**Project Description**

The title of my term project will be “Traffic Control”. It will be a birds eye view of an intersection(s) where the user will click on objects and control them to navigate them to their designated destination within a certain time interval.

**Competitive Analysis**

During my online research I discovered multiple games that displayed similar objectives as my game. One game in [particular](https://www.youtube.com/watch?v=RSnoTtykcg0) displayed a simple four way intersection where the user could control the traffic lights for in-coming cars. In this game there were no people and no time attribute. The user passe level by getting a certain number of cars past a certain point. The game ends when two cars collide. I will implement this feature that if two objects collide the user will lose. I will also include the feature that if time hits zero before the user has properly navigated all the objects to their respective destinations the game will end. I also discovered another [game](https://www.youtube.com/watch?v=EPO-9ymP4S8&t=198s) where the game presented multiple intersection where the user controlled the lights and had only cars flowing through to a predetermined destination. Some important features in this game was the introduction of emergency vehicles that had a time attribute where they needed to get off the screen within a certain time period. My vision for my game is to have different objects spawn in random areas and for ones with common color to have a designated destination they are travelling to. The user will control the light and such to ensure their safety and gain as many points before time runs out.

**Structural Plan**

The way I hope to organize my game is to make a file with all my class objects and import them into my play game file that will have my splash screens and background images that will represent streets etc. I will use OOP to create game objects and also the basic animations framework to organize my objects and game board through the MVC format.

**Algorithmic Plan**

My algorithmic plan for this project currently has two versions. My first version is where each object has a starting point and a destination, where the destination is based off of color. To determine when the object needs to stop for lights or behind other objects I plan on using the distance formula to calculate how far away the object is from another objects and if it's getting closer to its destination. Once the user clicks an object, they will be able to control it using their arrow keys (left,right,up,down). Every traffic light will act as its own button where the user will be able to toggle between green and red by simply clicking anywhere on the specific light. My second version is where I create a 2-D list of objects(roads, buildings, vehicles, sidewalks etc) and I will move the objects based of their position in the 2-D list. Once the object reaches it destination which is a cell in the list, the user gains a point. I will also be using the built-in pygame feature that allows for collision detection between objects. I will keep a list of objects in my data function and constantly check if any of the items are colliding on screen. Hopefully one of these plans will easily allow for the user to control one moving object at a time and the traffic lights whenever they want.

**Timeline Plan**

Tues Nov.20th: Objects and images established, start to create game environment and lay out game structure

Sun Nov 25th: be able to view images of objects on screen and move them around and detect collisions

Wed Nov 28th: Implement time attributes and start to develop feature where game mode is endless and difficulty increases

Monday December 3rd: Mostly done cleaning with things regarding game play start to connect files and work on video and documentation.

**Version Control Plan**

I will be utilizing Google Drive to backup my code by uploading my most recent directory with all my updated files and such. I plan to do this every two days of serious work.

**Module List**

I will be using the external module pygame and I have been approved by my mentor through a tech demo.

TP2 Update:

Have four-way intersection with objects moving straight and responding to traffic lights. Everytime the car passes an intersection and reaches the end of the board the user gains a point. They have to earn a certain number of points before time expires.

TP3 UPDATE:

3 levels and survival mode. Splash screens made into objects and imported into game. Music and sound effects added. Cars try to run red lights. Everything run in display which is the main loop and then passed to other level event loops.