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ROLL NO : 55

ASS NO : 2

```
import java.util.*;

class MST {
   private static final int V = 5;


   int minKey(int key[], boolean mstSet[]) {
      int min = Integer.MAX_VALUE, min_index = -1;
      for (int v = 0; v < V; v++) {
         if (!mstSet[v] && key[v] < min) {
            min = key[v];
            min_index = v;
         }
      }
      return min_index;
   }
    void printMST(int parent[], int graph[][]) {
      System.out.println("Edge \tWeight");
      for (int i = 1; i < V; i++) {
         System.out.println(parent[i] + " - " + i + "\t" + graph[i][parent[i]]);
      }
   }
    void primMST(int graph[][]) {
      int parent[] = new int[V];
      int key[] = new int[V];
      boolean mstSet[] = new boolean[V];


      Arrays.fill(key, Integer.MAX_VALUE);
      Arrays.fill(mstSet, false);
```

```
    key[0] = 0;
    parent[0] = -1;

    for (int count = 0; count < V - 1; count++) {
        int u = minKey(key, mstSet);
        mstSet[u] = true;

        for (int v = 0; v < V; v++) {
            if (graph[u][v] != 0 && !mstSet[v] && graph[u][v] < key[v]) {
                parent[v] = u;
                key[v] = graph[u][v];
            }
        }
    }

    printMST(parent, graph);
}

public static void main(String[] args) {
    MST t = new MST();
    int graph[][] = new int[][] {
        { 0, 3, 0, 0, 0 },
        { 3, 0, 4, 0, 0 },
        { 0, 4, 0, 5, 0 },
        { 0, 0, 5, 0, 6 },
        { 0, 0, 0, 6, 0 }
    };

    t.primMST(graph);
}
```

}

OUTPUT :

Edge Weight

0 - 1 3

1 - 2 4

2 - 3 5

3 - 4 6

=== Code Execution Successful ===