

Week 6 Diary

Plan:

1. Maps creation. ✓
 2. Go into other maps. ✓
 3. Shooting and bullets collision detect ✓
 4. Design of enemies ✓
 5. Welcome page, achievements, etc. ⚠
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Problem:

- ① Initially, I put all fixed items (ladder, coins and respawn circle) into the const map array. But the character is easily stuck during these edges (caused by collision detection). Then I changed my mind, I simply regarded the map as the only background, all others are in a floating layer above it, they are rendered dynamically each frame.
 - ② My character went across the walls one time during developing!!! That's unbelievable! It seemed like I created a cheater that allowed the player flew above the maze! I spent 2 days finding out the problem: I accidentally deleted the initializer of variables "*player.x* and *player.y*" which determine the position. Then the random value of position failed collision detection function!
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Ideas:

Collect coins in maps and purchase spells (increase damage, speed, recover HP) and advanced weapons.

Outcome:

1. More maps, ladders, and chests (Fig.1)

Sometimes you may luckily enter a chest room, you may find useful spells or weapons here (add in future).

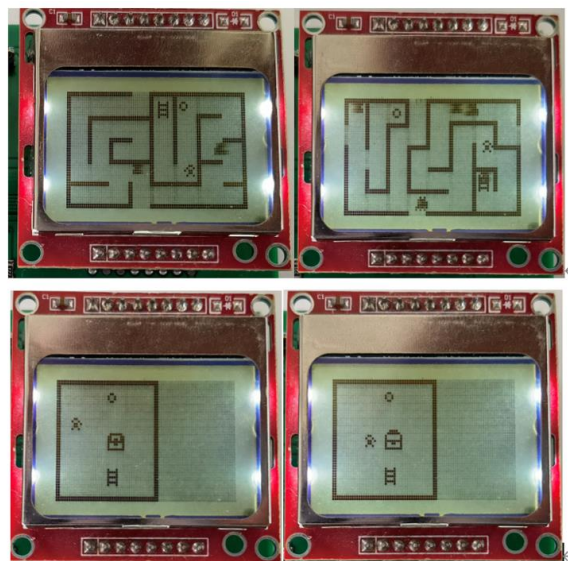


Fig.1 Different maps (LT, RT), go close to ladder to other maps (coins will be added in future), character and enemies' settings, chest box unopen (LB) and open (RB).

2. Shooting and collision detect

By pushing button C, character can shoot bullets. There will be varies of bullets (style and damage), and each kind of enemies has its HP. Bullets disappear when hitting any entities. Photos and codes will be given in final version (too many).

3. Design of enemies (Fig.2)

```
353     const int EnemyJumper[4][3] = {
354         {1,1,1},
355         {0,1,0},
356         {1,1,1},
357         {1,0,1}
358     };
359
360     const int EnemySimple[5][5] = {
361         {0,1,0,1,0},
362         {0,1,1,1,0},
363         {1,1,1,0,0},
364         {1,1,1,1,1},
365         {1,0,1,0,1}
366     };
367
368     const int EnemyRunner[5][6] = {
369         {0,1,1,0,0,0},
370         {1,1,1,0,0,1},
371         {1,0,1,1,0,0},
372         {1,1,1,1,1,0},
373         {1,1,1,1,1,1}
374     };
```

Fig.2 Design of enemies (temporarily), there will be more including designs of bullet, spells, and attack animations in future[↵]

4. Welcome page, menu, and achievements (Fig.3)



Fig.3 The gate of SWJTU, "BRAVE HEART" fonts designed by myself (L), menu (M), and achievements (R, under development, all considered items shown in Fig.4)[↵]

```
main.cpp X Game.h X Game.cpp X Sprites.h X Global.h X
20     /// An achievement element consists of all records made.
21     struct Achievement
22     {
23         int totalGamePlayed;
24         int totalSucceedTimes;
25         int totalDeathTimes;
26         int totalWalkLength;
27         int totalChestUnlocked;
28         int totalCoinSpent;
29         int totalEnemyDiscovered;
30         int totalWeaponDiscovered;
31         int totalCharacterDiscovered;
32         int totalEnemyDestroyed;
33         int totalBulletShot;
34         int totalBulletAccuracy;
35     };
```

Fig.4 Achievements struct[↵]

5. Others.

|| Seven-segments Display used to show the lives left (Fig.5)



Fig.5 7-segment display used to show lives left. Other LCDs will be used in future to show other properties of player.

|| Bugs including go across walls are fixed.
