KW 10 – GameMechanics (1/2)

PREPARATION

Try to understand the game mechanics, level design and player movement in the following games:

1. Lunar Lander (1979): https://www.youtube.com/watch?v=McAhSoAEbhM
2. Thrust / Oids : https://www.youtube.com/watch?v=Dt44PEIWBRg
3. Space Taxi: https://www.youtube.com/watch?v=KuRyiFg6FBY

EXERCISE: ALONE IN THE CAVES

You are alone in a cave and you need to escape!

a. **Player:** Create a primitive and add a controller to move it in 2d (horizontal/vertical).

b. **Level:** Build a Level "Cave" with primitives. Use ONLY primitives (this exercise is not about the visuals, but the mechanics!)

c. **Camera:** Set the camera for either a single screen game with a fixed camera or for tracking the player (for this exercise you only need to point the camera at the player).

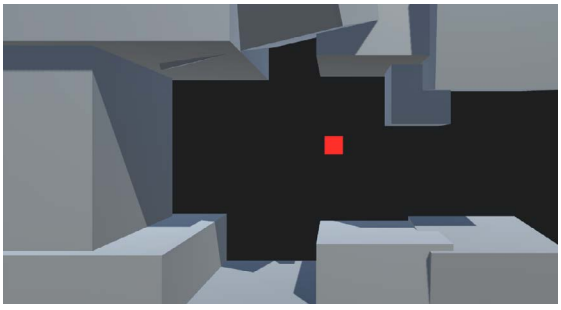
d. **Collisions (Lose Condition):** Add colliders to your level elements and player. If the player collides with the wall, the level should be reloaded.

e. **Triggers:** Add simple Pick-Ups. Add a score or change the size of the player, when picked up.

f. **Win-Condition:** Add a highlighted Exit to your cave.

g. **Iteration:** Playtest your Leveldesign and tweak the elements to create an interesting challenge. You can also add a second level.

Exercise submission – Screen capture max 1 minute of interesting gameplay of your final game. Upload a small movie (mp4) to moodle.



Your result could look like this...

Challenges (Extra!)

- → Improve your player controller e.g. add a constant gravitation
- → Add distortion fields (like wind etc.)
- → Add gates you can open.

KW 10 – GameMechanics (2/2)

PROGRAMMING HINTS

a. Create cube primitves in the hierarchy, use the transform tools to scale and position the cubes. Build a level with cubes.

b. Create a cube for the player and name it 'Player'

   1. Add a component 'Rigidbody' to the player game object (Use Gravity = false; Is Kinematic = false)
   2. (optional) Material: Create a new Material in project view (Assets). Add the material on the Player in the component Mesh Renderer.

c. Add new Script to Player, than ...

   1. GetComponent<Rigidbody().
   2. Get Input (WASD/Arrow-Keys)
   3. Rigidbody.MovePosition()
   4. void OnCollisionEnter()
   5. reload Scene on Collison -

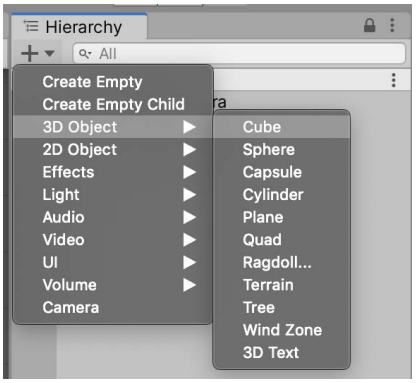
References

- Unity Refrences: https://docs.unity3d.com/ScriptReference/Rigidbody.MovePosition.html
- https://docs.unity3d.com/ScriptReference/Collider.OnCollisionEnter.html
- https://docs.unity3d.com/ScriptReference/SceneManagement.SceneManager.html

important for Scene reload

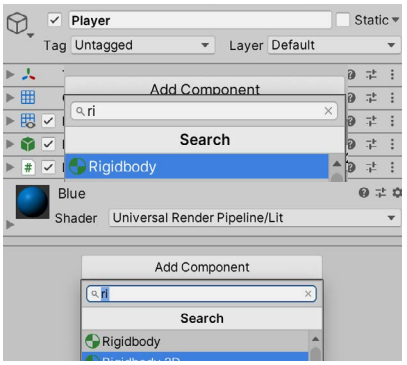
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;
using UnityEngine.SceneManagement;
```

If you are stuck and you need more support for the Basic Player Movement Script, you can find here a solution.

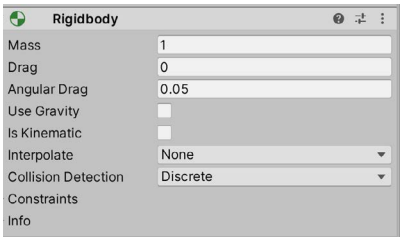


Create Primitives

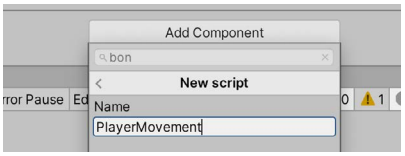
Transform Tools



Add Rigidbody



Configurate Rigidbody



Add new script