**4.2 Analysis:**

The functions and their algorithms are as follows:

* **void sea( ):**

Since we need the blue sea, we’ve use the combination of green (0.5) and blue (1.0).The POLYGON function serves the purpose of covering the entire screen with blue color starting from the vertices (0, 0) to (2000, 0) and then from (2000, 1600) to (1600, 0).Then the black lines (1, 1, and 1) that represent the waves continuously translate from 0-2000 at a distance of 100 units from each other.

* **void bridge( ):**

This function represents the bridge structure in a combination of black and grey colors. They have been drawn using the GL\_POLYGON function with edges in combination to represent the Top1-4 ,Strip1-4, YellowStrip1-4, Thread f & b, base1&2, Right & Left pole and the two 6-point polygons.

* **void boat( ):**

This was by far the most tedious task to get the vertices of the boat/ship in the right place and orientation. We have used the following points to get them right: 8 points form the basic ship design. We had to use 5 points each to get the back of the ship to appear elevated and give it a realistic feel. And then we used 47 points to get the grills/boundaries of the ship in the desired order. We placed a polygon inside the boat which took another 4 points along with 16 points for the table in the boat. So finally, it took a whopping 85 points to get the ship to appear the way it is…

(8\*ship)+ (5\*ship back1) + (5\*ship back2) + (47\*ship grill) + (4\*polygon) + (4\*4\*table)

* **void car/bus( ):**

We have translated a bus over the bridge. Constructing the bus was again a challenge but was easier to implement once we had got the boat done. It was implemented by drawing a set of regular polygons and then merging them in parts to look like a bus. We used 3 sets each consisting of 4 points each to get the layout followed by a set of 16 points for the carrier. Then came the set of headlights with 2 points each followed by a set of 2 points for the horn grill and finally another couple of points for the side windows.