Games Programming 1 Coursework  
Implementations and references

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**Features implemented as blueprints:**

**Player Controller**: Player can freely swap between main (third person character), and Ball pawn by using key “1” and “2”. At some point (tied to a condition) the player can unlock the third character as well with key “3”.

**Jump Enabler**: By default, player cannot jump in the beginning, if he/she tries, there is a warning message of insufficient abilities. When player picks up a jump enabler coin, the jump ability on the HUD lights up green, and the player can jump from then on, on that particular level.

**Double Jump Enabler:** Working the same as the single jump enabler. When player picks up the coin, he/she will be able to double jump by pressing “space” twice. Player cannot pick up and use Double Jump enabler until he/she obtains the single jump ability first.

**Coin**: Only appears on the first level, makes the coin counter on the HUD counting the score. No effect on the gameplay otherwise.

**SphereCollider**: When player jumps on the red glowing button, it changes material to green and plays a sound to indicate that the pressing was successful. The first button like this is starting a sequencer that allows the Ball pawn to start its journey.

**Cylinder Collider**: The first cylinder collider works the same as the first sphere collider, except that the outcome is that it starts the portal door sequencer that allows the “thirdplayercharacter” to enter the portal.

**Key**: When picked up, it lights up the key symbol with green on the HUD. Without the key, the player is unable to enter the portal door.

**Portal Door**: When player is close, the door displays the message of the conditions that is required to open it. The door checks the conditions if the player is standing close, has the key and pressing E button. The door also checks if player is on the first level or second, and it makes the decision if player goes to next level, or display “win screen”.

**Other collider buttons**: Most buttons work the same way, but some effects are different. On the second level, one button destroys a static mesh so the player is allowed to descend to pick up an item. The last button of the game spawns the Portal Door, but only when the third character is overlapping.

**Fall Death**: Player can die by falling down on the second level, by hitting the killZ level. In that case a restart menu appears.

**Widget Blueprints:**

**Start Menu:** Player can navigate through the Start menu by the buttons. There is a Level Selector to select between the two levels, Start Game starts from the first level, Game Objective presents the basic goals for the player. Options show the control/key bindings of the game, and Quit button quits the game. All these screens can be called by pressing on them and gives the option to go back to the main menu.

**HUD**: The player HUD shows different information’s for the player. It shows the timer (if timer runs out, player loses the level and gets the option to restart current level or go back to main menu). The HUD also contains a low-level inventory where the player can keep track on what he obtained on that level. This contains Single Jump, Double Jump, Key and Coin counter. Player can pick up these items in any order and only the right picture will glow up as green.

**Pause Menu**: During gameplay, player can press “P” at any time to pause the game, and he/she will have the option to resume the gameplay or quit to the main menu.

**Game Over**: When player dies or runs out of time, the game over screen gives options to retry or quit to the main menu.

**Win Screen**: When the player enters the second portal door, the game shows a win screen, and the option to go back to the main menu.

**Pop Up messages**: During different scenarios, there are pop up messages for a few seconds for the player to give the necessary information. This includes when player is trying to jump without possessing the ability, or trying to enter the portal door, also when third playable character is unlocked.

**C++ scripts:**

**Flying boxes**: Flying boxes are static meshes that float up and down and rotate according to their settings. Calls a visualmesh cube, player can jump on them.

**Moving Platform:** Works similarly as flying boxes but moving on multiple different axis’s.

**Tube Light Switch**: On the first level when Ball pawn enters the tube, light switch checks if player is close and toggles light on with bright red light to make the way better visible.

**References:**

**SFX:**

MARIO JUMP - SOUND BUTTON

myinstants. n.d. *Mario Jump - Sound Button*. [online] Available at: <https://www.myinstants.com/instant/mario-jump/> [Accessed 14 January 2021].

### RUNNING FOOTSTEP SOUND EFFECT | FREE SOUND CLIPS | HUMAN SOUNDS

Free Sounds Library. n.d. *Running Footstep Sound Effect | Free Sound Clips | Human Sounds*. [online] Available at: <https://www.freesoundslibrary.com/running-footstep-sound-effect/> [Accessed 14 January 2021].

### CREATIVE MINDS | CORPORATE ROYALTY FREE MUSIC MOTIVATIONAL

**In-text:**(Creative Minds | Corporate Royalty Free Music Motivational, n.d.)

**Your Bibliography:**Bensound.com. n.d. *Creative Minds | Corporate Royalty Free Music Motivational*. [online] Available at: <https://www.bensound.com/royalty-free-music/track/creative-minds> [Accessed 14 January 2021].

### Button sound

Soundjay.com. n.d. [online] Available at: <https://www.soundjay.com/button/sounds/button-3.mp3> [Accessed 15 January 2021].

### FREE COIN SOUND EFFECTS | MP3 DOWNLOAD | FESLIYANSTUDIOS

Fesliyanstudios.com. n.d. *Free Coin Sound Effects | MP3 Download | Fesliyanstudios*. [online] Available at: <https://www.fesliyanstudios.com/royalty-free-sound-effects-download/coin-272> [Accessed 14 January 2021].

**Font:**

### BLACKLISTED FONT | DAFONT.COM

Dafont.com. n.d. *Blacklisted Font | Dafont.Com*. [online] Available at: <https://www.dafont.com/blacklisted.font> [Accessed 14 January 2021].

Other Assets:

### MARKETPLACE - UE MARKETPLACE

Unreal Engine. n.d. *Marketplace - UE Marketplace*. [online] Available at: <https://www.unrealengine.com/marketplace/en-US/store?lang=en-US>

**Images:**

### CHIC JEWELRY LOS ANGELES, IMPORTERS AND WHOLESALERS OF FINE JEWELRY BEAUTIFUL KEY SHAPE SAINT JUDAS RELIGIOUS PENDANT

n.d. *Chic Jewelry Los Angeles, Importers And Wholesalers Of Fine Jewelry Beautiful Key Shape Saint Judas Religious Pendant*. [image] Available at: <https://chicjewelry12.com/wp-content/uploads/2019/05/h92.jpe> [Accessed 12 January 2021].

### MANNEQUIN JUMP

n.d. *Mannequin Jump*. [image] Available at: <https://i.pinimg.com/originals/b4/73/64/b47364d67d02fb4437f939bacaee9563.jpg> [Accessed 12 January 2021].

**C++ scripts are based and changed from:**

### UNREAL ENGINE 4 DOCUMENTATION

Docs.unrealengine.com. n.d. *Unreal Engine 4 Documentation*. [online] Available at: <https://docs.unrealengine.com/en-US/index.html> [Accessed 10 January 2021].