

# CSE 374: Algorithms I

## Coding Homework #5 Minimum spanning tree

Grading Rubric:

1. The program submitted for this homework must pass the necessary base case test(s) in order to qualify for earning any score at all. Programs that do not meet base case requirements will be assigned zero!
2. The code should be well formatted and commented on. The basic requirement is the code is understandable for a person who has basic coding knowledge.
3. There is some additional test case will be used for grading. Your code must complete it correctly and efficiently.

Requirements:

In this part of the exercise, you will be submitting the modified starter code Solution.java via Canvas **CODE plug-in**.

If this is your first time using the CODE plug-in then review the submission process via the following brief video demonstration -- <https://youtu.be/P2bWUt5KqbU>.

There are  $n$  cities connected by  $m$  flights. Each flight starts from city  $u$  and arrives at  $v$  with a price  $w$ .

Now given all the cities and flights, together with starting city  $src$  and the destination  $dst$ , your task is to find the cheapest price from  $src$  to  $dst$  with up to  $k$  stops. If there is no such route, output  $-1$ .

**Example 1:****Input:**

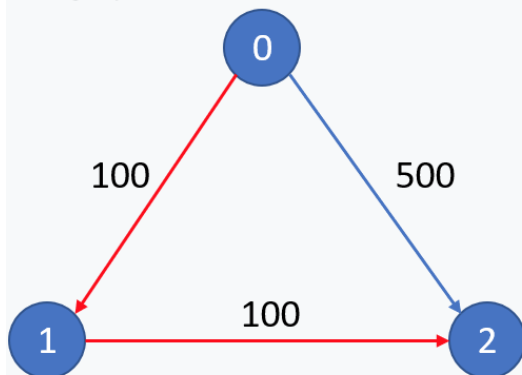
`n = 3, edges = [[0,1,100],[1,2,100],[0,2,500]]`

`src = 0, dst = 2, k = 1`

**Output:** 200

**Explanation:**

The graph looks like this:



The cheapest price from city 0 to city 2 with at most 1 stop costs 200, as marked red in the picture.

**Example 2:****Input:**

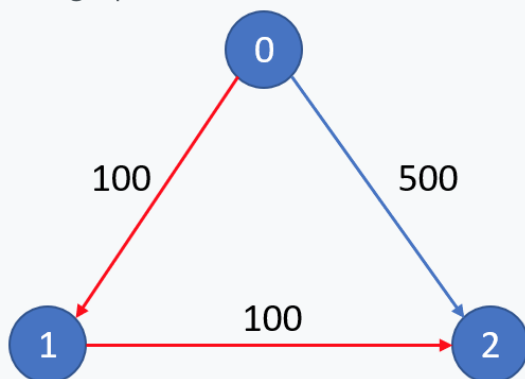
`n = 3, edges = [[0,1,100],[1,2,100],[0,2,500]]`

`src = 0, dst = 2, k = 0`

**Output:** 500

**Explanation:**

The graph looks like this:



The cheapest price from city 0 to city 2 with at most 0 stop costs 500, as marked blue in the picture.