Individual Reflection Report IMT Lin Han 16078325d

1.Contribution

1.1 Individual contribution

I am responsible for the Main Map part under the Game Technical Design section introduced in the final report.

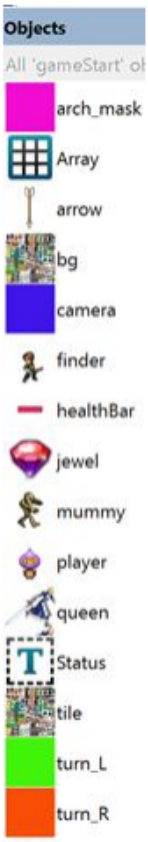
Main Map's Programming Design include the following modules or items.

- Use Tilemap engine to design a main map's maze, import the json file to the phaser js file and set the collider of each objects like walls, NPC etc.
- Two kinds of Enemies
  - Patrolling beetles
  - The Archaeologist and His Arrows
- NPC: Gatekeeper
- Portal doors
- Gems Collection
- Sound effect of Main Map
  - Player wound
  - Gems' collection
  - Colliding with Gatekeeper
- User interface of main map
  - Gatekeeper's dialog
  - Gems collection's achievement dialog.

1.2 Experiment

In the middle of this semester, I have used Construct 2 to construct a prototype of our game. The below captured pictures are with reference to the assignment 4 of what I have conducted and I will further explain the problems and difficulties I met during the transfer of platform of Phaser.js.

	Link: https://www.designandmake.org/x/uPUIBQ

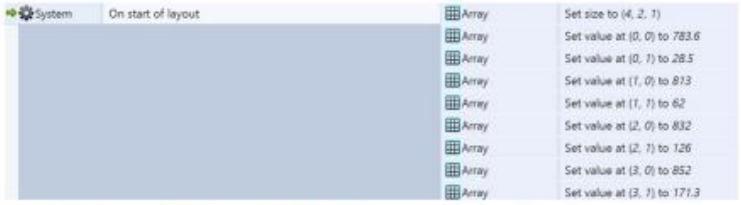


Tile: the tiled obstacles for the big maze. Its behavior is solid so that the player cannot suddenly pierce through a wall.
Jewel: The jewels are collectable items.

Camera: the camera following the player's movement.

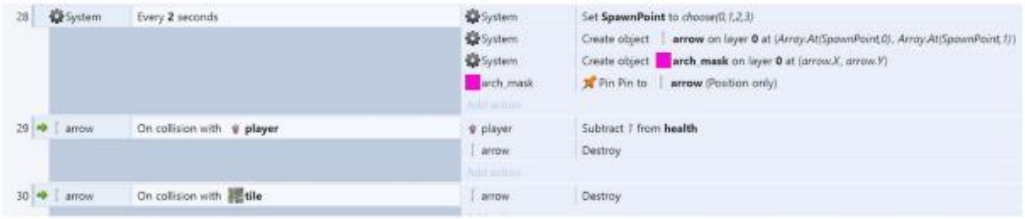
Arrow: In the ‘on start of layout‘ event, a 2D array is storing the spawning pointes of the arrows.

Array: for storing the spawning points of the arrows.



Since construct 2 ‘s array object is made to handle up to three-dimensional arrays, where each dimension is labelled as width, height, and depth (x, y, z). For a 2d array of four random spawning arrows, I need to specify the value as (4,2,1).

The array is needed for spawning arrows in a random location. Pinning another project to act as an additional collision mask, destroying them once they are colliding with the player or the other tile object.



1.3 Difficulties encountered in Phaser.js

1.3.1 User Interface of Main Map

The main map window size is 1920x1080, I need to scale it down to a local part of the map by the method of camera following player. Originally, I want the health points and gems collecting information to be fixed at the top left side of the scaled window. And I use the text.setScrollFactor(1,0) to handle this problem. However, the text can only move vertically but when the player continues moving towards right and text goes out of the window.

Original text setScroll:

```
text.setText(
    '\nTreasures collected: ' + score
    '\nlife: ' + lifePoint
);//setScrollFactor(1,0);
```

Solution: let the text to follow the player. Text's horizontal axis and vertical axis are to be aligned with the player's.

```
this.cameras.main.setBounds(0, 0, 1920, 1080);
this.physics.world.setBounds(0, 0, 1920, 1080);
```

```
this.cameras.main.startFollow(player, true, 0.08, 0.08);
this.cameras.main.setZoom(2.3);
```

Health bar follow the player:

```
//--------text
text.setText(
    '\nTreasures collected: ' + score +
    '\nlife: ' + lifePoint
);
text.x=player.x;
text.y=player.y-100;
```

Player die notification: if the player's health point becomes less than zero, a small dialog will pop up telling the player has died, if he wants to retry this game, just refresh this window.


```
DieInfo(){
    text.destroy();
    retry=this.add.image(player.x+200, player.y-100, 'die').setScale(0.5);
    retry.setVisible(true);
}
```

Call Dieinfo function:

```
if(lifePoint<=0){
    this.DieInfo();
}
```

```
this.cameras.main.setBounds(0, 0, 1920, 1080);
this.physics.world.setBounds(0, 0, 1920, 1080);
```

2. Experience

2.1 collaborating with team members in the IMT

At the start of this project in the middle of this semester, we are anxious about our project because the teachers have denied our ideas several time and we are confused because we lost our directions and we are afraid of how to start. One of my IMT members at that time was even more confused and I almost lost my patience, but I kept explaining the detailed idea and technical problems to him. (which works) I was not so sure whether he can contribute to this project at that time. But, luckily, he did a great job at last unexpectedly. Our groupmates are all responsible students and I am really happy with that. It works when we help each other to find out the problem and fix the bugs when combining the work.

2.2 collaborating with team members in the IM

Experience with construct 2:

Using construct 2 to make a prototype of the game really helps in the collaboration with IM students. Our IMT students first use some pictures from the online resources, and the IM students based on the storyline and online resource to help design and enhance the elements we need.

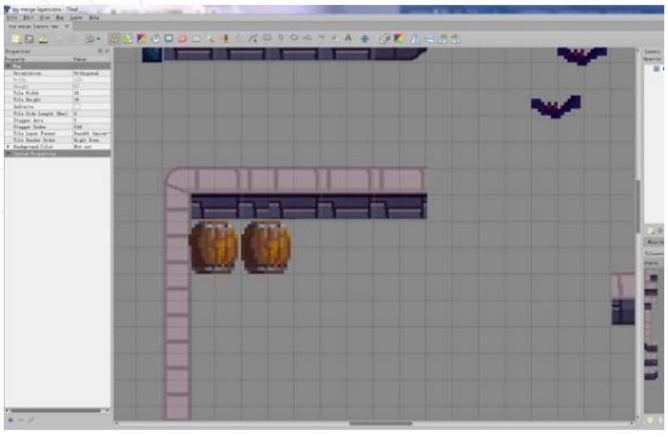
It didn't work when:

Because the IM students do not understand the technical principles, sometimes their design can not be used. For example, since the map is a big maze, there are a lot of objects' colliders, like walls, characters and etc, however the IM students just draw walls, characters and background in one single picture, this picture can not be used since it is without colliders, layers and Json file. In programming, the most important physical phenomenon is the collision of two objects. Constantly detect the collision of all objects to determine how the game goes on. For example, if we detect the collision between the protagonist and the enemy, we must make the protagonist bleed; if we detect the collision between the protagonist and the slope, we must let the protagonist walk upward; if we detect the collision between the protagonist and the treasure, we must let the protagonist pick up the treasure.

Main Map's changes:

Originally it is like this,

However, unfortunately, this tileset 'wall' cannot be used as the pixel problem.



Main Map's changes: (Original)

The grid size is like 16x16,

Some of the size are flooding out the grid. The collision cannot be detected. which results the player cannot collide with world in right direction and in down direction.

Some of the pixel size is 34x34, some of them are 17x34.

So we have to be careful with the game assets appeared in the main map. The position of each objects must be present in the programming language, then I could

use texture packer to pack all the single sub-objects, then generate a Json file.

Insights

Generally, it works when we usually keep instant feedback to each other about our progress, IM students are eager to ask what our IMT students need, and we are also encouraged to tell our need specifically. We would also point out the shortage in some design and the IM students listen to it and will fix the problem. Overall, we work peacefully with each other, we are very active in helping with each other and this experience of cooperating does help in my future work-life experience.

3. Improvements and changes in hindsight

I think the maze of this main map can be enlarged in further development if more time is provided. The checkpoints can be more than current 7 doors and the enemies in the main map can be various types.