**Kuan-Ting Chin 33430072  
Chrysler Carnage Post Mortem**

**1) What you did on the project and what responsibilities you took on board on the team?**

I was a programmer on the team, and helped our group leader Alejandro on doing the physics for the car, ensuring the tire slip was working as realistically as possible as well as the gearbox with gear shifts was working as intended. I was also given the task to create a simple AI system so the car can follow along the course through node creation (and the ability to constantly add nodes). I am also currently finishing up on the collision detection of the car for destruction.

**2) Details of some of the challenges you faced and how you dealt with them (i.e. your approach to resolving any technical or artistic challenges you faced)**

One of the main issues I had to deal with was my lack of physics understanding and cars, so I had struggled with implementing the slip ratio with Alejandro, but was able to help give general feedback and alternative suggestions to possible problems we faced during implementation with regards to the slip ratio factor. I also had a small problem with gearbox initially, but managed to do a workaround by creating a ‘fake’ gearbox RPM that alters the cars current gear settings depending on the speed.

The other problem I faced was doing destruction of the car, where I had issues with collision detection, due to the car shapes and meshes, but was able to get the particle system working as well as general destruction idea. An issue with the particle system was the fact that the particle system is slightly bugged with Unity, giving errors regarding bounding boxes even though the particle system has nothing to do with it.

**3) Areas of your project which you felt went to plan - things you were particularly pleased about. These could be technical accomplishments, team achievements, great communication, good self-critique & team reviews, efficient task planning etc.**

I felt the areas the project went smoothly were the gear box implementation of the car and the AI. This was my first time being able to ‘cheat’ a way around a system in Unity to allow the user to assume the gear box is functioning as it would via a real life simulation, as the system utilized fake RPM counters in order to shift gear and ensure shifts between gears don’t ‘bounce’ between 2 gears when the values are exceeded higher or below. The way around it was to set a min-max value zone which the RPM would be able to shift gear into, and the only way to shift back down was if the zone reached a minimum value within the min and max zone.

I also felt that scripting the particle for the wheels and generally the destruction scripting which involved combining the collision spheres into an array. The car reset ability, allowing the car to flip the right side up also went smoothly.

I felt communication in the team with regards to our goals and objective was pretty positive, with the direction of the project generally focused, and individuals’ works being well received by each other’s critiques, and changes altered if need be to fix certain issues. Communication within the team with regards to getting a hold of people was not a problem either, as each team member would reply within an acceptable timeframe with regards to questions, help, or other potential issues.

**4) Areas which didn't go quite as well as anticipated - problem areas, tasks which took longer than planned, roadblocks, pipeline issues etc.**

I felt that my personal skills may have hindered the group a little bit, as I required a bit of guidance in regards to programming, especially the physics and slip ratio for the tires, as maths and physics were not my strong point. I also felt that although communication was good within the team, we sort of lacked initiative to keep everyone updated on what we are doing individually (I was guilty of this too). I felt that the car AI took a little bit longer than I would have liked, and it was potentially putting my other group members from working to test the car physics and how the AI would react to our template terrain and track.

Another issue was the process of destruction implementation, as I had looked using mesh deformation initially for the car destruction, but noticed that the method would be very complex, and the short time frame would not exactly be ideal. So the only alternative I could think of was to simply detach the gameobjects from our prefab (doors, hood, bumper, etc), add a rigidbody and meshcollider, and set the weight to the point where it would not impact the cars performance on the track.

**5) What you'd do different next time - i.e. what did you learn and how would you go about processes or collaborative efforts differently next time? e.g. Task tracking was an issue, so next time we'd use a backlog.**

I have gained a lot of knowledge from this project, not only in terms of understanding how to implement the gearbox so it feels robust, but also the method of implementing min-max value zones. I also managed to demonstrate skills I’ve learnt previously from gamesjams to implement into the project, and demonstrate alternatives to how we could implement different functions and features for the game. I feel personally my time management could have essentially been better, with communication on when I need help or feedback being a large problem with it. I also feel the team should stick to the weekly updates either through facebook videos or live demos.