







Introduction to Game Framework

CSIE Department, NTUT

Woei-Kae Chen

UML Notation

- Association  (knows a)
- Dependency  (uses a)
- Composition  (has a)
- Aggregation  (has a)
- Inheritance  (is a)
- Class template 

Three options

Windows



Android



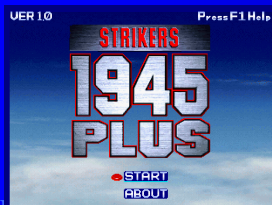
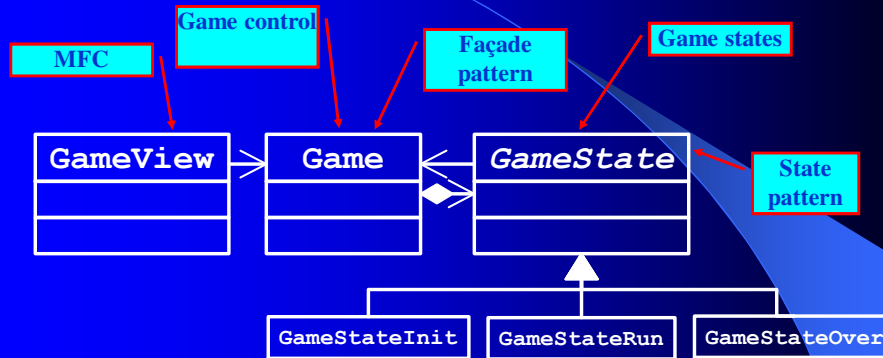
HTML5



Box2D

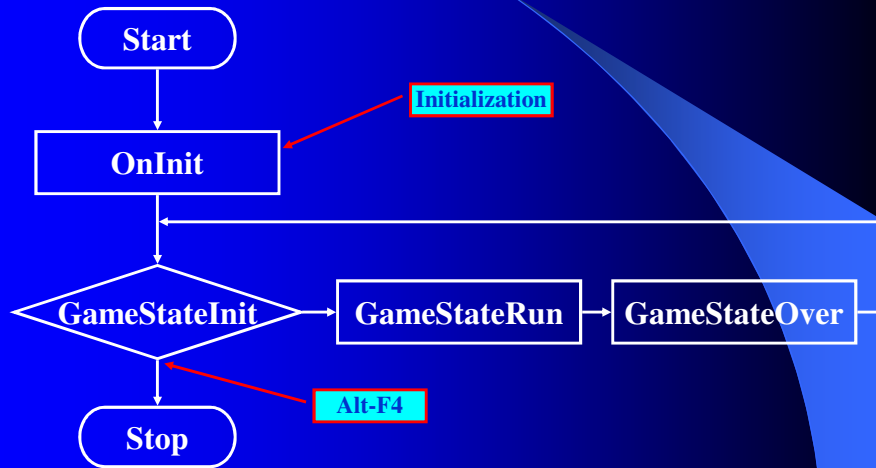
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Game Framework: Game control



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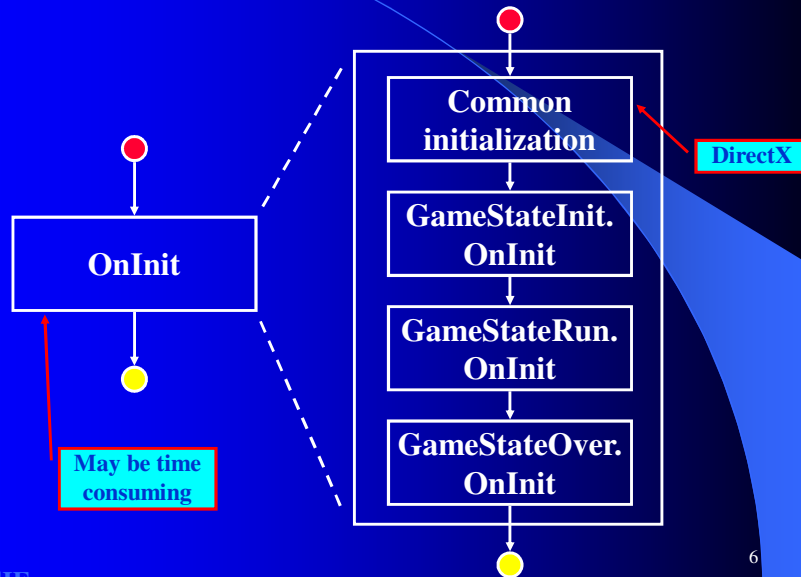
Game Framework: Program Flow



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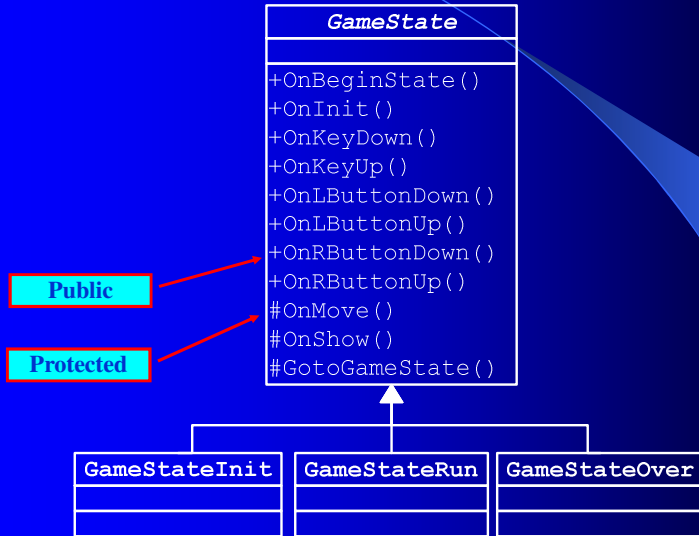
Game Framework: Initialization



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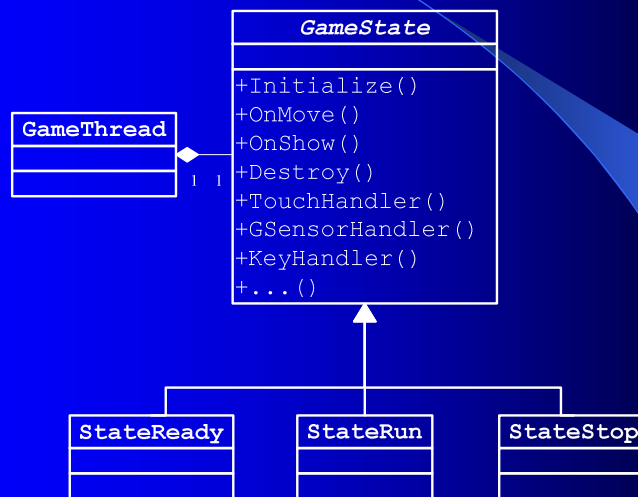
Game Framework: GameState



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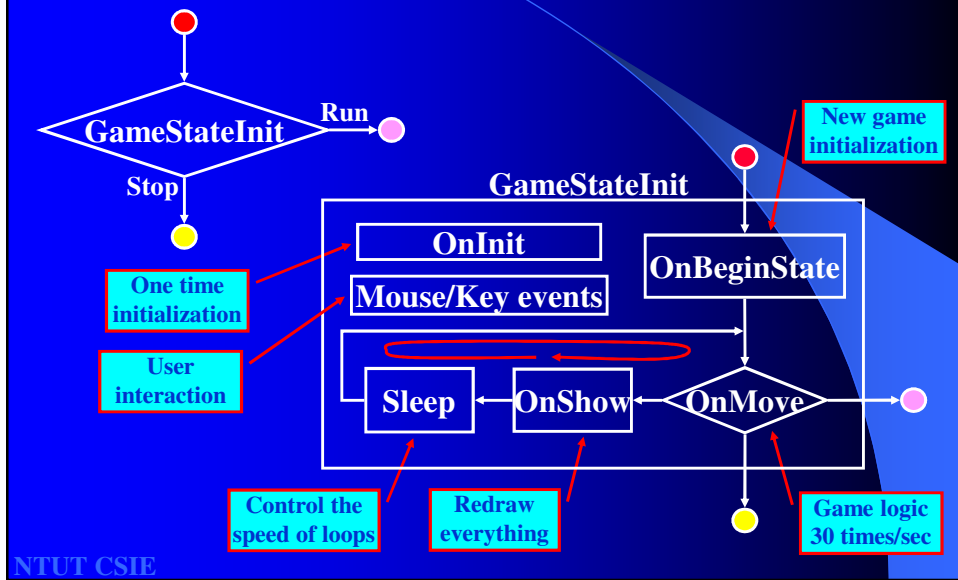
Android Game Framework: GameState



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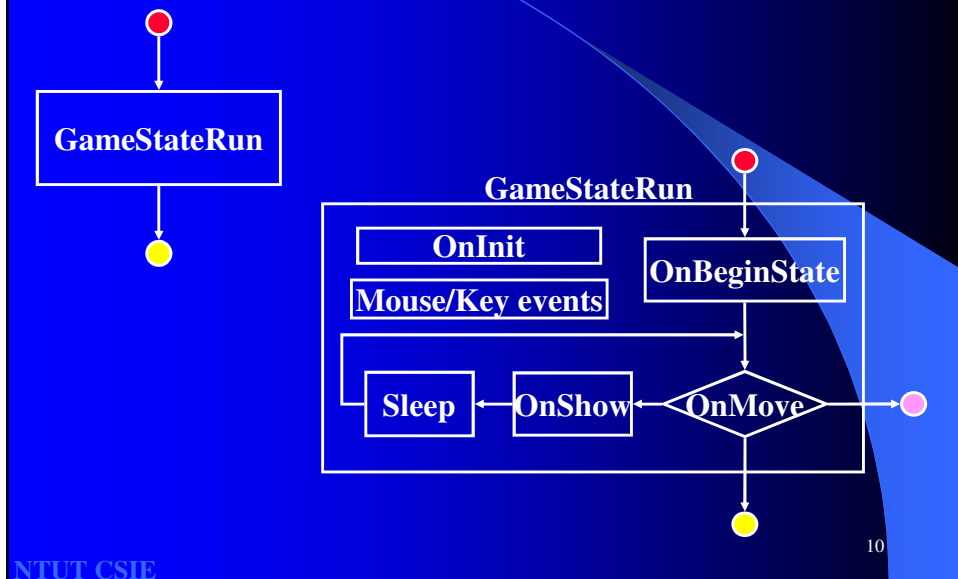
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Game Framework: GameStateInit



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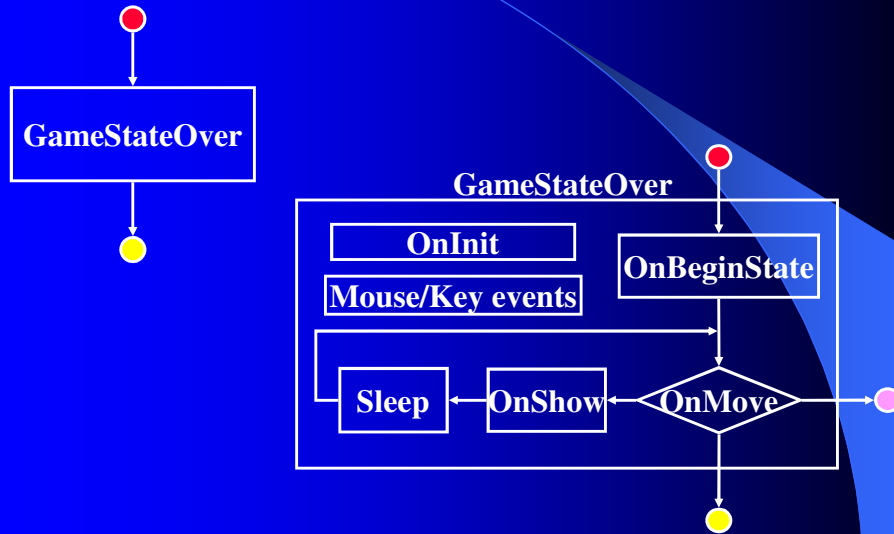
Game Framework: GameStateRun



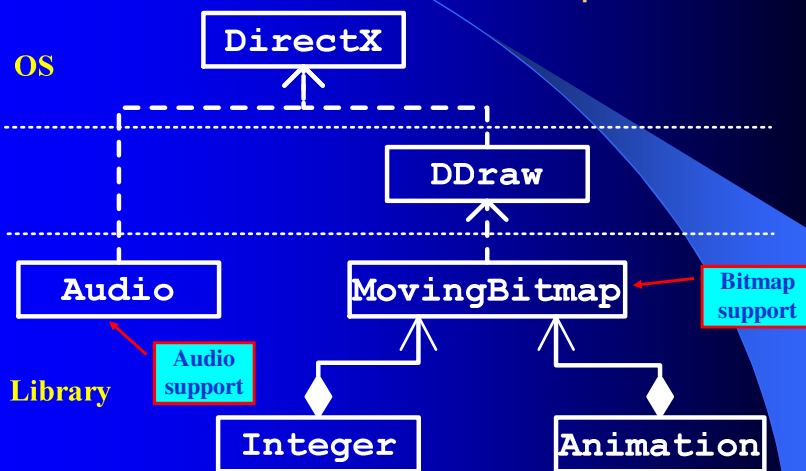
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Game Framework: GameStateOver



Game Framework: Bitmap and Audio



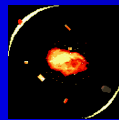
Game Framework: Bitmap and Audio

CMovingBitmap

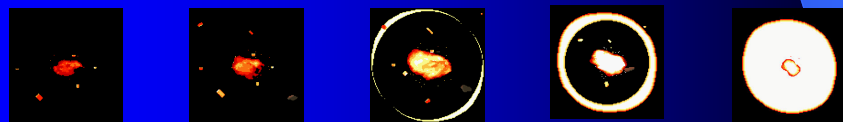
```
+LoadBitmap()
+SetTopLeft()
+ShowBitmap()
+...()
```

CAudio

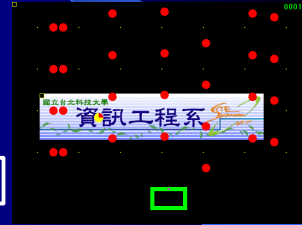
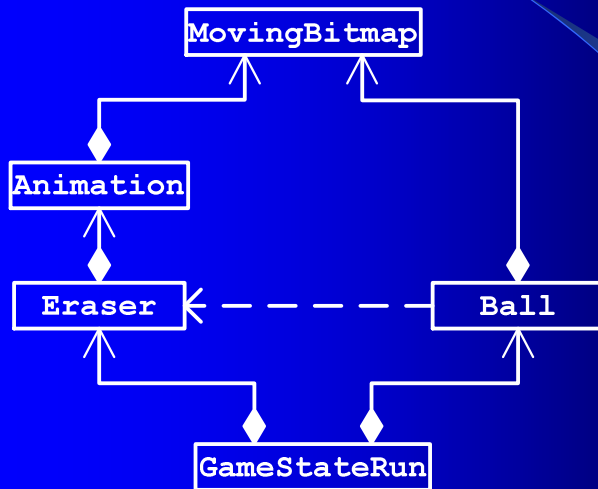
```
+Instance()
+Load()
+Play()
+Pause()
+Resume()
+Stop()
```



Game Framework: Animation



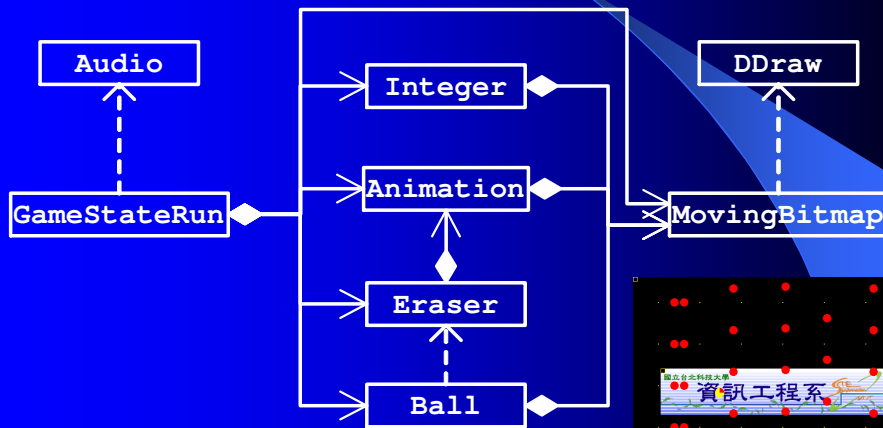
Game Framework: Sample program (1/2)



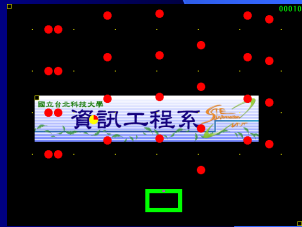
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Game Framework: Sample program (2/2)



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Game Framework: Options (gamelib.h)

- **Screen resolution and control**

OPEN_AS_FULLSCREEN Default: false
SIZE_X Default: 640
SIZE_Y Default: 480
DEFAULT_BG_COLOR Default: RGB(0,0,0)

- **Game control**

SHOW_LOAD_PROGRESS Default: true
ENABLE_GAME_PAUSE Default: true
GAME_CYCLE_TIME Default: 33 (ms)

- **Audio**

AUDIO_ENABLE Default: true

Game Framework: Tutorials

- **Tutorial 1 (Prepare a Bitmap)**

- 1A: Create a bitmap Resource by using copy and paste
- 1B: Import a bitmap Resource from a bmp file
- 1C: Use a bitmap file (bmp file) directly

- **Tutorial 2 (Display a Bitmap)**

- 2A: Display the bitmap created by 1A or 1B
- 2B: Display the bitmap prepared by 1C
- 2C: Display a bitmap with a transparent color

- **Tutorial 3**

- Move the Bitmap

- **Tutorial 4**

- Wrap the codes of tutorial 2 and 3 into a class

- **Tutorial 5**

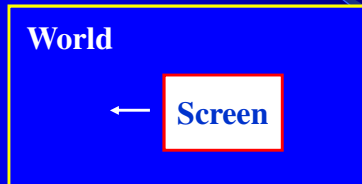
- Create a Map class that use an 2D array to represent the map of a game

- **Deployment**

- Create a setup file for installation

Game Framework: Documents

- Introduction to game map and coordinate systems



- Teamwork
 - Overview
 - Checkout code from Subversion server
 - Commit code to Subversion server
 - Resolving Conflict

How to choose your game

- Find a game and ask TA and/or instructors
 - Show your game to TA and/or instructors
- Windows: the following games are not recommended
 - 飛行射擊遊戲、炸彈超人、雪人兄弟
 - 超級瑪莉、坦克大戰、泡泡龍
 - 打磚塊、守塔、2D絕對武力CS(小小CS)

Important Reminders

- Mimic a game, not creating a new game
- Programming first, art-work last
 - Minimize art-work as much as possible
- Read “遊戲地圖與座標系統概論” (if necessary)
- Programming
 - Keep your code clean
 - If you have a question related to design, ask the TA or instructor
- Teamwork
 - Split programming and art-work evenly
 - Try pair programming
 - Use SVN

Important Reminders

- Keep bitmap size small
 - Keep the size of any bitmaps less than twice the size of the screen resolution (e.g., for 640x480 resolution, a bitmap should not be larger than 1280x960)
- Time log
 - Self-management
- Debug
 - Learn to use a debugger
- Let TA know when the followings are done
 - One of the followings
 - Windows tutorial #7
 - Android tutorial #6
 - HTML tutorial #5
 - Teamwork Copy-Modify-Merge

Important Reminders

- When you leave the computer room
 - If you use your own NB, please make sure you did not unplug anything – the computer should work as is
 - Turn off both computer and **monitor**

徵求HTML5勇士

- 新版HTML5提供自動測試功能
 - 徵求使用HTML5的組別，在遊戲開發過程中使用此功能，並做詳細記錄
 - 提供獎金獎勵參加者
 - 不能用Box2D