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1BM17CS028

Cycle-2 Lab-3

```
#include <limits.h>
#include <stdio.h>
#define V9
int minDistance(int dist[], bool sptset[])
{
 int min = INT_MAX, min_index;
 for (int v=0; v < V; v++)
  if(sptset[v] == false && dist[v] <= min)
   min = dist[v], min_index = v;
  return min_index;
}
void printSolution(int dist[])
{
 printf("Vertex \t\t Distance from Source\n");
 for (int i = 0; i < V; i++)
  printf("%d \t\t %d\n", i, dist[i]);
}
void dijkstra(int graph[V][V], int src)
{
 int dist [V];
 bool sptset[V];
 for(int i = 0; i < V; i++)
  dist[i] = INT_MAX, sptSet [i] = false;
  dist[src] = 0;
 for (int count = 0; count < V - 1; count ++){
  int u = minDistance(dist, sptSet);
   sptSet [u] = true;
  for (int v = 0; v < V; v++)

   if (! sptSet[v] && graph[u][v] && dist[u] != INT_MAX
     && dist [u] + graph[u][v] < dist[v])
    dist[v] = dist[u] + graph[u][v];
}
printSolution(dist);
}
int main()
{
int graph[v][v] = {{0, 4, 0,0, 0, 0,0 ,8,0},
                   {4,0,8,0,0,0,0,11,0},
                   {0,8,0,7,0,4,0,0,2},
                   {0,0,7,0,9,14,0,0,0};
                   {0,0,0,9,0,10,0,0,0},
                   {0,0,4,14,10,0,2;0,0},
                   {0,0,0,0,0,2,0;1,6},
                   {8,11,0,0,0,0,1,0;7},
                   {0,0,2,0,0,0,6,7,0}};

dijkstra(graph,0);
  return 0;

}
```