DiffMax Solution

As we need to find the maximum difference between two elements, which may be at the same index or not, and this difference must be divisible by x, we should consider using a map for efficient calculations.

The key observation here is that whichever two numbers we choose , they both must have the **same remainder** on dividing with x, so that their difference is divisible by x. Mathematically, for any two numbers a_i and a_j, they should satisfy:

$$a_i \ mod \ x = a_j \ mod \ x$$

which ensures that:

$$(a_i - a_j) \ mod \ x = 0.$$

Now to maximise the ans, we need to **store both the maximum and minimum values** for each remainder when divided by x. Then, we can greedily compute the maximum possible difference:

$$max\_diff = \max\left(max\_diff, max[r] - min[r]\right) \quad \forall r \in [0, x-1].$$

Time Complexity: $O(nlog(n)$ per test case.