

# Final project report

Class 16CTT

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## I/ Ideas

We were inspired by many 2D platform puzzle game such as Ori, Hollow Knight, Limbo, Pokemon, ... etc. Therefore we come up with an idea to make a 3D platform standalone puzzle solving game which is suitable to all ages. We use a color swap mechanic to be the game based mechanic. Player will need to brainstorm about how to manage grey, brown and yellow cube to open related door. We also set a lot of traps inside the maze to surprise the player.

## II/ Feature

In our game we feature a 1<sup>st</sup>-person experience as players are up to solve our quizzes. Each level will have a different layout and a different combination of traps and reward. Our game required you to be patient, sharp and reflexive.

## III/Technique features in game

- + Color Switching Cube: By using many static classes to handle state and provide functionality, with the help of `GameObject.FindObjectOfType`, color switching cube was implemented. When a cube is picked up, every object of a color specified will disappear, and two other colors will appear. This is the main puzzle mechanic.
- + Prefab: A lot of prefabs were created and used in the game. It made editing a lot of modular units much easier and also helped objects shared between different scenes had the same properties.
- + Smooth walking: Normal walking feels smooth thanks to `CharacterController.SimpleMove` and `Vector3.ClampMagnitude`, especially diagonal movements.
- + Smooth jumping: Jumping is smooth thanks to using `Coroutine` with an `AnimationCurve` which decreases the jump force depending on the jump timer.

- + Pick up object: Player can pick up object thanks to the used of Physics.Raycast. When the raycast distance between player camera and object is below threshold, the pointer gets larger to indicate and the object can be picked up.
- + Laser: Line renderer and raycasting also helped created laser beams in the game.
- + Sounds: A variety of sounds were added to boost user experience. There is a pick up sound, drop object sound. Sound when object hit the ground. Walking and jumping sound were also implemented.

#### **IV/ Resources**

- Sound:
  - + <https://opengameart.org>
  - + <https://assetstore.unity.com/packages/audio/sound-fx/minimal-ui-sounds-78266>
- Material:
  - + <https://assetstore.unity.com/packages/3d/environments/landscapes/lowpoly-environment-pack-99479>
- Prefab:
  - + <https://assetstore.unity.com/packages/3d/prototyping-pack-free-94277>
- Skybox:
  - + <https://assetstore.unity.com/packages/2d/textures-materials/sky/10-skyboxes-pack-day-night-32236>