Problem 1: Shortest Path
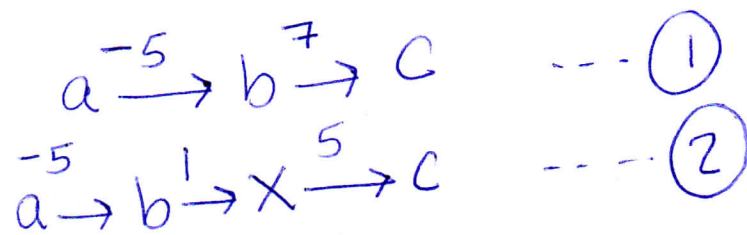
This might work for many cases, however it doesn't work for all Cases:

Consider this

$$a \xrightarrow{-5} b \xrightarrow{7} c \qquad \cdots \text{①}$$

$$a \xrightarrow{-5} b \xrightarrow{1} x \xrightarrow{5} c \qquad \cdots \text{②}$$

In this Case ~~the algorithm~~ the algorithm would choose ②

as the final weight is 1.

Now if we add a constant of 5

$$a \xrightarrow{0} b \xrightarrow{12} c \qquad \cdots \text{①}$$

$$a \xrightarrow{0} b \xrightarrow{6} x \xrightarrow{10} c \qquad \cdots \text{②}$$
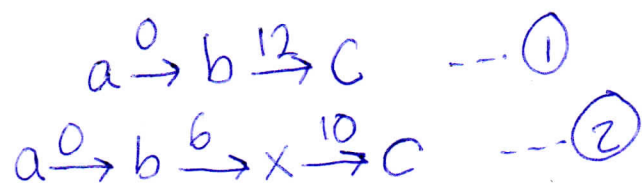
The Shortest path have changed now from ② to ①

Therefore this approch is not correct.