A PATH FINDING ALGORITHM*

A* is a graph traversal and path search algorithm which is often used in many fields of computer science due to its completeness, optimality, and optimal efficiency.

This code is the basic representation of A* path finding algorithm in action. In a 2D grid, the user can set a *Start and End* spot and create *Barriers* or *Walls* that the path finding algorithm has to avoid. Once run, the user can watch the algorithm find the shortest path from the *Start* to the *End* spot and once found, the shortest path is highlighted. Users can also create custom grids and save them on a database which will allow the user to load any saved grid designs. The algorithm was created using complicated logic and formulae and the grid was created using imported modules. The visual representation of the grid is fancy, and the program is user friendly.

Concepts that were used to create this program are:

Functions: For creating and calling numerous variables that govern important changes.

Dictionaries: For monitoring links between multiple variables.

Lists: For creating the grid, storing positions of important nodes, and finding the shortest path.

Modules: For fancy visuals as well as performing major calculations. Example: pygame, math