

# Kruskals

```
import java.util.Scanner;

class kruskals {

    static int arr[][] = new int[20][20];

    static int n;

    static Scanner sc = new Scanner(System.in);

    public static void main(String args[]) {

        printsolution();

        krus();

    }

    static void printsolution() {

        System.out.println("Enter the number of nodes");

        n = sc.nextInt();

        System.out.println("Enter the adjacency Matrix");

        for (int i = 1; i <= n; i++) {

            for (int j = 1; j <= n; j++) {

                arr[i][j] = sc.nextInt();

                if (arr[i][j] == 0) {

                    arr[i][j] = 999;

                }

            }

        }

    }

    static void krus() {

        int visited[] = new int[20];

        int ne = 1, i, j, min = 999, a = 0, b = 0, u = 0, v = 0;

        int mincost = 0;

        for (i = 1; i <= n; i++) {

            visited[i] = 0;

        }

        while (ne < n) {

            for (i = 1, min = 999; i <= n; i++) {

                for (j = 1; j <= n; j++) {

                    if (arr[i][j] < min) {

                        min = arr[i][j];

                        a = u = i;

                        b = v = j;

                    }

                }

            }

        }

    }
```

```
while (visited[u] != 0) {

    u = visited[u];

}

while (visited[v] != 0) {

    v = visited[v];

}

if (u != v) {

    System.out.println("Edge " + ne++ + " (" + a + ", " + b + ") cost: " + min);

    mincost += min;

    visited[v] = u;

}

arr[a][b] = arr[b][a] = 999;

}

System.out.println("The Minimum cost is " + mincost);

}

}
```