Puppet Script

Angel Carrillo
Luis Cintrón
Fernando Guzman
Jean Carlos Rodríguez

Website: https://jeanrodriguez27.github.io/PuppetScript/

- Cross-platform video game engine developed by **Unity Technologies**
- Engine has been extended to support 27 platforms (As of 2018)
- Can be used to create both 3D and 2D games as well as simulations for its many platforms

Beginner friendly

- The **accessibility and popularity** of this engine as well as its features make it inviting for those who are new to game development
    - Drag and drop functionality
    - Primary scripting API in C#

Motivation and Project Definition

- Since Unity's primary scripting API is in C#, some people can and will find themselves stuck in the process of creating scripts regardless of their programming knowledge.
- With the use of PuppetScript, we aim to help users easily hop over one of the main hurdles found in scripting, **three-dimensional player movement**.
- Our primary goal was to make a language that features easy to learn functions which **can be used by new and experienced game developers alike.**

Language Features

To assist users in implementing the type of movement they desire in their 3D game environment, PuppetScript features:

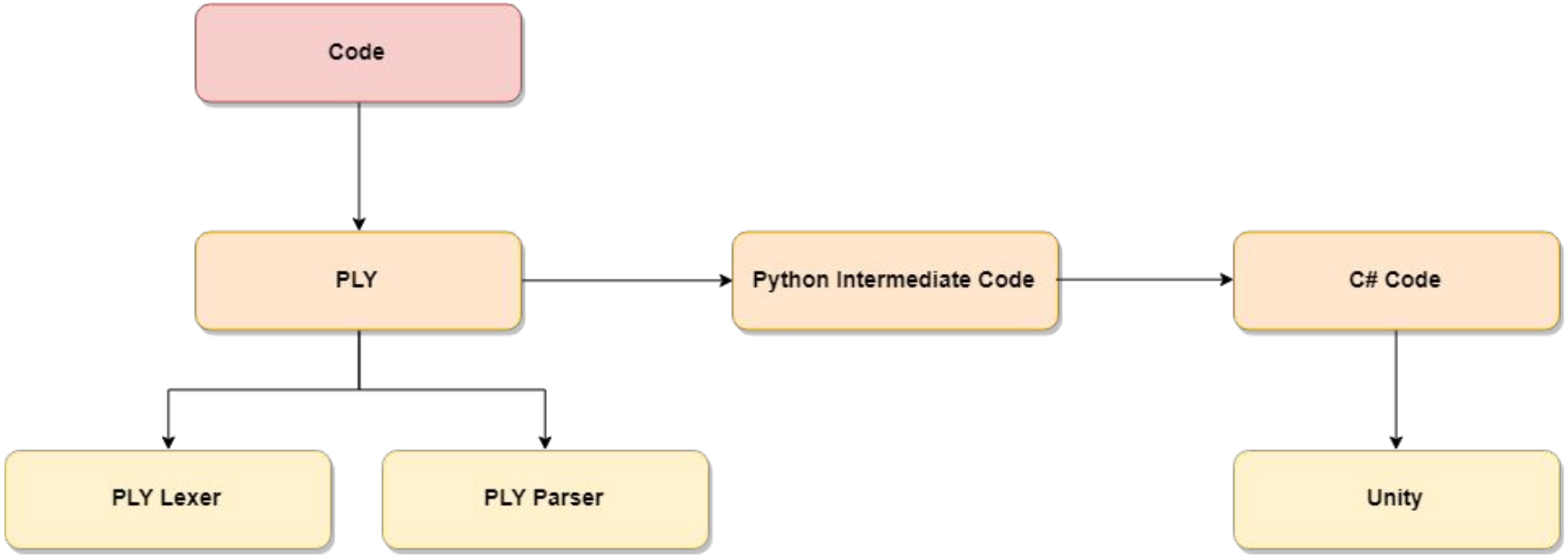
- Translation of simple and easy to learn grammar to complex C# code to work with Unity
- Creation of custom movement scripts for the game's playable character
- Functions that cut off the need for long, difficult to learn movement customization scripts

PupperScript Grammar (Functions)

- **SIMPLE**: a simple controller script (just character movement)
- **RIGIDBODY**: in this controller, the character's motion is put under the control of Unity's physics engine
- **CHARACTERCONTROLLER**: this controller allows to easily do movement constrained by collisions (without having to deal with a rigidbody)

The last two functions are both able to Jump, Dash, Walk and Jetpack

Project Architecture



Results (Character Controller)

Traditional implementation

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;
public class PlayerMovement : MonoBehaviour
{
    private float speed = 0.5f;
    private float jump = 1f;
    private float gravity = 0.1f;
    float deltaX;
    float deltaZ;
    private Vector3 movement = Vector3.zero;
    private CharacterController charCont;
    void Start()  {
        charCont = GetComponent<CharacterController>();
        if (charCont == null)
        {  Debug.LogError("character controller could not be found.");  }
    }
    void FixedUpdate() {
        deltaX = Input.GetAxis("Horizontal");
        deltaZ = Input.GetAxis("Vertical");
        movement = new Vector3(deltaX, 0, deltaZ);
        movement = transform.TransformDirection(movement);
        movement *= speed;
        if (Input.GetKey(KeyCode.LeftShift)){
                movement *= .5f;
        }
        if (Input.GetButtonDown("Jump") ) {
              movement.y = jump;
        }
        movement.y -= gravity;
        charCont.Move(movement);
    }
}
```

33 lines

1027 characters

PuppetScript

```
CHARACTERCONTROLLER
Speed = 10.0
Gravity = 0.1
movex = Horizontal
movey = NONE
movez = Vertical
JUMP = Key_Space
```

7 lines

114 characters

901% shorter terms of characters

The traditional script was shortened by 26 lines. This is **471% shorter** in terms of lines

Demo

Thank you!

Website: https://jeanrodriguez27.github.io/PuppetScript/