Zachary DeVita
CS 496
Assignment 4

For my mobile application I made a game using unity. I made the Space Shooter game which is included in the Unity game tutorials, and then I ported the game manually over to the Android operating system and converted the controls to be used with the device's accelerometer.

As for the requirement to access an API, I created a game "Leaderboard" where the high scores are stored on a database. At the beginning of each game the leaderboard is displayed, showing the top 10 players and their scores. This particular functionality utilizes a GET request to simply show the top scores. If a player breaks into the high scores, then a message telling them so is prompted and the user's name is entered into the database. This utilizes a POST request to update the leaderboard in the database. When a new score is added to the database, the current lowest score is simultaneously deleted from the database. You can see this, in the video, when the game is restarted and the name "Zack" has been added to the leaderboard.

The server uses a Node.js framework, the database is an SQL database, and the Unity scripting done in C#. The data being passed between the server and application is done so via JSON. The application is an Android native .apk application which I run in the Unity Android emulator for the video. I am also utilizing the Unity Remote 5 application on my phone so that the controls from my phone's accelerometer can be used.

I have a short video of me playing the game and showing the result of the api interactions. Since my phone was used for the controls in the game, I had to have someone else take time out of their schedule to film, copy the video to their computer, and upload the video so it can be viewed online. This is why I am also including a second video of me opening Unity and showing the some of the scripts where I interact with the api, and where I ported the controls to Android. The instructions say that I only need to turn in the code for the POST. I have included both the POST and GET request functions below, but please let me know if you want any other code as well. This seems like a strange requirement for this assignment, and I don't want to lose any credit for it.

Here is the URL for the video showing me playing the game with my phone.

URL: http://splice.gopro.com/v?id=M6GX8LopP

As you can see, the controls for the space ship are done with the accelerometer from my cell phone, and the shooting is done by pressing the screen of the cell phone.

Here's the other URL for the video of me showing a couple of the primary scripts for the game. Scripts where I had to modify the code developed using the tutorial, so that I could port over the controls to Android and so that I could interact with the api.

URL: http://youtu.be/ZTge_DmwqUw

```
app.get('/get-scores', function(req, res){
	var context = {};
	pool.query('SELECT `name`, `score` FROM SpaceShooter.Scores ORDER BY score DESC',
	function(err, rows, fields){
		if(err){
			console.log(err);
			return;
		}

		context.results = JSON.stringify(rows);
		console.log("I was executed");
		res.send(context);
	});
});
app.post('/add-score', function(req, res){
	console.log("I'm in post");
	var name = req.body.name;
	var score = req.body.score;
	var values = "'" + name + "', " + score;
	console.log(values);
	pool.query('INSERT INTO SpaceShooter.Scores(`name`, `score`) VALUES (' + values + ');',
	function(err, rows, fields){
		if(err){
			console.log(err);
			return;
		}
		var data = JSON.stringify(rows);
		console.log(data);
		res.send(data);
	});

	pool.query('DELETE FROM SpaceShooter.Scores ORDER BY score LIMIT 1',
	function(err, rows, fields){
		if(err){
			console.log(err);
			return;
		}
		console.log("Lowest score removed");
	});
});
```

The POST request not only adds the user and their score to the database, but it also removes the current lowest score from the database.