// Prim's Algorithm in C

#include<stdio.h>

#include<stdbool.h>

#define INF 9999999

// number of vertices in graph

#define V 5

// create a 2d array of size 5x5

//for adjacency matrix to represent graph

int G[V][V] = {

{0, 9, 75, 0, 0},

{9, 0, 95, 19, 42},

{75, 95, 0, 51, 66},

{0, 19, 51, 0, 31},

{0, 42, 66, 31, 0}};

int main() {

int no\_edge; // number of edge

// create a array to track selected vertex

// selected will become true otherwise false

int selected[V];

// set selected false initially

// set number of edge to 0

no\_edge = 0;

// the number of egde in minimum spanning tree will be

// always less than (V -1), where V is number of vertices in

//graph

// choose 0th vertex and make it true

selected[0] = true;

int x; // row number

int y; // col number

// print for edge and weight

printf("Edge : Weight\n");

while (no\_edge < V - 1) {

//For every vertex in the set S, find the all adjacent vertices

// , calculate the distance from the vertex selected at step 1.

// if the vertex is already in the set S, discard it otherwise

//choose another vertex nearest to selected vertex at step 1.

int min = INF;

x = 0;

y = 0;

for (int i = 0; i < V; i++) {

if (selected[i]) {

for (int j = 0; j < V; j++) {

if (!selected[j] && G[i][j]) { // not in selected and there is an edge

if (min > G[i][j]) {

min = G[i][j];

x = i;

y = j;

}

}

}

}

}

printf("%d - %d : %d\n", x, y, G[x][y]);

selected[y] = true;

no\_edge++;

}

return 0;

}

Output

Edge : Weight

0 - 1 : 9

1 - 3 : 19

3 - 4 : 31

0 - 0 : 0