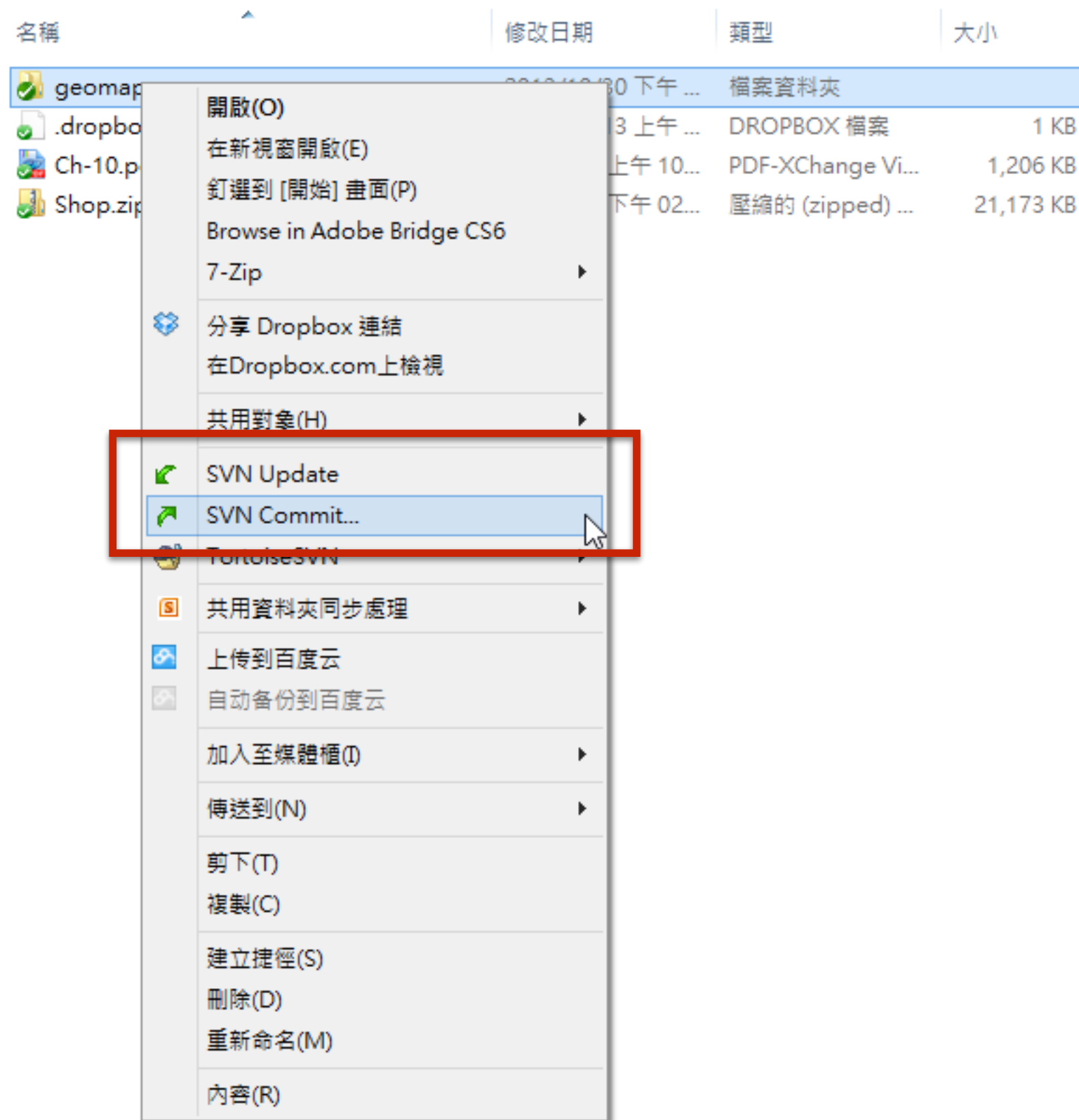


# Import project





# Commit and Update



名稱	修改日期	類型	大小
geomap	2012-11-30 下午...	檔案資料夾	
.dropbo	3 上午...	DROPBOX 檔案	1 KB
Ch-10.p	上午 10...	PDF-XChange Vi...	1,206 KB
Shop.zip	下午 02...	壓縮的 (zipped) ...	21,173 KB

- 開啟(O)
- 在新視窗開啟(E)
- 釘選到 [開始] 畫面(P)
- Browse in Adobe Bridge CS6
- 7-Zip
- 分享 Dropbox 連結  
在Dropbox.com上檢視
- 共用對象(H)
- SVN Update
- SVN Commit...
- TortoiseSVN
- 共用資料夾同步處理
- 上传到百度云
- 自动备份到百度云
- 加入至媒體櫃(I)
- 傳送到(N)
- 剪下(T)
- 複製(C)
- 建立捷徑(S)
- 刪除(D)
- 重新命名(M)
- 內容(R)

- Show log
- Repo-browser
- Check for modifications
- Revision graph
- Resolved...
- Update to revision...
- Revert...
- Clean up...
- Get lock...
- Release lock...
- Branch/tag...
- Switch...
- Merge...
- Export...
- Relocate...
- Add...
- Unversion and add to ignore list
- Create patch...
- Apply patch...
- Properties
- Settings
- Help
- About

Other functions

# Outline

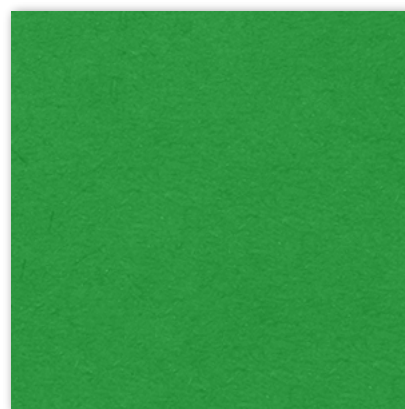
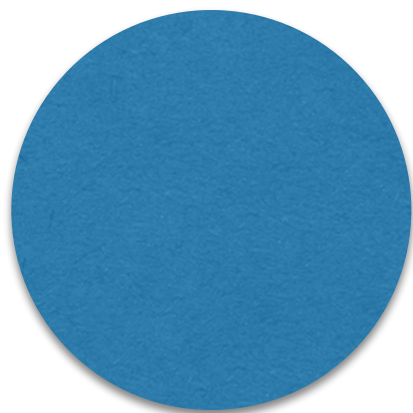
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# In Your Assignment 2

```
public Shape[] knnQuery(Point p, int k){  
    ...  
    if xxx instanceof Square  
    ...  
    if xxx instanceof Circle  
    ...  
}
```

What if we want to add another shape, **Triangle** ?

# The Shapes





# The Shapes

Shape

# The Shapes

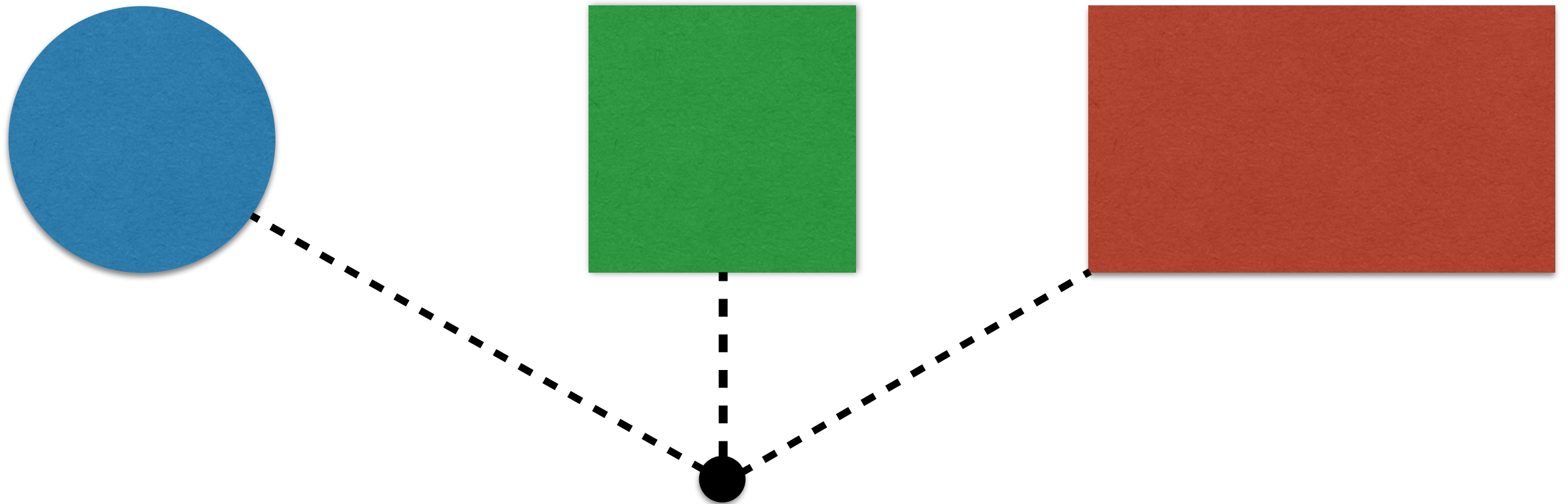
Shape

*getDistance(Point p);*

# The Shapes

Shape

*getDistance(Point p);*



# The Shapes

Shape

*getDistance(Point p);*

Circle

```
@Override  
getDistance(Point p){  
    .....  
}
```

Square

```
@Override  
getDistance(Point p){  
    .....  
}
```

Rectangle

```
@Override  
getDistance(Point p){  
    .....  
}
```

# The Shapes

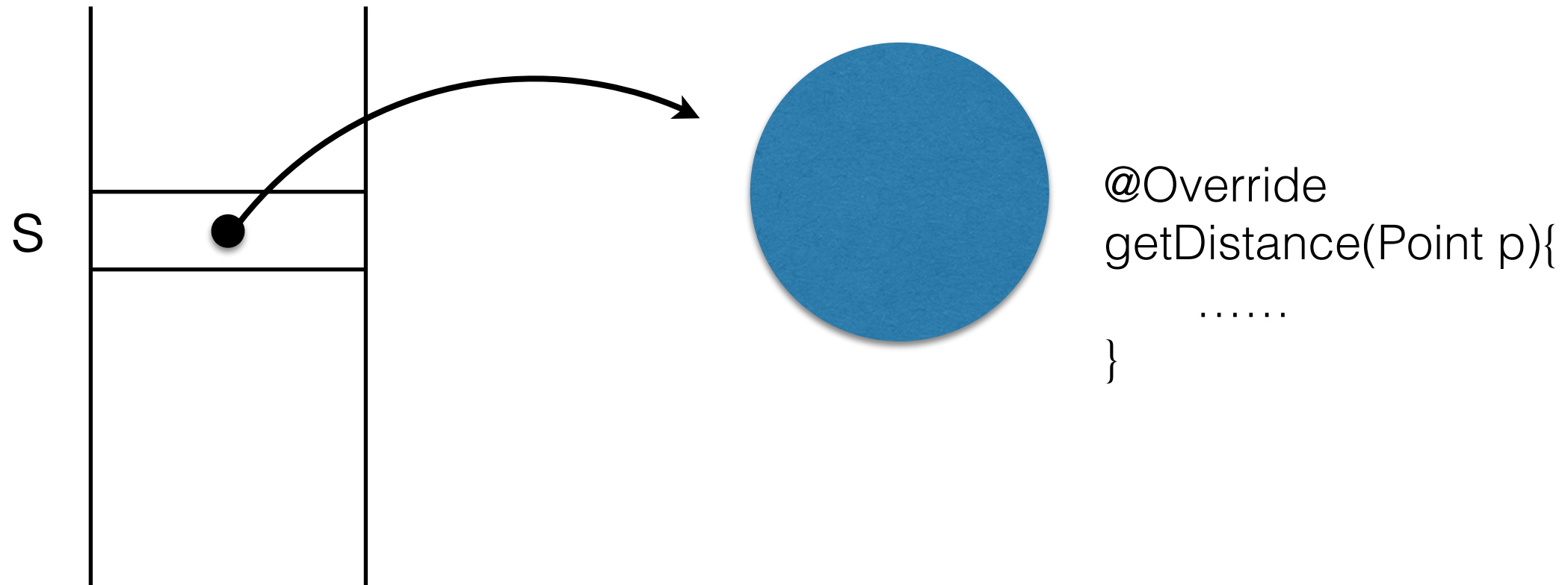
```
Shape s = new Circle(new Point(0,0), 1);
```

# The Shapes

```
Shape s = new Circle(new Point(0,0), 1);  
s.getDistance(new Point(2,0));
```

# The Shapes

```
Shape s = new Circle(new Point(0,0), 1);  
s.getDistance(new Point(2,0));
```



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```
public class Hero {  
    public int hp = 100;  
}  
  
main() {  
    Hero hero = new Hero();  
  
    .....  
    hero.hp -= 10;  
  
    .....  
    .....  
    .....  
    hero.hp -= 15;  
  
    .....  
    .....  
    hero.hp -= 10;  
}
```



```
public class Hero {  
    public int hp = 100;  
}  
  
main() {  
    Hero hero = new Hero();  
  
    .....  
    hero.hp -= 10;  
  
    .....  
    .....  
    .....  
    hero.hp -= 15;  
  
    .....  
    .....  
    hero.hp -= 10;  
  
}
```

100 / 100



```
public class Hero {  
    public int hp = 100;  
    public void die(){  
        .....  
    }  
}
```

100 / 100



```
main() {  
    Hero hero = new Hero();  
    .....  
    hero.hp -= 10;  
    if (hero.hp <= 0)  
        hero.die();  
    .....  
    .....  
    hero.hp -= 15;  
    if (hero.hp <= 0)  
        hero.die();  
    .....  
    .....  
    hero.hp -= 10;  
    if (hero.hp <= 0)  
        hero.die();  
}
```

100 / 100



# With Encapsulation



```
public class Hero {  
    private int hp = 100;  
  
    public int getHp(){  
        return hp;  
    }  
  
    public void setHp(int i){  
        hp -= i;  
    }  
  
    public void die(){  
        .....  
    }  
}
```



```
main() {  
    Hero hero = new Hero();  
    .....  
    hero.setHp(hero.getHp() - 10);  
    .....  
    .....  
    .....  
    hero.setHp(hero.getHp() - 15);  
    .....  
    .....  
    hero.setHp(hero.getHp() - 10);  
}
```





```
public class Hero {  
    private int hp = 100;  
  
    public int getHp(){  
        return hp;  
    }  
  
    public void setHp(int i){  
        hp -= i;  
        if (hp < 0)  
            die();  
    }  
  
    public void die(){  
        .....  
    }  
}
```

100 / 100



```
main() {  
    Hero hero = new Hero();  
    .....  
    hero.setHp(hero.getHp() - 10);  
    .....  
    .....  
    .....  
    hero.setHp(hero.getHp() - 15);  
    .....  
    .....  
    hero.setHp(hero.getHp() - 10);  
}
```

100 / 100



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# Today's Mission

- Implement a RPG combat system
  - Creature
    - Hero
      - Warrior
      - Mage
    - Monster
      - Wolf
      - Goblin

# In Your main()

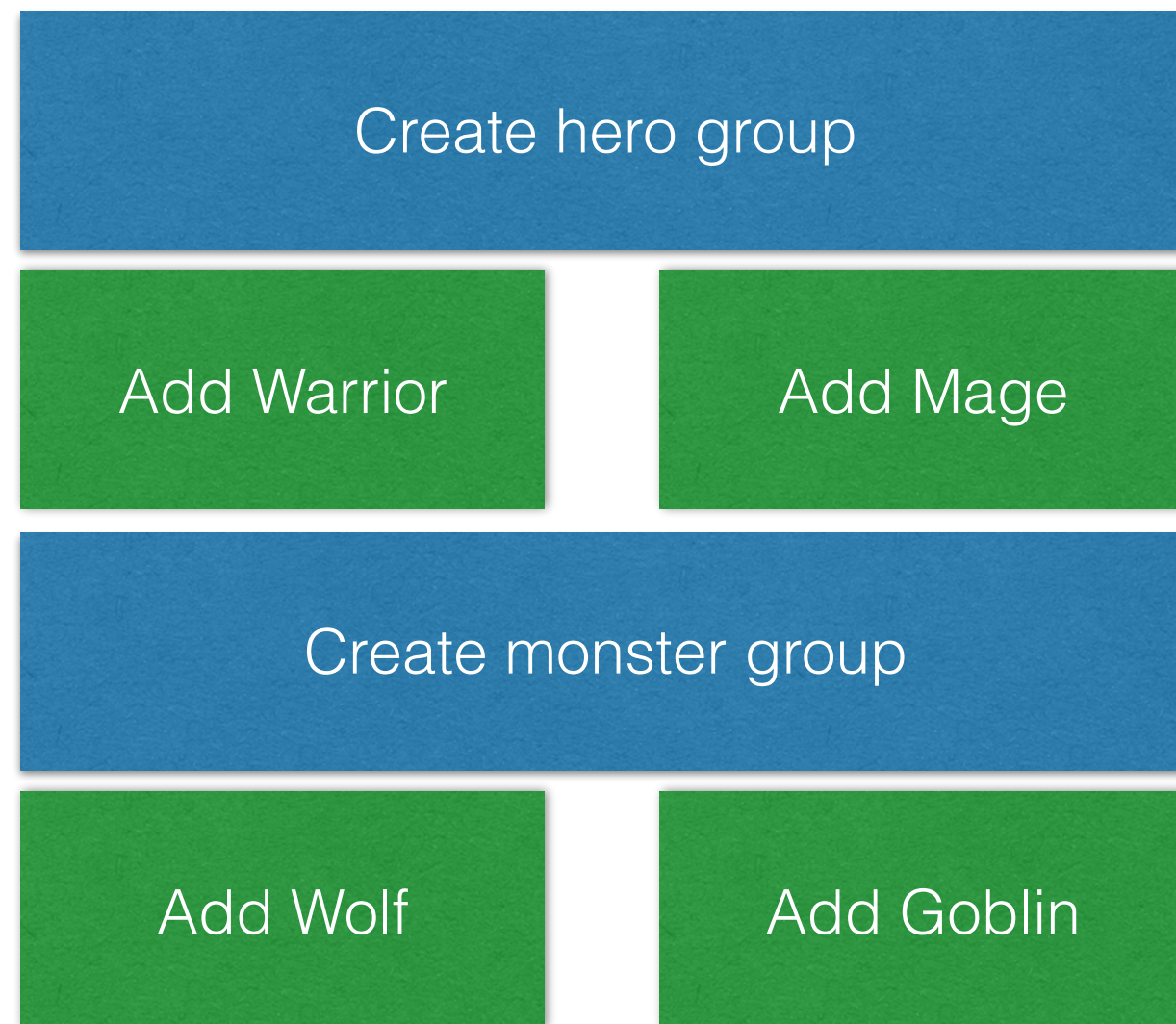
- Initialize

Create hero group

Create monster group

# In Your main()

- Initialize



# In Your main()

- Combat Loop

Hero Group attack Monsters

Monster Group attack Heroes

Attack the first creature in the group

# In Your main()

- When one group have no creature alive

break

Print the final message



# Requirement

- Hero and Monsters are all Creatures
  - They can attack another creature
    - `attack(Creature creature)`
    - Attack damage is equal to their *strength*
  - A creature will take damage from another creature
    - `takeDamage(int strength)`
    - Receive damage will minus their *defence*

# Requirement

- A string will be printed in the console when each creature is attacking or under attack
- ex.
  - 冒險者用匕首刺中了 xxx
  - 哥布林吐出一口憤怒的咆哮，受到了 3 點傷害

# Requirement

- The combat log printed on screen will be unique for each creature attack / takeDamage
- attack
  - 冒險者用匕首刺中了xxx
  - 魔狼狠狠的撕咬 xxx
  - 哥布林用棍棒砸向 xxx 的頭
- takeDamage
  - 冒險者踉蹌倒退了一步，受到 x 點傷害
  - 受到了 x 點傷害，魔狼兇狠的嗷嗷地叫了叫
  - 哥布林滿嘴咆哮，受到了 x 點傷害

# Requirement

- 2 people per group
- Design the architecture first
- Follow the principle in today's lecture
- Deadline: 18:00