# Robbery

You are robber who just stole a TV. Now you must escape the cops without being caught.

You are given a map of the city streets. There are few rules:

* Going from one point to other costs you some **energy** (displayed as a value on each arrow) and takes one turn.
* Each point is being watched by a **video camera**. A point can be **black** (a camera is **not** watching it) or **white** (a camera is watching it).
* You can only travel to points where the **camera is off**.

Find the path that requires the **least energy** to go to the final point. Print the required energy.

### Input

* On the first line you will receive a number - **n** specifying the **number of points**.
* On the second line you will receive a number - **c** specifying the **number of point connections**.
* On the next **c** lines you will receive the connections in the format "**<firstPoint> <secondPoint> <distance>**"
* On the next line you will receive all points in the format "**<point1><color1> <point2><color2> …<pointK><colorK>**".
* On the next line, you will receive the **starting point**.
* On the next line, you will receive the **ending point**.

### Output

* Print the energy of the path that requires the **least energy** to go to the final point.

### Constraints

* The number of points in the city will be between **[2…20000]**.
* The distance of a connection will be a valid integer between **[0…10000].**
* The points will always be numbers starting from **[0… number of points – 1]**.
* The color will be either "**b**" or "**w**" – **b** means the camera is currently **not** watching, **w** means the camera is currently watching.
* There will always be a valid path from **start** to **end**.

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 5  7  0 1 30  0 2 2  1 3 12  1 4 15  2 1 3  2 3 15  3 4 18  0b 1b 2w 3b 4b  0  4 | 45 | * Start – 0. * Destination – 4. * The path that requires the least energy to go to the final point is 0->2->1->4 (20 energy). * However, camera 2 is watching, so we can’t go through this point. * Therefore, the solution is 0->1->4 (45 energy). |