

EIE3360
Integrated Project
Mini-Project
Group 11: The Ramesses
Final Report

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Abstract

This Ramesses is created by two Internet and Multimedia Technology year 3 students. This game with reference to old Egypt age, player enter to a pyramid and need to escape from it. It is defined in three stages. Each stage have different tasks that need to be achieved. It includes defeating, finding and unwinding which is challenging and interesting. Player should have an unforgettable memories after playing this game.

Objective

This project aims to apply the 3D modelling skills and Programming language knowledge in an integrated manner. Through in-depth study of Unity, group 11 will develop a puzzle and action 3D android game with Realistic Egyptian style. The story begins at the tomb of the Pharaoh, Ramesses II where the main Character, Tari starts her adventure.

Background Study

Current 3D Android games have various genres like casual, actions, role play, adventure, puzzle, music, chess and so on. With the popularity of high-performance smartphones, more and more stimulating and porcelain elements are incorporated into the game. We will focus on the genre of puzzle and actions.

i) Puzzle

The house of Da Vinci: Solve mechanical puzzles, discover hidden objects, escape from rooms and dive into the authentic atmosphere of the Renaissance. Use all your wits to find out what's behind your master's disappearance.



ii) Adventure

True Fear: Forsaken Souls I: Delve into the horror adventure full of mysteries as Holly Stonehouse in Part 1 of the True Fear: Forsaken Souls trilogy. Find your sister, unravel the secret of mother's death, escape the stalking darkness. Use the map for fast travelling, Watch over 25 cutscenes, Read through hundreds of notes and diaries to fully immerse in the atmosphere of mysteries, Find 15 hidden character figurines and learn their story.



iii) Action

Identity V: With a gothic art style, mysterious storylines and an exciting 1vs4 gameplay, Identity V will bring you a breathtaking experience. You will first enter the game as a detective, who receives a mysterious letter inviting him to investigate an abandoned manor and search for a missing girl. And as you get closer and closer to the truth, you find something horrifying.



Features could be added:



- Solve mechanical puzzles
- Brain twisters and baffling riddles
- Intuitive touch control
- Navigate the environment intuitively.
- Ancient art style
- War machines, complex lockboxes, mechanical puzzles, room escapes will all test your skills.
- High quality sound track
- Pinch in to see the smallest details.



3D Models and Animation: Player and Enemies

Game Play and Interaction

During the game, player have different tasks to do in different stage, such as picking up items, unlocking the door, unwinding puzzles and attacking the enemies.

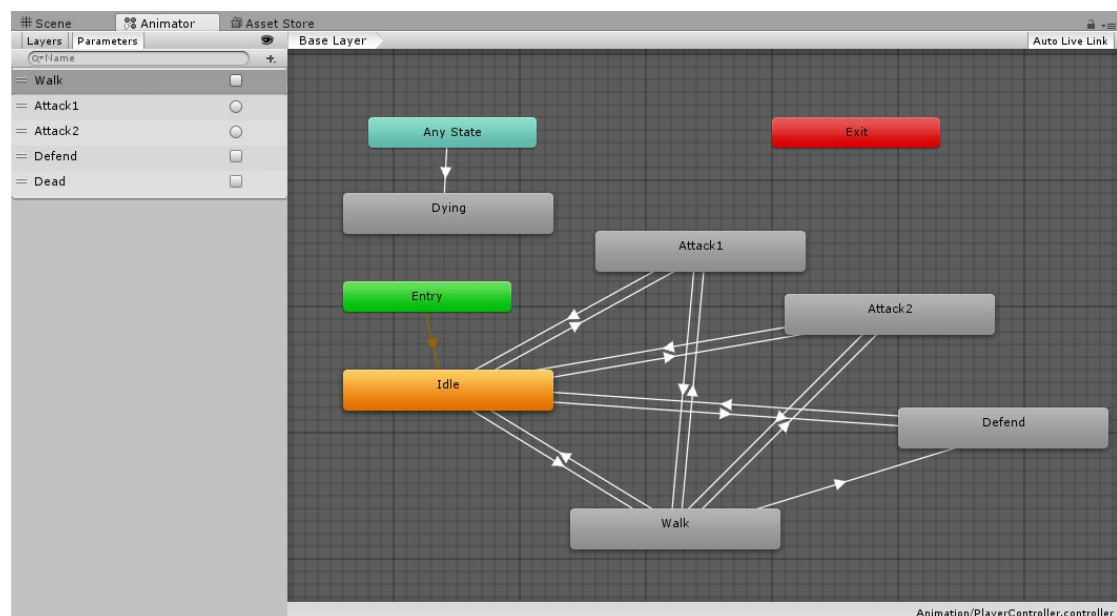
It is heard that there are a lot of wonderful things in the vicinity of the Nile, Egypt in the legend...

Characters	Behaviours and Background	Picture
Tari	Tari is the protagonist. She has such animations: idle, walk, attack, defend. Tari is a brave, strong and adventurous woman. She embarked on finding the secret of this adventure and accepts the summon of fate.	
Mage	Mage has such animation: idle, walk, attack. He is the ancient Egypt goddess and the patron saint of the dead. He exists to thwart and defend the intruders.	

Mummy	<p>Mummy has such animations: idle, walk, attack.</p> <p>They are the burial objects of the Ramesses II, however being trapped in the dungeon, they have accumulated too much grievance.</p>	
Ramesses II	<p>He is the third pharaoh of the Nineteenth Dynasty of Egypt. He has a favorite queen, Nefertari. He has been waiting for the protagonist for thousands of years.</p>	

Models and Animation Design:

The characters including Tari, Mage, Mummy and Ramesses II is acquired from the Internet source, among them, Tari is imported from the Unity Asset store with Built-in animations. Mage, Mummy and Ramesses II is 3ds max models with builed- rigbones, they share the same animations with Tari.



Player attack movement:

Attack1 and Attack2 movement will randomly appear once the player presses the attack button.



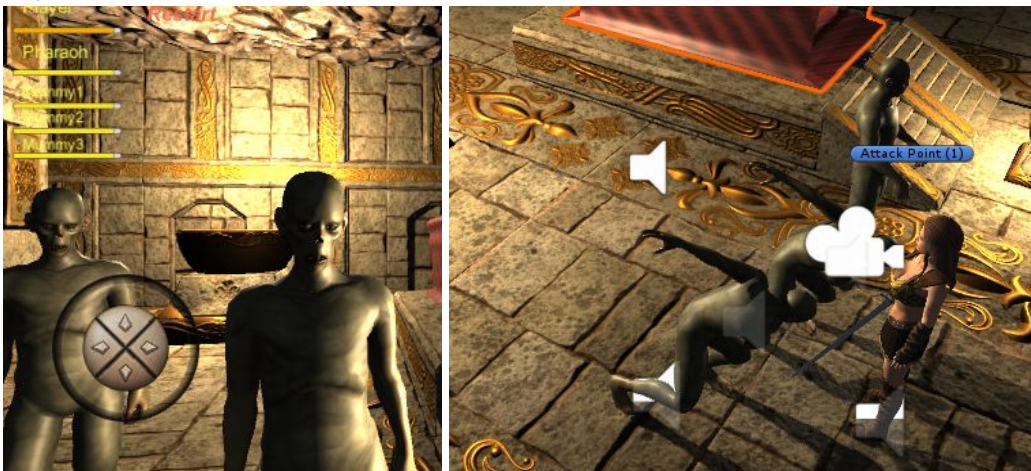
Player battle with Mage:



Player lies down:

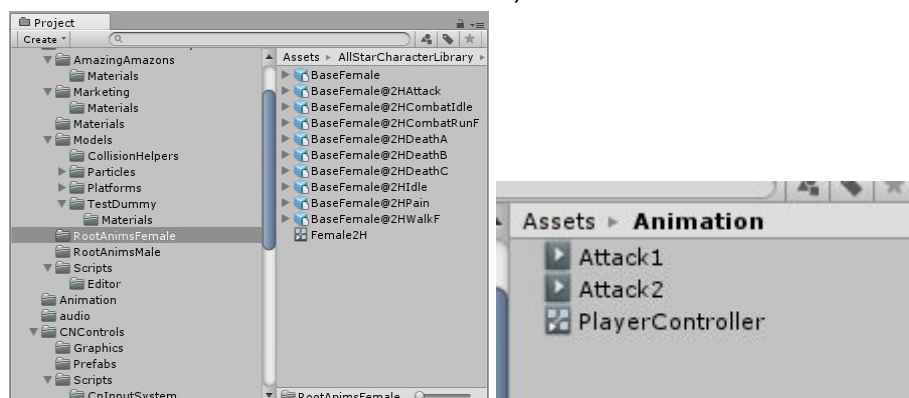


Player battle with mummies:



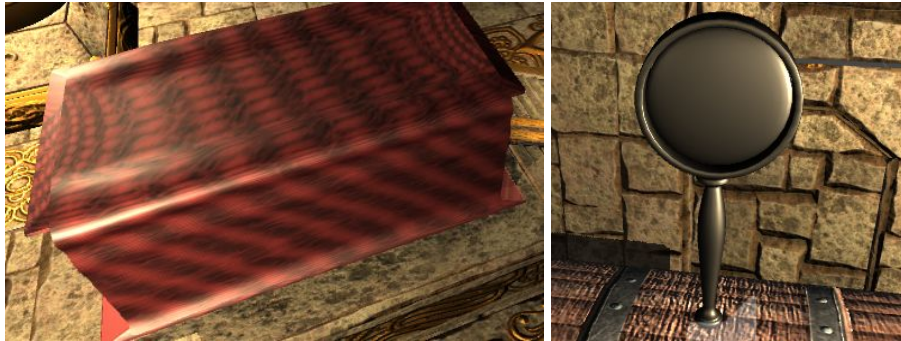
Difficulties and Solutions

1. It is hard to import the files with different formats, like Max, obj, mb, etc. Some of the character models are without rig bones and some are without materials. So it need to adjust the material searching method, like 'from model and material folder'.
2. The player's animation are default bundled in the 'RootAnimsFemale' folder, it cannot be modified when I need to apply them in the animator state. So I have to duplicate it and rename it and move it to another folder, so it can be modifiable.

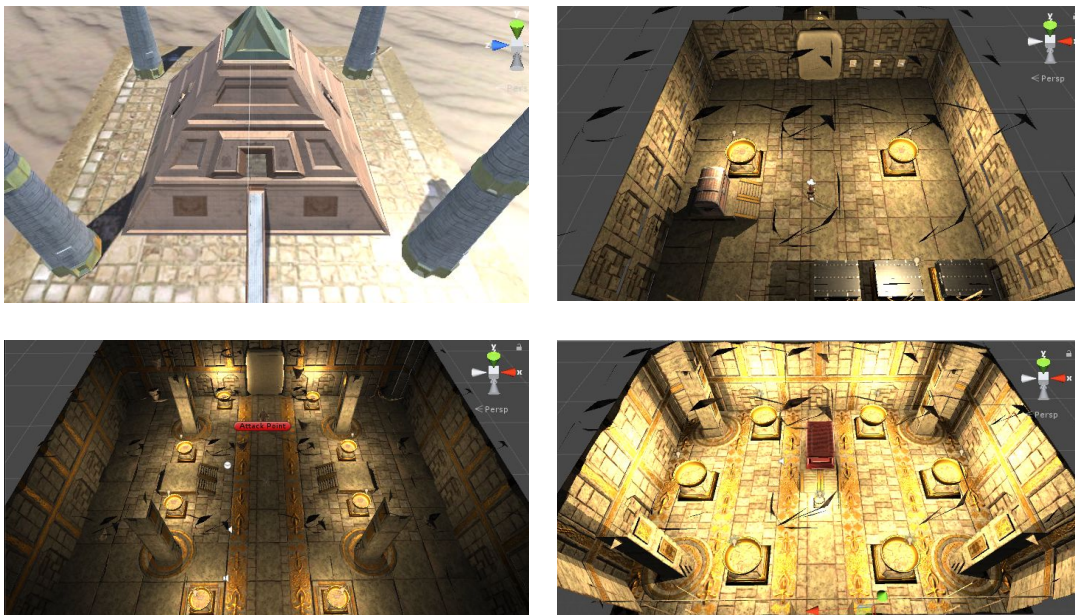


3D Models and Animation: Game Environment

Objects like coffin and magnifier are built by 3ds max.



Other Objects including dungeons and pyramid are imported from the Internet Source with little modification in order to be more compatible with our theme. The map is re-built by us using the components imported from the sources.



The hints are built by Photoshop.



Game Interface

Interface Design:



There are total of three button and one joystick in the interface part.
All graphics are designed by using Photoshop CC.



Joystick is used to control player movements.



Eye is for the switching in first person and third person view.



Sword is for attacking the enemies.



Question mark is for interacting with specific objects.

Procedure:

We use these buttons to interact with the objects, such as opening wooden boxes.

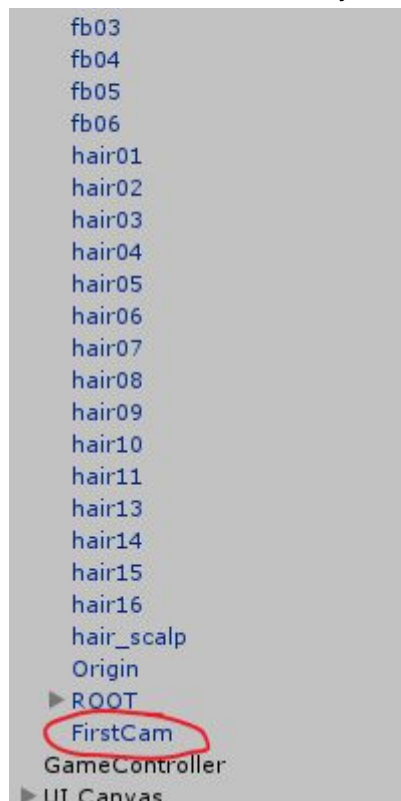
We Use iTween Plugin to remember the rotating position or sliding position of the objects and then the object can animate.

Camera Change in the player:

Third Camera : the camera at the back of the player.



First cam is attached as an object of first cam.



Menu Scene

Menu scene has three basic button, Play, Credit and Quit.

Difficulties and Solutions

1. Adjust the lighting:
The menu scene lighting would affect the first stage scene.
Solution: close auto-generate in the Window-Lighting
2. Adjust the transparency of the Button



Outdoor Scene

Game Play and Interaction

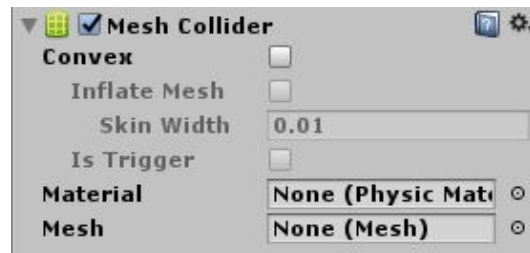
Player need to find the key in order to enter the pyramid. The key will keep rotating itself. When player have the key and near the door, the door will open automatically.



After the door is opened, the scene will change to Room 1 for next level.

Difficulties and Solutions

The problem when the scene is building up would be the collider between the pyramid and the player. From the beginning, player can go into the pyramid directly physically and the player will disappear. It is a problem on the mesh collider.



As it is a built in objects, so the mesh can be found in the asset. The player can now step on the stairs after re-add the mesh collider.



First Room

Game Play and Interaction

1. Box Open and close Interaction

Player can open the box using the interact button



After interact with the box, a magnifier and a hint message will appear and it will trigger another event--photo lock.

2. Photo lock interaction

There will be one set of boxes and photos appear after interact with the box. One is the hints and another one is the real lock.



The password of the lock is set to be random for each new game.



After player knowing the password, player need to go to the real lock and change the photo into the correct photo by using interact button. After enter that three correct photos, player's inventory will check the Has Correct Password and player can open the door.



3. Door Interaction

After player have the correct password for the first room. Player can trigger the door.



Difficulties and Solutions

For the difficulties of the first room, mainly is the visibility of the game object. As most of the interactive object should appear after player have the interaction between the wooden chest. So, all locks and hints should be hidden.

Scripting method is implemented, but it may not a good way to use mobile resources.

```
alock = GameObject.Find("alock");
alock.SetActive(false);
block = GameObject.Find("Block");
block.SetActive(false);
clock = GameObject.Find("Clock");
clock.SetActive(false);
hintA = GameObject.Find("HintA");
hintA.SetActive(false);
hintB = GameObject.Find("HintB");
hintB.SetActive(false);
hintC = GameObject.Find("HintC");
hintC.SetActive(false);

magnifier.SetActive(true);
playerInventory.hasMagnifier
alock.SetActive(true);
block.SetActive(true);
clock.SetActive(true);
hintA.SetActive(true);
hintB.SetActive(true);
hintC.SetActive(true);
}
```


Second Room

Game Play and Interaction

The second room has one enemy: Mage; player can be familiar with the skill of attack in this second room. The enemy cause great damage to the player, so the player has to be careful of attacking skills.



Once the player's health point becomes zero, the player lied down.



If the player attacks the enemy successfully, the enemy will disappear and the player gets the key to enter the third room.



Difficulties and Solutions

Because the player controller and the enemy controller are more or less the same, I need a boolean parameter to differentiate them, 'IsPlayer',



When the health point becomes zero, the player should perform dead animation and the scene will restart.

```
void Update() {
    if (health <= 0f)
    {
        //print("The chatac died");
        if (!isPlayer)
        {
            Destroy(gameObject);
            lastRoomKey.SetActive(true);
            GetComponent<EnemyController>().enabled = false;
            GetComponent<NavMeshAgent>().enabled = false;
        }
        else
        {
            // ... and if the player is not yet dead...
            if (!playerDead)
            {
                // ... call the PlayerDying function.
                PlayerDying();
            }
            else
            {
                // Otherwise, if the player is dead, call the PlayerDead and LevelReset functions.
                PlayerDead();
            }
        }
        GameObject.FindGameObjectWithTag(Tags.ENEMY_TAG).GetComponent<EnemyController>().enabled = false;
    }
}
```

In a melee, it is difficult to define how to attack the enemy or player. There is also an attack point in the children object of each character. When the attack point overlaps with the character's sphere collider, the corresponding character will get hurt.

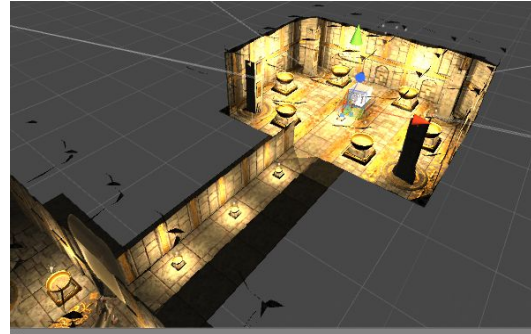
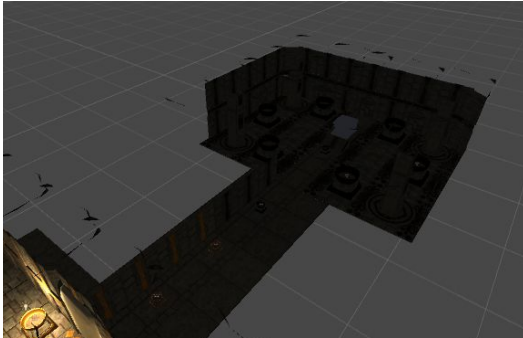


Third Room

Game Play and Interaction

1. Light interaction

Player need to open all the light in order to escape from the pyramid.



2. Mummy interaction

There is a trigger event after player enter the third room. When the final small is lighted, the timer will start. After 30 seconds, the mummies will appear automatically. If player got hit by mummies three times, the game will be restarted from the first room.



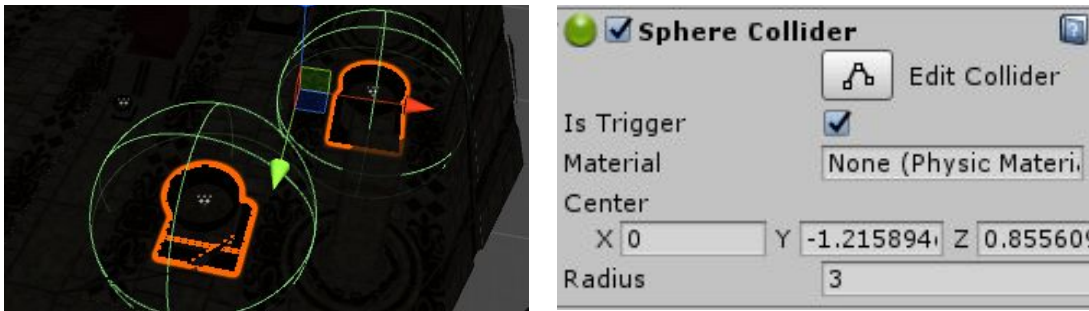
3. Coffin interaction

After player finish lighting the room, player can come to the coffin. When trigger the event, the coffin will disappear and a dead body comes out. After 5 sec, player will teleport to the ending scene which is the outside of the pyramid and it is the end.



Difficulties and Solutions

The collider area of the light need to be careful. If the collider area is too large, the script will be triggered too easily and frequently.



After several testing on the script, it is found that the radius of the sphere collider should set to 3 in order not to overlap with others.

Also, the timer for mummy appear and changing the final scene is a problem. As it can not just count the `Time.deltaTime`, it should be triggered after some events happened. So, a new is discovered by using `"StartCoroutine(function name)"`.

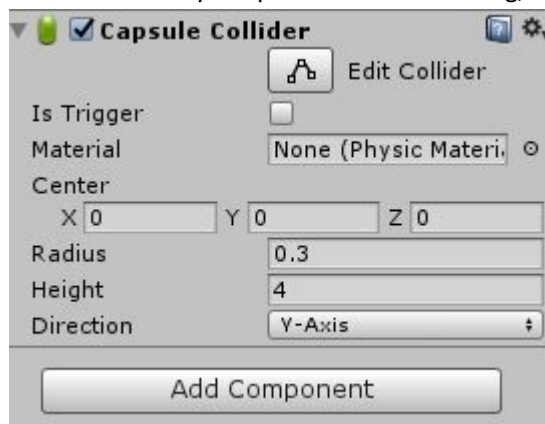
E.g `StartCoroutine("mummyStart");`

```
IEnumerator mummyStart() {  
    yield return new WaitForSeconds(30f);  
    Debug.Log("mummy");  
    mummy1.SetActive(true);  
    mummy2.SetActive(true);  
    mummy3.SetActive(true);  
}
```

Then some of the code will triggered after 30 seconds.

When character fighting with the mummies, characters are falling through terrain

Solution: mummy's capsule collider is too big, so I have to adjust its collider value.



Work Distribution and Resources

Tsang Chi Kin mainly focus on game environment and game tasks.

Lin Han mainly focus on game character and game interface.

Tsang Chi Kin	Lin Han
Starting scene interaction	Menu scene design
First room lock	Background music and sound effect
Second room key control	Enemies system interaction and motion
Third room light control and timer control	Game interface design and resource finding
Player virtual control and button	First room door and box interaction
Main map building	Player control and animation

The work process is that each group member will update one version of the game after his/her finished the work and upload to google drive for later developments. Then, members will tell others what have been implemented and what need to be done by next version. Also, if there are any bugs, member will fix it in next version.

Schedule

Activities	Planned Schedule	Actual Schedule
First discussion of the blueprint of game topics	2019/01/22	2019/01/22
Finalise the background, game title, game scene, brief storyline and characters		
Write the game project proposal	2019/01/23 - 2019/02/25	2019/01/23 - 2019/02/25
Finalise and hand in the project proposal	2019/03/01	2019/03/01
Characters modelling and Game environment modelling	2019/03/01 - 2019/03/17	2019/03/11 & 2019/03/28
Design the characters animations and the game assets Design the player's interactions Importing the characters in to the scene	2019/03/18 - 2019/03/31	2019/03/19 - 2019/04/04
Test the game for Preliminary game Demonstration Prepare the report of the game project	2019/04/01 - 2019/04/07	2019/04/01 - 2019/04/08
Preliminary game Demonstration	2019/04/08	2019/04/08
Final game Demonstration	2019/04/15	2019/04/15

Impacts on Internet and Multimedia Technologies

For the individuals, we are excited and delight to combine what we learn in the Object-Oriented Design and Programming and 3D Computer Animation into this integrated project. We learnt how to cooperate with each other and the communication skills. We study the process of creating one work, like storyline, models design, game prototype, game testing, and peer-review. All of the skills are enhancing our game production abilities.

For the organization, and society locally and globally, the youth are more innovative. In the Information Technology field, digital entertainment are more and more popular throughout the world. We, as a programmer and a IMT student, we can think about the logic behind the game, and construct this game, which is amazing.

Reference

1. Unity Documentation 5.6
<https://docs.unity3d.com/560/Documentation/Manual/UnityManual.html>
2. The House of Da Vinci
https://store.steampowered.com/app/522470/The_House_of_Da_Vinci/
3. True Fear: Forsaken Souls:
<https://play.google.com/store/apps/details?id=com.Goblinz.TrueFear>
4. Identity V:
<https://www.identity-v.com/pc/index.html>