

Project 5
Pranjit Kumar Kalita
ECE 368, PUID: 0023180546
Email: kalita@purdue.edu

Data Structure: Graph with edge weights representing the number of turns required to get to that edge. Each input file value was treated as node, and every one value was inverted to 0 and every 0 value was inserted to one.

Algorithm: A recursive implementation was used to calculate the number of turns required. The algorithm assumes that the shortest path from one node to the other side of the river is the distance from that node to the closest node, plus the distance from the closest node to the edge of the river. This procedure is applied in an iterative manner to all the nodes adjacent to the particular node.

Time complexity: $O(V)$ for computation of number of turns, since all the nodes are visited only once.

$O(V)$ for constructing the graph since all the nodes are visited only once.