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## Marvin the Mongoose

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## INTRODUCTION

### Description of Game

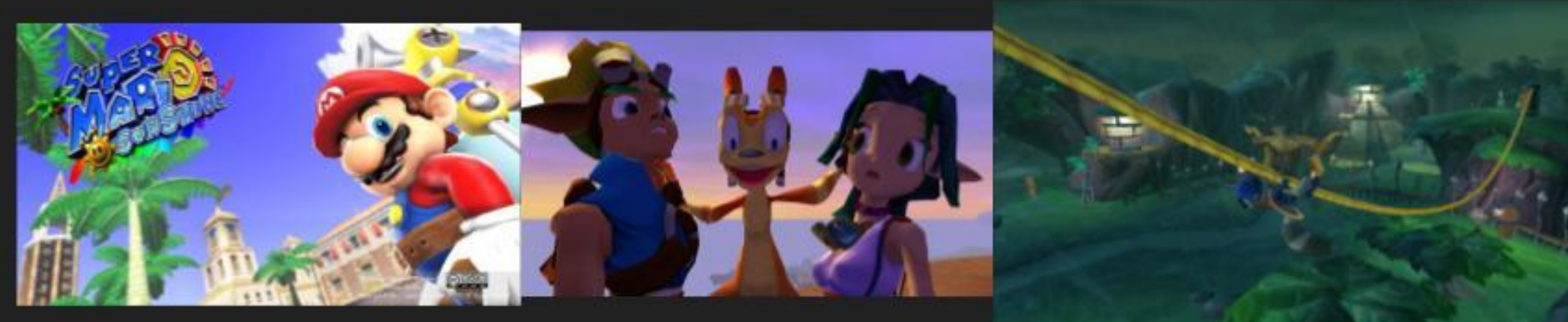
Marvin the Mongoose is a 3d platformer built in Unreal Engine 4. The basis of the game is that the player character, a mongoose named Marvin, must repair a time machine broken by his enemy, Slytherin the Cobra. To do this he uses another time machine to go through time to collect pieces of the broken one. The player has access to abilities and tools granted to him throughout his adventure. Each time that the player collects a piece, he is sent to the next level. It culminates when after collecting all the pieces you are sent back to the original time to fight Slytherin.



## DISCUSSION

### Choice and Issues of choosing a Low Poly Art style

What was the reason of the Low Poly Art style: We decided to go with the low poly art style because within the platformer realm that is the general art style. Games like Super Mario, Jak and Daxter, and Sly Cooper all use low poly assets.



These are used because they are fun and inviting, aimed to be accessible to all ages, and especially kids.

Unfortunately choosing a low poly art style is not something that worked out for us.

### Choice and Issues of choosing a Low Poly Art style

The Art style we ended up with is very different then the one we wanted at the start. Low Poly assets are not common in the Unreal Store and as neither of us consider ourselves artists it's not something we had access to. That is why our assets that we made ourselves clash with the rest of the world that has a much more realistic art style.

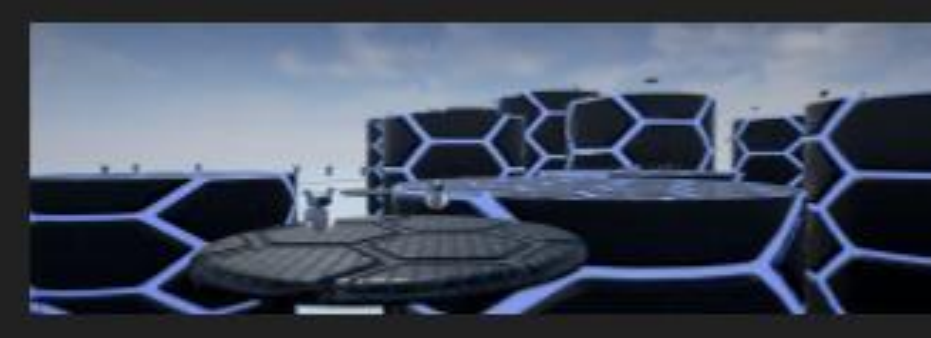
### Time Periods chosen for our levels

In our game there are three main time periods the player will travel through:

Pre-Historic:



Futuristic:



Medieval:



## MARVIN THE MONGOOSE

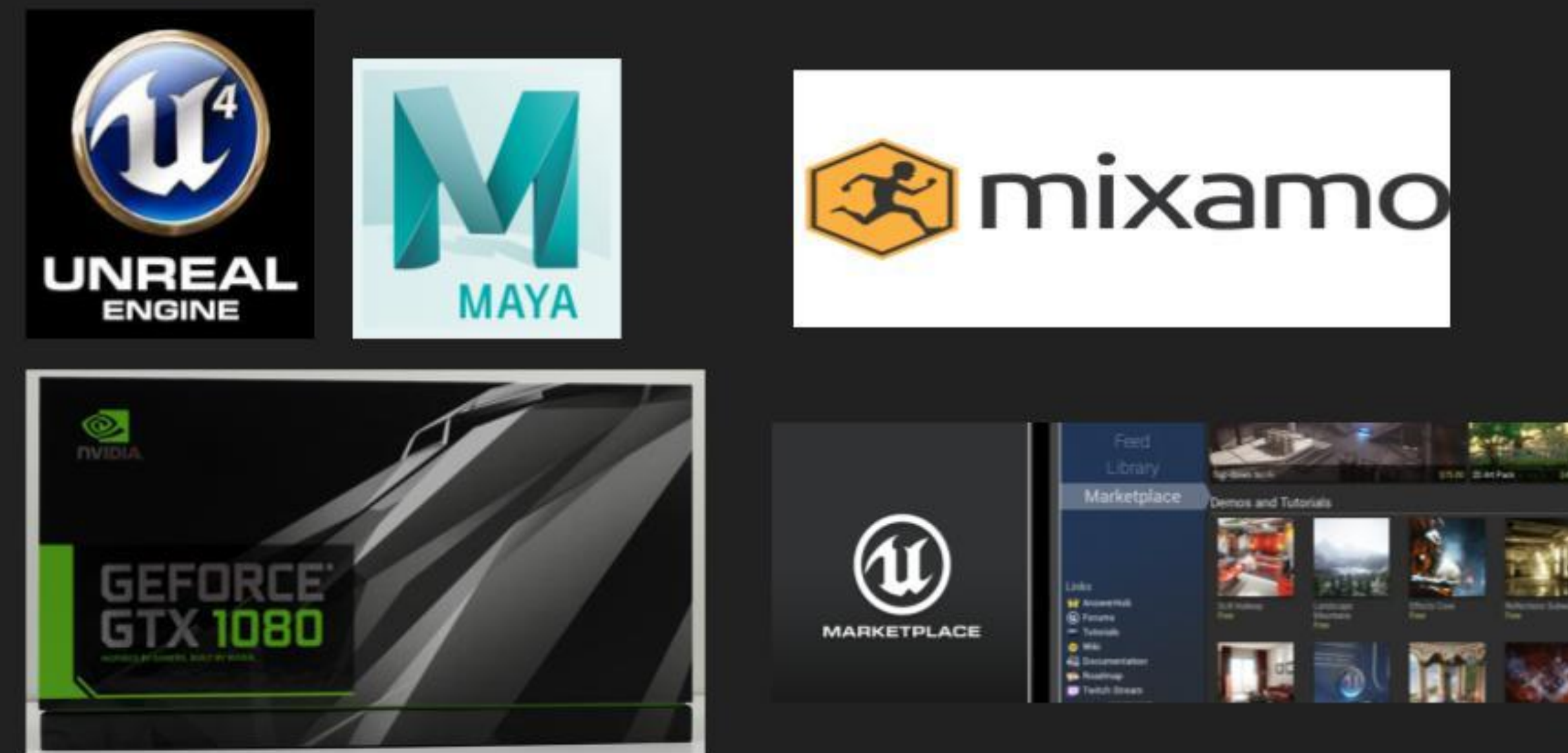
3D PLATFORMER MADE WITH UNREAL ENGINE 4

BY CHRISTOPHER BOOLUKOS & BENJAMIN CASTELLANO

MENTOR: DR. ROBERT MCCLLOUD

## MATERIALS & METHODS

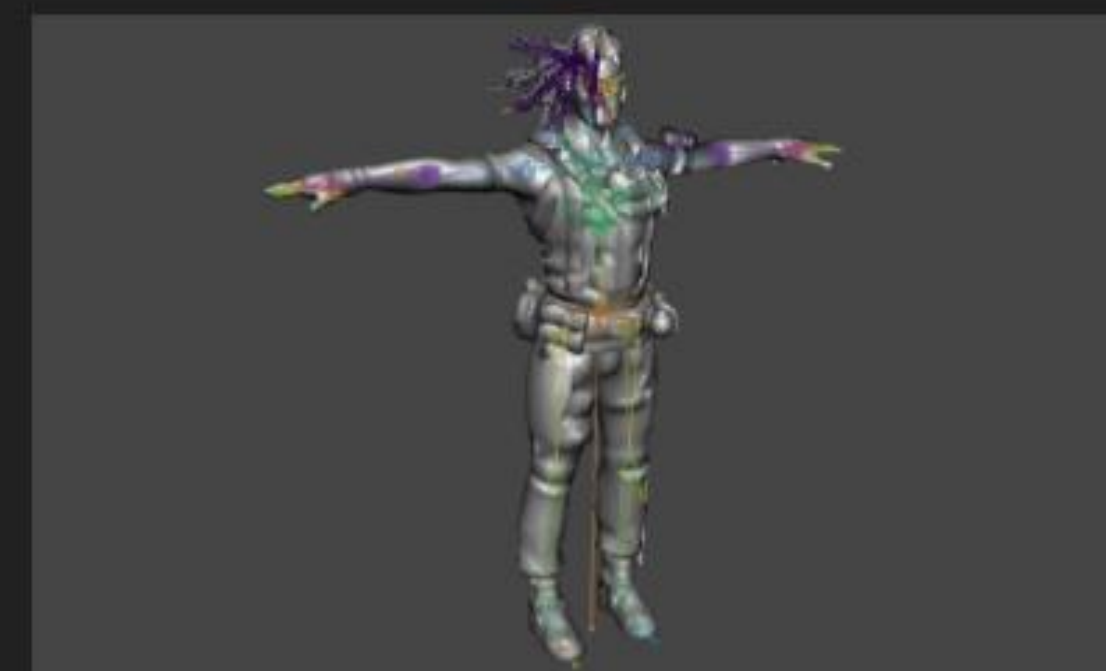
### Materials used for the Project:



### Rigging Marvin

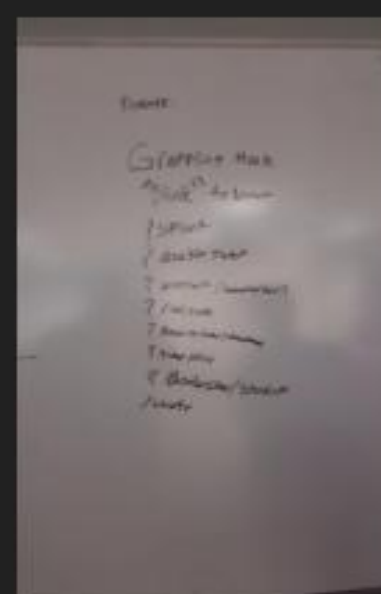
Steps taken to replace the third person character with the custom model (Marvin):

1. Brought Marvin's model into mixamo and rigged him to create his skeletal mesh
2. Imported his rigged model and mapped his skeleton with that of the default third person character controller
3. After the skeleton mapping, we put Marvin in the levels and set him as the new default pawn.



### Abilities

The abilities were something we knew we wanted to include from the very beginning. We thought it would be a fun way to introduce different elements to our games mechanic. We originally had the idea for a wider range of abilities. We realized though that we would not have the time for each one of these abilities so



settled on our main four abilities.

Teleport: When activated brings you forward 10 meters.

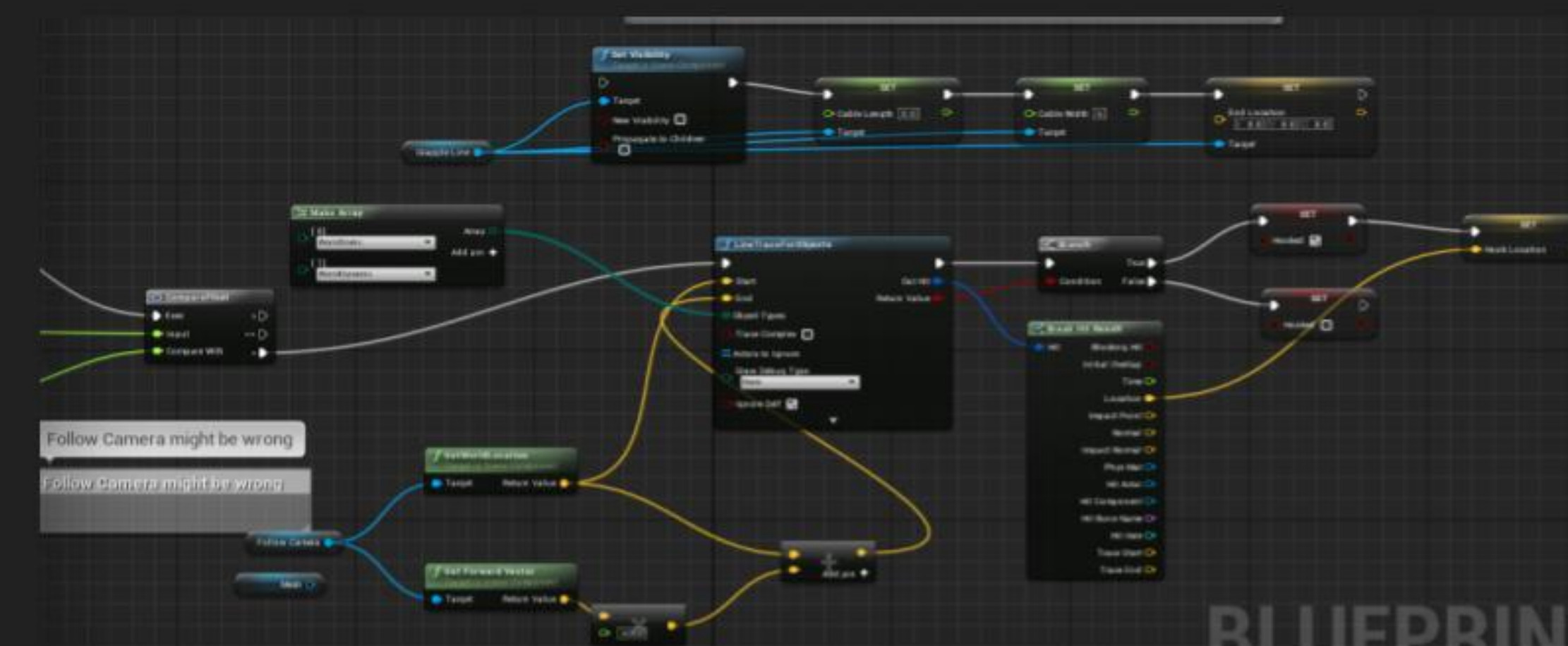
Grapple Hook: Attaches to an object you are aiming at and brings you to them.

Sprint: Makes Marvin move faster.

Double Jump: An ability that lets Marvin Jump in the air again after a first jump.

### Challenges with abilities

Grappling Hook: The grappling hook gave us a lot of trouble. That's because as far as code goes it was the most blueprint intensive section that we implemented. Requiring many different checks and actions.



## RESULTS

### User Testing

Difficulty:

Half played the game with no trouble after getting passed the first level, but the other half of testers found the game hard to play since they couldn't clear the first level.

Art Style:

While 75% found the general art style fitting, the rest found the cartoony characters in the more realistic environments off putting due to the trouble of implementing lower-poly assets.

Replayability:

All testers said they would play the game again if they did.

User Interface:

No one found any difficulty reading the user interface in the game.

## CONCLUSION

### Observations and Conclusions

Unity vs. Unreal?

In contrast to Unity, we found that Unreal Engine 4 was easier to learn and efficient to use.

Would we pick the same thing?

Seeing how well the game turned out through our eyes, we would say we would certainly create a 3D platformer in UE4 again.

What would we change?

We would add a combat system, enemies in the non-boss levels, as well as randomizing the time machine piece locations to make the game more interesting.

## REFERENCES

Teleport Ability  
<https://www.youtube.com/watch?v=yOoFUOIZEKQ>

Sprinting  
<https://www.youtube.com/watch?v=6rTx2MH-7qA>

Grappling Hook  
[https://www.youtube.com/watch?v=ll1Azu\\_syWA](https://www.youtube.com/watch?v=ll1Azu_syWA)

Double-Jumping  
<https://www.youtube.com/watch?v=8VYjMBXpN9I&t=8s>

HUD  
<https://www.youtube.com/watch?v=ra-G2qFWbuQ>

Maya/Mixamo FBX importing and rigging  
<https://www.youtube.com/watch?v=bj1Bh8E923w&index=16&list=PLtpNaPTkjdL6mbqv1JArSa4Ns67sFz1S7>

Boss AI Design and Player Health  
<https://www.youtube.com/watch?v=eBjtKsgurLU&t=39s>  
<https://www.youtube.com/watch?v=HK3FAbIk-J-g&t=184s>  
<https://www.youtube.com/watch?v=7JpHINDSmU4&t=5s>

Collectibles  
<https://www.youtube.com/watch?v=t6u0xwNppMA&t=28s>  
<https://www.youtube.com/watch?v=sNuelWCKoco>

Menu Creation  
<https://www.youtube.com/watch?v=ulUO4EN8BG8>

Pop-up Text/Dialogue and Character Interaction  
[https://www.youtube.com/watch?v=\\_FpM1snveWQ](https://www.youtube.com/watch?v=_FpM1snveWQ)

Level Loading and Changing  
<https://www.youtube.com/watch?v=3CkBaZQBUI>