

## SPECIFICATIONS

### Adventurer

Playable characters and enemies will both be an instance of the Adventurer class.

The Adventurer will have a name, maxHP, hp and a status indicating if they are alive, blocking or stunned.

The Adventurer will be able to use and equip items.

Items could be usable items like potions or they could be items that can be equipped like weapons, shields or armour.

The Adventurer will be able to equip a suit of armour, a weapon and a shield.

The Adventurer will also be able to hold an additional 6 items in their inventory.

HP, short for health points, is a measure of how healthy the character is.

MaxHP will hold the maximum number of health points a character can have.

HP will hold the current health points of the character which defaults to maxHP when the character is created.

Alive defaults to true but will be switched to false when the character's health points reach zero.

Blocking defaults to false but will be switched to true if the character chooses to block with their shield.

If the Adventurer chooses to attack or use an item, or the Adventurer takes damage while blocking, block status will be switched back to false.

If a character is stunned at the beginning of a turn, they must skip their action and stunned is set to false.

The inventory is an array containing Items.

Usually the Adventurer will equip or use an item from their inventory.

If the character equips a weapon, the equipped weapon will be removed from the inventory and the old weapon will be placed back in the inventory. The same is true for shields or armour.

If a single use item like a potion is used it will be removed from the inventory and some effect will be applied to the target.

The Adventurer will be able to fight other Adventurers using their weapon to deal damage and their shield and armour to reduce damage taken.

When it is the Adventurer's turn, the character can choose to attack, defend or use an item.

Defending gives the player a chance to stun the enemy.

If an Adventurer is stunned they must skip their turn to recover.

### 说明

### 冒险者(Adventurer)

在Adventurer class里，游戏人物和敌人都会存在。

冒险者有名字(name),最大血量(maxHP), 当前血量(hp), 活着(alive)的情况下的状态, 格挡(blocking)和控制（眩晕敌人stunned）。

冒险者可以使用物品和装备物品。

物品(items)可以是药水(potions), 也可以是装备(equipments)比如武器(weapon), 盾牌(shields), 盔甲(armour)。

冒险者只可以装备一套武器盾牌和盔甲。

冒险者可以持有另外6个物品在背包(inventory)里。

HP用来衡量冒险者的健康状况。

maxHP会一直保持为血量最大值

HP用来显示冒险者的当前血量，在人物被创建的时候会默认为maxHP。

生存状态(Alive)会显示true,但是当HP为0的时候会变成false。

格挡(blocking)会默认为false，但是如果冒险者选择用盾牌进行格挡的时候会变成true。

如果冒险者选择攻击或者使用物品，或者冒险者受到攻击，格挡变回为false。

如果冒险者在第一回合就被控制(stunned)，他们必须跳过自己的回合，并且控制(stunned)会显示为false。

背包(inventory)是一组包含物品。

冒险者会从背包里装备物品和使用物品。

如果冒险者装备一件武器，这件武器会从背包里消失，而原本的武器会出现在背包里，盾牌和盔甲也是一样。

如果一次性使用物品比如药剂被使用的话，会从背包里消失，并且会对人物产生相应的效果。

冒险者可以与别的冒险者战斗，用武器制造伤害(damage)，并用盾牌和盔甲减少伤害。

战斗时，在冒险者的回合可以选择攻击(attack)，防御(defend)，和使用物品(useItem)。

防御可以使冒险者眩晕对手。

如果冒险者被眩晕了，必须跳过自己的回合。

ac/m = [attack, defend, useItem]

## Weapons

The Adventurer will be able to equip one weapon.

A weapon will have a name, damage and weight.

When a character attacks with a weapon, the target enemy's health will be reduced by the weapon's damage, minus their armour rating.

Armour cannot reduce a weapon's damage below 1.

### 武器 (Weapons)

冒险者只能装备一件武器

武器可以拥有名字(name)，伤害(damage)，重量(weight)。

当冒险者用武器攻击对手，对手受到的伤害会等于武器的伤害减去盔甲的防御值。

盔甲不能让武器的伤害小于1

## Shields

The Adventurer will be able to equip one shield.

A shield will have a name, armour rating, weight and a percentage chance to stun.

The percentage chance to stun will be a floating point number greater than zero and less than one.

If an Adventurer chooses to block with a shield, the blocking status will be set to true until the character chooses to attack or use an item or until they take damage while blocking.

If the enemy chooses to attack, the shield's armour rating will be added to the character's overall armour rating for that turn.

After the damage is applied, the shield may stun the enemy.

To do this, generate a random floating point number between 0 and 1.

If the number is less than or equal to the percentage chance to stun, set the enemy stunned status to true, and they must skip a turn.

### 盾牌 (Shields)

冒险者只能装备一个盾牌。

盾牌有名字，防御值(armourRating)，重量和眩晕对手的几率(percentage)

眩晕几率是一个流动值 (floating point) , 大于0小于1

如果冒险者选择用盾牌格挡, 格挡状态(blocking)会显示为true直到冒险者选择攻击或者使用物品或者冒险者受到伤害。

如果敌人选择攻击, 而冒险者不选择格挡, 这一回合盾牌的防御值会加到整体的防御值上 (这里应该是指盾牌和盔甲的防御值加在一起)

当冒险者受到伤害后, 盾牌可能会眩晕对手。

设置一个自由值 (random

number) 在0到1之间, 如果这个值等于盾牌眩晕对手的几率 (percentage), 设置对手的被控制状态 (stunned) 为true, 对手必须跳过这一回合。

## Armour

The Adventurer will be able to equip one suit of armour.

Armour will have a name, armour rating and weight.

When the character takes damage, the damage is reduced by the armour's armour rating.

This will not reduce damage taken below 1.

### 盔甲(Armour)

冒险者可以装备一套盔甲

盔甲可以有名字, 防御值和重量。

盔甲可以减轻所受到的伤害

伤害不能低于1

## Potions

Potions are a usable item that will be destroyed once they are used.

The health potion will restore a character's health by 200 up to maxHP.

The damage potion will deal 50 damage to the target and stun them.

This damage will ignore armour.

### 药水 (potions)

药水是一个可使用的物品, 一旦使用完, 物品即消失。

健康药水 (healthPotion) 可以治疗冒险者200生命。

伤害药水 (damagePotion) 可以对目标造成50点伤害, 这个伤害无视护甲。

## Game

This is an interactive text-based game allowing you to fight enemy Adventurers and equip and use items.

Before the game begins you will need to perform any initialization that might be required.

In this section you should create an Adventurer for the player.

You may choose to equip them with some basic equipment and items.

There will be two parts to this game running inside a loop while the player character is alive.

You should put each of these parts in a subroutine to keep the code neater.

### 游戏 (game)

这是一个可以让玩家装备和使用物品, 并且可以和对手战斗的文本游戏。

在开始游戏之前你需要输入一些初始化设置

在这个过程中, 你要为玩家创建一个最初的冒险者。

你可以是这个冒险者拥有一些基本的物品和装备。

这里会有两个部分运行在一个循环 (loop) 里面, 在冒险者还活着的时候。

你需要把这两个部分都输入子程序来保证编码 (code) 的整洁。

*while (is alive) ;*

## Battle

The first section is the battle section.

Generate an enemy to fight.

Equip the enemy with a weapon, shield and armour.

Add together the combined weight of each adventurer's weapon, armour and shield.

The Adventurer with the lowest combined weight gets to act first.

The fight will continue while both the player and the enemy are alive or until the user decides to run away.

Each iteration, print out each character's health and if they are ready to fight or stunned.

If the player character is not stunned, ask the user if they would like to attack, block, use an item or run away.

Remember they can only attack if they have a weapon and they can only block if they have a shield.

If they decide to use an item, show them their inventory and give them a choice from 1-6 of what to use or -1 to quit.

If they do not select a useable item, ask them to select again.

If they do select a UsableItem, ask them who they would like to target with the item, 1 for player, 2 for enemy.

If the item must be destroyed afterwards, make sure to set the item location to null in the inventory.

Once the player has taken an action it is time for the enemy character's turn.

If the enemy is not stunned, generate a random number between 1 and 2 for attack or defend.

You might also consider giving the enemy character some items and generating random numbers to decide if they would like to use an item and which item to use.

If the enemy dies, congratulate the player character, return to the inventory management section and award them with some new items.

If the player character dies at any point, make sure to end the game and display a game over message.

You might print out some statistics of how well the character performed.

### 战斗 (Battle)

第一个部分是战斗部分。

确定一个对手来战斗。

用武器, 盾牌, 盔甲来装备这个对手。

把对手的武器, 盾牌和盔甲的重量加起来, 再把冒险者的武器, 盾牌和盔甲的重量加起来, 然后相比较, 重量轻的人先开始行动。

战斗会一直持续, 直到对手或者冒险者死, 或者冒险者选择跑 (run away)。

在每一步中, **print out** 对手和冒险者的血量, 如果他们已经开始战斗了的话。

在冒险者没有被控制/ 眩晕 (stunned) 的情况下, 问冒险者, 选择攻击(attack), 格挡(block), 使用物品(use an item), 或者逃跑(run away)。

只有在装备了武器的情况下才可以攻击, 也只有在装备了盾牌的情况下才可以格挡。

在选择使用物品的时候, 显示出背包给使用者, 让他们输入1- 6来确定使用什么物品, 或者输入- 1来离开背包。

如果使用者选择的是不可以使用的物品, 比如武器装备, 那么再问他们要选择什么物品(这应该是个while loop)。

while (isalive);  
battle()

enemy  
def battle():  
if weight < :  
action:  
print (1: attack, 2 block,  
3: use 4: run away)  
input (1):  
switch (i):  
case 1:  
adv. weapon - enemy. sh

如果使用者选择的是可以使用的物品 (UsableItems)，问他对谁使用，输入1来表示自己，2表示对手。  
物品用完后，背包里这个物品原本存在的位置会变成null。

哎不用list用数组也可以

当玩家完成了自己的回合后，会轮到对手的回合。

如果对手没有被眩晕，设置一个自由数 (random number) 1或者2来确定攻击还是防御。

对手是AI 非人控制

你也可以按照你的喜好给予对手角色一些物品，来用random number来决定他用不用物品或者用什么物品。

如果对手死了，就祝贺玩家，然后转移到背包管理清单 (inventory management)，并且给玩家一些新物品。

如果玩家死了，游戏结束，并且print out "Game over" 的信息。

你也可以print out 一些数据来显示，玩家玩的怎么样，比如杀了多少敌人，获得多少装备。

想玩吃

## Inventory Management

The next section is inventory management.

You might like to create a list of 20 items including potions and a variety of equipment and store it as a variable.

Each time the player defeats an enemy you could give them a choice of 3 items from the list. They might decide to pick up the next generated item, drop a held item, equip a held item or end the process and fight the next enemy.

If they would like to add an item to their inventory, check if there is space and add the item if there is.

If there is not enough space ask them which of the items they would like to replace.

Use each Item's toString method to tell the user what is in the inventory.

Give them options from 1 – 6 to choose which item to replace or -1 to quit.

If they would like to drop an item, ask them which one they would like to drop from 1 – 6.

Make sure to validate the user's choice before destroying the item to make sure they selected the correct item.

If they would like to equip an item, ask them which item they would like to equip.

Give them options from 1 – 6 to choose which item to equip or -1 to quit.

If they select a UseableItem, throw an ItemTypeException and tell them they cannot equip that type of item.

If they select a shield ask them if they would like to replace their current shield for the new one.

If they select a weapon ask them if they would like to replace their current weapon for the new one.

If they select a suit of armour ask them if they would like to replace their current suit of armour for the new one.

If they select a null item ask them if they would like to unequip an equipped item and give them choices from 1 – 3 for weapon, shield and armour.

If they choose to fight, ask if they are sure and if they are, return to the battle section.

### 装备管理 (inventory management)

你可以建一个有20个物品的list，里面包括药水或者武器防具装备，然后把他们当变量 (variable) 保存。

每当玩家战胜对手，你可以让他们从这个list选择三个物品

while (input)

1. pick up item

2. drop held item

3. equip held item

break

we can relax

fight next enemy

Case (1) getItem()

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他们可以自己决定，捡起确定的物品 (pick up items)，丢下物品 (drop held items)，装备物品 (equip held items) 或者结束这个过程，与下一个对手战斗 (fight next enemy)。

如果玩家想把物品加入背包，确定背包里有没有位置再加入新的物品。

如果背包里没有位置，问玩家哪一件物品你想替换。

用toString method来告诉玩家背包里有哪些物品。

给玩家选项1- 6来让玩家选择替换哪一件物品，或者选择- 1来离开。

任何时候，如果玩家想丢弃一件物品，问他们让他们选择1- 6来确定扔哪一件。

问他们确定要扔这件装备吗 (really wants to drop this item?)，来让他们回答 (Y/N) 来确定扔这件装备。

如果玩家想装备一件物品，问他们装备哪一件物品，给他们选项1- 6来决定，或者- 1离开。

如果玩家选择的是可使用的物品 (useableItems)，用一个ItemNullException来告诉玩家不能装备这种物品。

如果玩家选择了盾牌，问他们要把当前的盾牌替换成新的盾牌吗？

如果玩家选择了武器，问他们要把当前的盾牌替换成新的武器吗？

如果玩家选择了盔甲，问他们要把当前的盾牌替换成新的盔甲吗？

如果玩家选择了空的位置 (null space)，问他们要把当前已经装备的物品放到这个位置上吗？并给予他们选项1- 3来确定是武器 (weapon)，盾牌 (shield) 还是盔甲 (armour)。

如果玩家选择战斗，问他们确定要战斗吗？ (are you sure?) 并且转回到战斗部分 (Battle section)。

## Testing (测试)

你需要写一个自己的测试程序来测试捏游戏。

你需要测试每一个class里的每一个method (这个应该是测试每一个方程能不能使用，能不能运行)

怎么做 (how to do this Assignment)

We suggest you write the basic methods of Adventurer first.

建议先为冒险者写一些基础method

测试 (test) takeDamage(), takeHealing(), isAlive(), isStunned() and toString() methods.

Write your test driver with a main method to test these methods.

写test程序，用main method (这应该就是public void static main (String [] args) 那个吧)

Write the Item, Weapon, Shield and Armour classes.

为武器，盾牌，盔甲写class

Write the equipWeapon(), equipShield(), equipArmour(), attack() and defend() methods.

装备武器，装备盾牌，装备盔甲，攻击，防御的method

Test these methods by equipping your character with some items and attacking another character.

用装备冒险者的方法和攻击其他对手的方法来测试这个程序

Write your UseableItem, HealthPotion and DamagePotion classes.

写能使用的物品，回血药剂，伤害药剂的class

Write your addItem(), removeItem() and use() methods.

attack (attacker, victims)  
sub = a.weapon - v.armour, armour  
damage  
if (sub > 0) sub = 1  
else v.hp = hp - sub  
if (v.isAlive)  
action

defend();

写添加物品，移除物品，和使用物品的method

Create a number of health potions and damage potions.

创建回血药剂和伤害药剂的数量

Test your methods by adding too many, removing some from the middle, destroying them, using them then adding some more. Remember, you can target yourself with the keyword „this“.

用添加过多物品或者移除一些物品来开始测试这个程序，可以用this来让目标成为自己

Write your game class, battle section.

写game的class，和战斗的部分

Play around with it so that you're sure it's working.

玩这个程序确定它能运行

Write your game class, inventory management section.

写game的class，背包管理部分。

Write a main method in your Game class to instantiate the game.

写主要程序

Play around with it so that you're sure it's working.

玩这个程序确定它能运行

Complete the rest of your test driver and play the game enough times to ensure it is working.

At this point your assignment should be complete as per the marking criteria.

If you would like to make some extensions, copy your project and have some fun.