

# Dungeon Report\_109550042

## Implementation

```
main → runDungeon() → startGame() → while(checkGameLogic())
{chooseAction()}}

startGame() → loadFromFile() → room.set()
                → player.set()
                → createPlayer() → player.set()

chooseAction() → handleMovement() → player.changeRoom()
                → player.triggerEvent()
                → saveToFile() → room.get()
                        → player.get()
                → player.getInventory()
                → handleEvent() → obj→triggerEvent() → listCommodity()
                                                → item.output()
                                                → player-

>increaseStates()

                                                → player→addItem()
                                                → player→showStatistic()
                                                → monster→output()
                                                → monster-

>setCurrentHealth()

                                                → monster-

>getCurrentHealth()

                                                → player-

>setCurrentHealth()

                                                → player-

>getCurrentHealth()

                                                → checkmonster()
                                                → checkplayer()
                                                → player.getCurrentRoom() → popObject()
```

剩下太瑣碎就不列出了...

實作code附在檔案中。

## Actions Menu

### 1. 一般房間Actions Menu:

```
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
█
```

### 2. 有NPC房間的Actions Menu:

```
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Talk to Secret Scholar.  
█
```

### 3. 有Item房間的Actions Menu:

```
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Pick up the Sword.  
    Sword  
    Health: 0  
    Attack: 40  
    Defense: 0  
█
```

### 4. 有怪物房間的Actions Menu:

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Fight against Monster3.
    Health: 500
    Attack: 170
    Defense: 10
    Coin: 100
█
```

5. 也可以同時有Item, NPC 或 Monster的選單:

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Pick up the Legendary right hand.
    Legendary right hand
    Health: 0
    Attack: 400
    Defense: 0
5: Pick up the Legendary left hand.
    Legendary left hand
    Health: 0
    Attack: 0
    Defense: 200
6: Pick up the Legendary right leg.
    Legendary right leg
    Health: 600
    Attack: 70
    Defense: 20
7: Pick up the Legendary left leg.
    Legendary left leg
    Health: 800
    Attack: 50
    Defense: 30
8: Pick up the Legendary heart.
    Legendary heart
    Health: 6000
    Attack: 250
    Defense: 300
9: Talk to The Maze Spirit.
█
```

## • Movement (15%)

1. 在第一點的Actions Menu中, 輸入0, 則會跑出Movement列表:

```
-----  
0: Go up.  
1: Go down.  
2: Go left.  
3: Go right.  
4: Go back.  
5: Cancel.  
Choose an direction to move: █
```

此列表中有上下左右後可以選擇。

ps. 我的Enhancement是設計3D迷宮，三維房間，所以比其他人多了兩個方向可以移動。

當我選擇某個方向移動後，會出現下列訊息，顯示該房間的index，以及其Actions Menu.

```
Choose an direction to move: 0  
  
You have gone up.  
You are in the room 2.  
  
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Pick up the Sword.  
    Sword  
    Health: 0  
    Attack: 40  
    Defense: 0  
█
```

## • Showing Status (10%)

1. 在第一點的Actions Menu中，輸入1，則會Showing status:

```
-----
Your status are:
Current room: 2
previous room: 1
(Enter anything to continue...)

Max health: 800
Current health: 800
Attack: 50
Defense: 0
Coin: 0
(Enter anything to continue...)

You have the following items:

Living Water
Health: 0
Attack: 0
Defense: 0
```

並顯示出原本房間的Actions Menu:

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Pick up the Sword.
    Sword
    Health: 0
    Attack: 40
    Defense: 0
```

2. Showing Status 中包括:

1. 當前房間

```
-----
Your status are:
Current room: 2
previous room: 1
(Enter anything to continue...)
```

2. 戰鬥數值

```
Max health: 800
Current health: 800
Attack: 50
Defense: 0
Coin: 0
(Enter anything to continue...)
```

### 3. 玩家物品欄

```
You have the following items:

Living Water
Health: 0
Attack: 0
Defense: 0
```

## • Showing Backpack (自己增加)

1. 在第一點的Actions Menu中，輸入2，則會Showing Backpack:

```
-----
You have the following items:

Living Water
Health: 0
Attack: 0
Defense: 0
```

並顯示出原本房間的Actions Menu:

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Pick up the Sword.
    Sword
    Health: 0
    Attack: 40
    Defense: 0
```

## • Pick up Items (10%)

1. 在有Item的房間的Actions Menu:

```
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Pick up the Sword.  
    Sword  
    Health: 0  
    Attack: 40  
    Defense: 0  
█
```

可以選擇4: "Pick up the Item."，會出現已成功撿起，  
並顯示出原本房間的Actions Menu:

```
-----  
You picked up an Sword.  
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
█
```

## • Fighting System (15%)

1. 有怪物房間的Actions Menu:

```
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Fight against Monster1.  
    Health: 170  
    Attack: 50  
    Defense: 0  
    Coin: 30  
█
```

可以選擇4: "Fight against Monster."，則會出現戰鬥系統。  
戰鬥系統一開始會顯示Monster的status以及玩家的status:

```
-----  
You are facing with: Monster1.  
Here are Monster1's information:  
Health: 170  
Attack: 50  
Defense: 0  
Coin: 30  
  
Your status are:  
Max health: 800  
Current health: 800  
Attack: 90  
Defense: 0
```

接下來會顯示輪流攻擊的戰鬥過程，以及怪物或玩家的當前血量：

```
It's your turn:  
You attack monster by 90.  
Monster1 still has 80 points of health.  
(Enter anything to continue...)  
  
It's Monster1's turn:  
Monster1 attack you by 50.  
You still have 750 points of health.  
(Enter anything to continue...)  
█
```

經過一回合後，會出現是否要撤退的選項

```
Input "retreat" to retreat from Monster1, otherwise, keep fighting.  
█
```

1. 若選擇繼續，則會繼續下一回合：  
若此時Monster的血量已歸零，則出現勝利畫面：

```
It's your turn:  
You attack monster by 90.  
You win! You defeated Monster1!  
You get 30 coin.  
(Enter anything to continue...)  
█
```

並回到Actions Menu，此時Monster已被擊敗，從房間中消失，故選單中沒有Monster:



```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
█
```

2. 若輸入"retreat", 則退出戰鬥, 並顯示出原本房間的Actions Menu:

```
Input "retreat" to retreat from Monster2, otherwise, keep fighting.
retreat
You retreat!
```

此時仍會看到Monster在選單內, 且其血量回覆到最大值。

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Fight against Monster2.
    Health: 200
    Attack: 25
    Defense: 60
    Coin: 70
█
```

2. 若玩家戰敗: 出現Game Over, 並結束執行。

```
It's Monster3's turn:
Monster3 attack you by 170.

You lose! Monster3 defeated you!

-----
----- Game Over -----
-----

~/桌 / 課 / 資 / Dungeon █
```

## • NPC (10%)

PS. 我的NPC分成兩種，這是我的另一個Optional Enhancement.

1. 有劇情類NPC房間的Actions Menu:

```
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Talk to Secret Scholar.  
█
```

可以選擇4: "Talk to Secret Scholar.", 則會出現NPC對話。

"Secret Scholar"是一種劇情類NPC，只會看到他的劇情台詞：

```
-----  
The warrior...  
Becareful...  
(Enter anything to continue...)
```

在劇情類NPC不能買東西。

```
-----  
You have 30 coins.  
You have nothing to buy.
```

輸入0以離開，並顯示出原本房間的Actions Menu, NPC 不會消失。

```
0: Leave.  
0  
Good bye!  
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Talk to Secret Scholar.  
█
```

## 2. 有商店類NPC房間的Actions Menu:

```
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Talk to Travel Merchant.  
█
```

可以選擇4: "Talk to Travel Merchant.", 則會出現NPC對話。  
"Travel Merchant"是一種劇情類NPC, 會先看到他的劇情台詞:

```
-----  
Wellcome to my shop...  
None of people leaving here alive before...  
(Enter anything to continue...)  
█
```

再看到玩家金錢與可購買的商品清單:

```
-----  
You have 30 coins.  
You can buy the following item:  
  
0: Courage stone  
Health: 100  
Attack: 0  
Defense: 0  
Price: 40  
  
1: Power stone  
Health: 0  
Attack: 10  
Defense: 0  
Price: 30  
  
2: Firm stone  
Health: 0  
Attack: 0  
Defense: 10  
Price: 30  
  
3: Leave.  
█
```

可以選擇0~2任意商品購買，或是3離開。

1. 購買成功，顯示已成功購買，並顯示原本房間的Actions Menu, NPC 不會消失。

```
-----  
You have successfully bought Power stone!  
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Talk to Travel Merchant.  
█
```

2. 購買失敗，金錢不足，顯示原本房間的Actions Menu, NPC 不會消失。

```
You do not have enough money!!! Get out of here!!!  
-----  
You have the following options:  
0: Move.  
1: Status.  
2: Backpack.  
3: Leave.  
4: Talk to Travel Merchant.  
█
```

## • Game Logic (10%)

每次顯示房間的Actions Menu前，會先判斷Game Logic.

1. 如果玩家血量歸零，會出現Game Over.

```
It's Monster3's turn:
Monster3 attack you by 170.

You lose! Monster3 defeated you!

-----
----- Game Over -----
-----

[icon] ~/桌/課/資/Dungeon [icon]
```

2. 如果在終點房打敗BOSS後，Actions Menu會出現"Exit"選項。

```
It's your turn:
You attack monster by 410.
You win! You defeated Final Boss!
You get 99999 coin.
(Enter anything to continue...)

-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Exit (Victory).
[icon]
```

選擇離開，會出現Victory，並結束執行。

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Exit (Victory).
4

-----
----- Victory -----
----- You Won The Game -----
-----

~/桌 /課 /資 /Dungeon
```

3. 如果在Actions Menu選 3: "Leave.", 不論選擇是否存檔, 會出現"You quit game.".

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Talk to Secret Scholar.
3

-----
0: Record game status.
1: Leave without saving.
2: Cancel.
0

You quited game.
~/桌 /課 /資 /Dungeon
```

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
4: Talk to Secret Scholar.
3

-----
0: Record game status.
1: Leave without saving.
2: Cancel.
1

You quited game.
~/桌 /課 /資 /Dungeon
```

## • Record System (10%)

1. 在每個房間的Actions Menu中，皆有3: "Leave." 的選項。

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
█
```

輸入3後，會出現存檔與否的選項：

```
-----
You have the following options:
0: Move.
1: Status.
2: Backpack.
3: Leave.
3

-----
0: Record game status.
1: Leave without saving.
2: Cancel.
█
```

1. 選擇0存檔：

```
-----
0: Record game status.
1: Leave without saving.
2: Cancel.
0

You quited game.
~/桌 /課 /資 /Dungeon
```

2. 選擇1，直接離開不存檔：

```
-----
0: Record game status.
1: Leave without saving.
2: Cancel.
1

You quited game.
~/桌 /課 /資 /Dungeon
```

2. 存檔方式：在Dungeon資料夾建立文字檔，以固定的格式將目前狀態寫入檔案，讀取時再按照格式讀進來。

檔案格式如下(太長，分三區塊截圖)：



```

12
-1 -1 -1 -1 1 -1 0
0
0
0
2 3 5 4 10 0 0
0
1
Secret Scholar
The warrior...
Becareful...
-asdfghjkl-
0
0
-1 1 -1 -1 6 -1 0
1
Sword
0 40 0
0
0
1 -1 -1 -1 7 -1 0
0
1
Travel Merchant
Wellcome to my shop...
None of people leaving here alive before...
-asdfghjkl-
3
Courage stone
100 0 0 40
Power stone
0 10 0 30
Firm stone
0 0 10 30
0
-1 -1 1 -1 8 -1 0
0
0
1
Monster2
200 200 25 60 70
-1 -1 -1 1 9 -1 0
0
0
1
Monster3
500 500 170 10 100
-1 -1 -1 -1 -1 2 0
0

```

```

0
1
Monster1
170 170 50 0 30
-1 -1 -1 -1 -1 3 0
0
0
1
Monster4
1000 1000 50 100 20
-1 -1 -1 -1 -1 4 0
1
Shield
0 0 30
0
0
-1 -1 -1 -1 -1 5 0
1
Cure potion
400 0 0
0
0
-1 -1 -1 -1 11 1 0
5
Legendary right hand
0 400 0
Legendary left hand
0 0 200
Legendary right leg
600 70 20
Legendary left leg
800 50 30
Legendary heart
6000 250 300
1
The Maze Spirit
Wellcome, Warrior...
You are the first person I see in the past thousand years.
-asdfghjkl-
0
0
-1 -1 -1 -1 -1 10 1
0
0
1
Final Boss
24799 24799 700 500 99999
PlayerName
800 800 50 0 0

```

```

0 -1
1
Living Water
0 0 0

```

## Optional Enhancement (10%)

### 1. 3D迷宮(3%):

不像其他人只有上下左右四種選擇，我的地圖有上下左右前後六種選擇，達成空間的立體感。

```
-----  
0: Go up.  
1: Go down.  
2: Go left.  
3: Go right.  
4: Go front.  
5: Go back.  
6: Cancel.  
Choose an direction to move: █
```

若您認為這項 Enhancement 只有在Room多加兩個房間這麼簡單，那可就大錯特錯了。

1. 首先，因為多了這兩個方向，所有劇情路線皆須重新設計，且為了增加遊戲難度，挑戰怪物與NPC購買商品皆是容錯率極低的，若不小心買錯，或是提前挑戰較難的怪物，是不可能過關的。
  2. 其次，玩家遊走其中時，因為多了空間的立體感，整體的遊玩體驗是大幅增加的，稍微不小心記錯路，變會迷失很長一段時間。
  3. 最後，為了實做多兩個方向，Choose Action 中顯示選單變得更為繁瑣。
2. **隱藏路(3%):**

在挑戰完目前可探索地圖中所有的怪物後，變會有一條隱藏道路解鎖，並顯示劇情特效，給玩家毛骨悚然的感覺。

未挑戰完怪物時：

```
-----  
0: Go up.  
1: Go down.  
2: Go left.  
3: Go right.  
4: Go back.  
5: Cancel.  
Choose an direction to move: █
```

擊敗目前最後一隻怪物時，顯示精心設計的劇情特效。

```

It's your turn:
You attack monster by 30.
You win! You defeated Monster4!
You get 20 coin.
(Enter anything to continue...)

-----
----- Dong..... Dong..... -----
-----
-----
-----
- You heard a muffled sound from somewhere... -
-- It might make by a original locked gate... -
-----
-----
-----

```

此時回到原本房間，多了一條路可以選擇(Go front)：

```

-----
0: Go up.
1: Go down.
2: Go left.
3: Go right.
4: Go front.
5: Go back.
6: Cancel.
Choose an direction to move: █

```

這驚人的巧思與毛骨悚然設計，是不是很棒呢？（是）

### 3. 兩種NPC(3%)：

一種NPC只提供劇情，而另一種可以購買商品。  
已於上方NPC時詳細介紹。

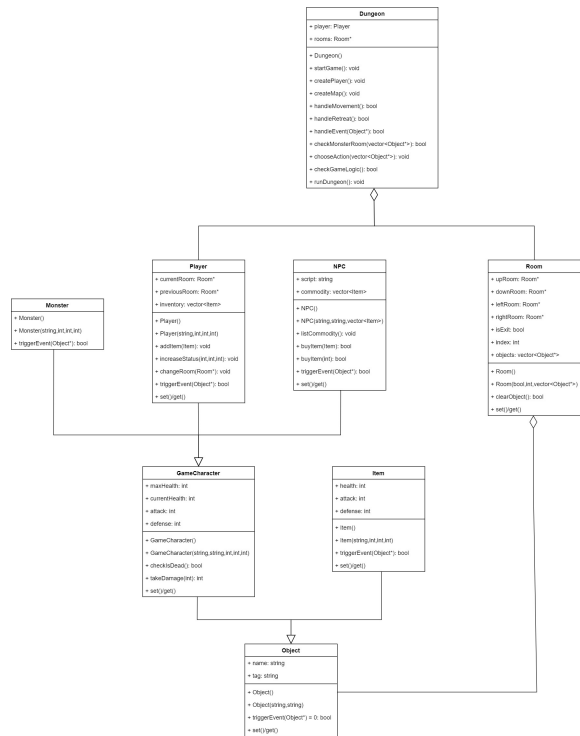
### 4. 金幣(1%)：

打怪獲得金幣，與NPC交易，提昇能力。

在怪物系統與NPC系統中可以看到。

## Inheritance

一切皆按照此圖繼承。



## Virtual Functions

不論是NPC, Item, 或是 Monster，以Objects指標儲存時，只要直接呼叫 `triggerEvent` (Virtual function)，就可以呼叫到正確對應的function。

```

void Dungeon::handleEvent(Object* obj) {
    if(obj->triggerEvent(&player)) { //不須知道obj存的是誰，直接叫函式
        player.getCurrentRoom()->popObject(obj);
    }
}

```

## • 心得結論

這次作業是我人生中第一次實做大專案，在剛開始時，我學到了如何管理project的檔案，也透過許多程式碼實作，從不熟悉物件導向，逐漸了解到物件導向的精神，對物件導向語法更加的熟悉，也接觸到一些平常都會用到的C++函式，對函式庫有了更多的認識。有了這次經驗，我相信以後開發專案時會更加無往不利。