

```
// Dijkstra tìm đường đi ngắn nhất từ (1 - n)  
#include <stdio.h>
```

```
#define MAXN 1000  
#define NO_EDGE 0  
#define INFINITY 9999999
```

```
// Graph
```

```
typedef struct {  
    int n;  
    int L[MAXN][MAXN];  
} Graph;
```

```
void init_graph(Graph* G, int n) {  
    G->n = n;
```

```
    int i, j;  
    for (i = 1; i <= n; ++i) {  
        for (j = 1; j <= n; ++j) {  
            G->L[i][j] = NO_EDGE;  
        }  
    }  
}
```

```
void add_edge(Graph* G, int x, int y, int w) {  
    G->L[x][y] = w;  
}
```

```
int mark[MAXN];  
int pi[MAXN];  
int p[MAXN];
```

```
void Dijkstra(Graph* G, int s) {  
    int i, j, it;  
    for (i = 1; i <= G->n; ++i) {  
        pi[i] = INFINITY;  
        mark[i] = 0;  
    }  
  
    pi[s] = 0;  
    p[s] = -1;  
  
    for (it = 1; it < G->n; ++it) {
```

```

    int min_pi = INFINITY;
    for (j = 1; j <= G->n; ++j) {
        if (mark[j] == 0 && pi[j] < min_pi) {
            min_pi = pi[j];
            i = j;
        }
    }

    mark[i] = 1;
    for (j = 1; j <= G->n; ++j) {
        if (G->L[i][j] != NO_EDGE && mark[j] == 0) {
            if (pi[i] + G->L[i][j] < pi[j]) {
                pi[j] = pi[i] + G->L[i][j];
                p[j] = i;
            }
        }
    }
}

int main() {
    Graph G;
    int n, m, u, v, w, e;
    scanf("%d%d", &n, &m);
    init_graph(&G, n);

    for (e = 0; e < m; e++) {
        scanf("%d%d%d", &u, &v, &w);
        add_edge(&G, u, v, w);
    }

    Dijkstra(&G, 1);

    if (pi[n] == INFINITY) {
        printf("-1");
    } else {
        printf("%d", pi[n]);
    }
    return 0;
}

```