DOCUMENTATION

Libraries required: pygame,random,copy,matplotlib

Important functions used in code:

1. rrt2() = The RRT algorithm is implemented in this function.
2. rrtStar() = Implements the RRT* algorithm using the Manhattan distance heuristic.
3. rrtStar2() = Implements the RRT* algorithm using the Euclidean distance heuristic.
4. getPath() = It finds a path from the current position of the snake's head to the target.
5. findNeighbors() = examines a neighborhood of vertices in a fixed radius from the new node. It uses Manhattan distance to check the distances
6. findNeighbors2() = examines a neighborhood of vertices in a fixed radius from the new node. It uses Euclidean distance to check the distances.
7. distanceHeuristic1() = d=|x1-x2|+|y1-y2|
8. distanceHeuristic2() = $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
9. Node structure=
10. Snake Body= Collection of objects of cube class. Each cube represents one block of the snake body. Each block has its own position and direction.
11. Board structure : Board is a 30 x 30 matrix
12. A cell : is represented by its coordinates (x,y) and its direction.
13. Snake body : is a list of cells
14. Node structure : A node/vertex consists of Snake body and Board

FEEDBACK RECEIVED

We were given 2 task to complete as discussed in first evaluation -
1. Comparison of RRT and RRT* with both time and maximal snake length : we completed it in our final presentation.
2. Test our RRT* with new and different heuristics and analyze the results obtained : We did the same with 2 heuristics used in final presentations and shown in final plots.