Team number: JMS62
School name: Jackson Middle school
Area of science: Behavioral and Social Sciences
Project title: Albuquerque Balloon Fiesta Traffic

Problem definition:
Traffic at the Albuquerque International Balloon Fiesta can have negative effects on many people, this includes students, workers, pedestrians, and any other drivers. The traffic causes delays for cars going out of their community. This causes difficulty for people heading to work, students that need to get to school, and any other drivers. Pedestrians are also affected by the traffic because they could get hit by cars in traffic and it also takes them longer to get places. We are continuing our project from last year and adding more variables like the speed of the cars and where their destination is, along with making an actual map of the traffic instead of a grid in our code. We chose this project because it is a local issue and we feel that it is very important that it is solved. In conclusion, the Albuquerque International Balloon Fiesta Traffic can result in consequences for many drivers and can overall impact the whole community around the Balloon Fiesta.

Problem solution:
Our solution to the problem is to make three different simulations to represent the flaws like the congestion, and corrections we can make like different routes in the Balloon Fiesta Traffic. These will include, how the traffic is currently moving, how the traffic can be improved, and the fastest route from one destination to another. On the first simulation we will show the traffic flow on each street. Our simulation will be the same roads and directions from the previous Balloon Fiesta. It will show a map of the Balloon Fiesta and how the traffic becomes backed up due to all the cars as well as showing major congestion areas. Our second simulation will be an improved version of the first and have a congestion indicator which will show where the problem areas are. Then lastly, our final simulation will be able to pick a random location on the map and show how it can get from their location to the Balloon Fiesta. These simulations will help show an optimal route that will help them avoid more traffic and get to their destination quicker and safer.

Progress to date:
Right now, we have done research on the Balloon Fiesta traffic. In our research we have discovered what roads are impacted due to traffic causing delays and what roads that can change to improve traffic. We also found the way bus lanes and bus prices are affected by the traffic. The research we have done so far has been from the most recent Balloon Fiesta. We have been in contact with Sgt. Zak Cottrell, a civil engineer designer, through email. He has been a resource in answer our questions we had. Zak Cottrell gave us a large map of the streets and buildings near the Balloon Fiesta park. We use his board as a guide to know the best route around Balloon Fiesta Park. In addition, we have been trying to get in contact with Elaine Nelson, the transportation manager, to find out more information about the traffic around the Balloon Fiesta compared to its usual rate. Recently, we have met with Nick Bennett, our mentor, to help make our code. We have decided that we will use GIS files of the Albuquerque streets around Balloon Fiesta to show the streets and cars moving to a random location as a representation of the traffic problems.

Expected results:
After programming and doing research on traffic flow, we have made plans to fix the problems of the Balloon Fiesta Traffic. Not only will this help a local problem but will also help other problems, including the roads being more efficient and running quicker. There are several problems and we plan on making

multiple programs to show our results. We hope to find what is causing these problems and why they are occurring. We are also planning to identify what roads are causing the most accidents and are the slowest. Then find the best route to the Balloon Fiesta from a specific point on the grid. This will help the transportation department because it will show what they could do if similar problems occur in years to come.

Sources and citations

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