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| --- | --- | --- |
| K | Phi Numbers in Range! | Time Limit:  **5 sec** |
| Setter: G. M. Shahariar Shibli | Memory Limit:  **1 GB** |

In number theory, Euler’s phi function, denoted as ϕ(n), is an arithmetic function which counts the positive integers less than or equal to **P** that are relatively prime to **P**. A number **X** is relatively prime to **P** if **GCD(X, P) = 1**.For example, if **P** = **10**, then there are **4** numbers, namely **1, 3, 7, 9** which are relatively prime to **10**. Therefore, **ϕ(10) = 4**.

In this problem, you have to answer **M** number of queries of the form **L**  **R**  **K**. To answer the queries, at first you have to generate an array **A** consisting of first **N** phi numbers. For example if N =11, then array **A** will look like, A = {1, 1, 2, 2, 4, 2, 6, 4, 6, 4, 10}. For clarity, ϕ(1) = 1, ϕ(2) = 1, ϕ(3) = 2, ϕ(4) = 2, ϕ(5) = 4, ϕ(6) = 2, ϕ(7) = 6, ϕ(8) = 4, ϕ(9) = 6, ϕ(10) = 4, ϕ(11) = 10.

For each query, you have to print the ***smallest K-th distinct phi number*** in the range ***L*** to ***R***. Say L = 6, R = 11, K = 2. Let S denote the set of elements of array A with its indices between 6 and 11. Then S = {2, 6, 4, 6, 4, 10}. The smallest 2nd distinct phi number = 4. What if K = 3? Answer is 6.

Notice that if K = 5 then there is no smallest k-th distinct phi number in that range. In such case, you have to print **No Distinct Phi Number**.

**Input:**

At first, there will be an integer **T** **(1 <= T <= 10)**, which is the number of test cases. For each case, you will be given two positive integers **N** and **M** that are the number of phi numbers to be generated at first and the number of queries **(1 <= N, M <= 105)**. Then there will be **M** lines each containing three numbers **L** **R** **K** **(1 <= L <= R <= N**, **1 <= K <= N)**

**Output:**

For each case print the case number in the first line like **Case** **x:** where **x** is the number of the test case. Then output the smallest K-th distinct phi number or **No Distinct Phi Number** for each query in a new line. See the sample I/O for better understanding.

*The sample I/O is in the next page.*

**Sample I/O:**

|  |  |
| --- | --- |
| Sample Input | Sample Output |
| 1  11 4  4 6 1  6 11 2  2 7 3  4 6 4 | Case 1:  2  4  4  No Distinct Phi Number |