Week Five Course Work

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Problem Statement:

I want to calculate how far an object would go if it was to be hit by a car.

Formula:

Calculate the mass of the car against the mass of the object.

Solution:

Object Code:

```
using UnityEngine;
using System.Collections;

public class Object : MonoBehaviour {

	float objectMass = -10;
	// Use this for initialization
	void Start () {

	}

	// Update is called once per frame
	void Update () {
		Vector3 slowdown = transform.forward;
		slowdown *= objectMass + Car.carMass;
		rigidbody.velocity = slowdown;

		objectMass -= 0.1f;

		if (objectMass <= -10.0f) {
			objectMass = -10.0f;
		}
	}
	void OnCollisionStay (Collision col)
	{
		if (col.gameObject.tag == "car") {
			rigidbody.AddForce (transform.forward * Car.carMass);
			objectMass = Car.carMass;
		}
	}
}
```

Car Code:

```
using UnityEngine;
```

```
using System.Collections;

public class Car : MonoBehaviour {

	float forward = 0;
	float back = 0;
	public static float carMass = 10;

	// Use this for initialization
	void Start () {

	}

	// Update is called once per frame
	void Update () {
		Vector3 slowdown = transform.forward;
		slowdown *= back + forward;
		rigidbody.velocity = slowdown;
		forward -= 0.2f;
		back += 0.2f;

		if (Input.GetKey (KeyCode.W)) {

			forward += 0.5f;
			rigidbody.AddForce (transform.forward * forward);

		}
		if (Input.GetKey (KeyCode.S)) {

			back -= 0.5f;
			rigidbody.AddForce (transform.forward * back);

		}
		if (forward >= 20.0f) {
			forward = 20.0f;
		}
		if (forward <= 0.0f) {
			forward = 0.0f;
		}
		if (back <= -7.0f) {
			back = -7.0f;
		}
		if (back >= 0.0f) {
			back = 0.0f;
		}
	}
}
```