FUZZY GRAPH COLORING CODE

```
import java.util.*;

public class Main {

   public static void colorFuzzyGraph(int[][] adjMatrix, double[]
fuzzyValues, int numColors) {

      int[] colors = new int[adjMatrix.length];

      Arrays.fill(colors, -1);

      PriorityQueue<Integer> pq = new PriorityQueue<Integer>((a,b) -
> adjMatrix[b].length - adjMatrix[a].length);

      for (int i = 0; i < adjMatrix.length; i++) {

         pq.offer(i);

      }

      while (!pq.isEmpty()) {

         int u = pq.poll();

         boolean[] available = new boolean[numColors];

         Arrays.fill(available, true);

         for (int v : adjMatrix[u]) {

            if (colors[v] != -1) {


               if (fuzzyValues[u] >= 0.5) {

                  available[colors[v]] = false;
```

```
            }
        }
    }
    for (int i = 0; i < numColors; i++) {
        if (available[i]) {
            colors[u] = i;
            break;
        }
    }
  }
  for (int i = 0; i < colors.length; i++) {
    System.out.println("Vertex " + i + " is colored " + colors[i]);
  }
}
public static void main(String[] args) {
  int[][] adjMatrix = {
    {1, 2},
    {0, 2},
    {0, 1, 3},
    {2}
  };
```

```
        double[] fuzzyValues = {0.5, 0.7, 0.3, 0.9};
        int numColors = 3;
        colorFuzzyGraph(adjMatrix, fuzzyValues, numColors);
    }
}
```

OUTPUT: