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## Project Proposal

### **What would we like to do?**

Our group would like to create a game that resembles Super Mario. For example, the actions of the user-controlled object will be determined through keyboard interaction, and the autonomous objects' objective is to roam around the level and attack the user if they come near them. For the sake of simplicity and time, our project will be done on a 2D plane. Additionally, the game will contain a score that will be based on the number of autonomous objects, such as the Goombas in Super Mario, destroyed by the user that will be kept track of by incrementing the score every time a user "defeats" an enemy.

### **Why do we think it's important?**

Our group believes that this is important because it allows us to be able to explore and implement the different techniques and course material that we've learned so far in the semester, such as object definitions with manipulation, inheritance, classes, and polymorphism. Learning how to implement these concepts in a real scenario, such as making a video game, and tackling the unavoidable bugs and errors that come with creating a project, will allow us to get a better overall understanding while also doing it in a very interactive way. Being able to physically see how we manipulate code in OpenGL will also give us a better comprehension of how to approach assignments with programs that we are unfamiliar with. This ultimately will give us insight on what being thrown into an unfamiliar environment will be like.

### **What's our plan?**

Our group plans to heavily study the following OpenGL topics: collisions, texture rendering, OpenGL Objects, shading language, and OpenGL concepts. Furthermore, we will ensure that the algorithms being implemented are well optimized. Our first objective is to set up the level and create the autonomous and user key input objects. The second objective is to create a 2D design for our level, the x and y axis, where the player and the autonomous object will be moving on. The third objective is to add collisions between objects to be able to interact with one another. Fourth, we plan to implement sprites to our objects to give our game a nice design. Fifth and finally we plan to thoroughly debug any issues that may occur while running the program.