1099 – Not the Best

Robin has moved to a small village and sometimes enjoys returning to visit one of his best friends. He does not want to get to his old home too quickly, because he likes the scenery along the way. He has decided to take the second-shortest rather than the shortest path. He knows there must be some second-shortest path.

The countryside consists of **R** bidirectional roads, each linking two of the **N** intersections, conveniently numbered from **1** to **N**. Robin starts at intersection **1**, and his friend (the destination) is at intersection **N**.

The second-shortest path may share roads with any of the shortest paths, and it may backtrack i.e., use the same road or intersection more than once. The second-shortest path is the shortest path whose length is longer than the shortest path(s) (i.e., if two or more shortest paths exist, the second-shortest path is the one whose length is longer than those but no longer than any other path).

Input

Input starts with an integer **T (≤ 10)**, denoting the number of test cases.

Each case contains two integers **N (1 ≤ N ≤ 5000)** and **R (1 ≤ R ≤ 10^5)**. Each of the next **R** lines contains three space-separated integers: **u, v** and **w** that describe a road that connects intersections **u** and **v** and has length **w (1 ≤ w ≤ 5000)**.

Output

For each case, print the case number and the second best shortest path as described above.

Sample Input	Output for Sample Input
2 3 3 1 2 100 2 3 200 1 3 50 4 4 1 2 100 2 4 200 2 3 250 3 4 100	Case 1: 150 Case 2: 450