**Project Phantom Pursuit**

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Our project is about how we implement the A\* algorithm and graphs to create a fun game about a ghost trying to hunt the player. We use a user interface along with sound effects where players can

click the nodes to traverse through the tree. The objective of the game is to survive for as long as possible. Do you have the guts to play this game.

**Problem**: Well today’s games are basically all pre planned movements which drain the fun out of enthusiastic problem solvers who need more challenging games, games which adapt to your playstyle, which learns your move sets, and ultimately forces you to become better than yourself.

Next problem is to make it a multiplayer game.

**Solution**: So, we tackle this problem by releasing a powerful AI into the game which uses the above-mentioned A\* algorithm to try and hunt you, we need to strategize our movement in order to survive, which makes the game thrilling. By using the concepts of Sockets in networks we will try to add more players into the same server. If we have enough time left, we will also try to implement reinforcement learning (by taking help from seniors)

**Significance**: This game helps to improve one’s decision-making skills, because it is a time bound game and the next decision has to be made quickly. Thus, through this process the player increases his survival skills, thinking abilities, long term goals and many other factors.

**Background**: Our basic map is a graph with nodes having bidirectional edges. We have implemented three difficulty levels for the players to experience. With libraries like playsounds and pygame , we are creating the Sound effects and the GUI to make this game more interactive.

**Keywords**: Graph Theory, A\* Algorithm, Survival Game, Dynamic Gameplay and trying to implement reinforcement.