Kick Start 2022 - Coding Practice with Kick Start Session #1

Analysis: Centauri Prime

View problem and solution walkthrough video

Given the name of the kingdom, we need to determine the ruler of that kingdom. Based on the information given in the problem, we can say that who the ruler is depends on the last letter of the kingdom name.

- If the last letter is a vowel, then the kingdom is ruled by Alice.
- If the last letter is a consonant other than 'y', then the kingdom is ruled by Bob.
- If the last letter is `y`, then the kingdom is ruled by `nobody`.

Test Set 1

Let us create a function `getRuler` which takes as input a string kingdom and returns whether it is ruled by `Alice`, `Bob` or `nobody`. Consider x to be the last letter of $\mathbf{kingdom}$.

- We will first check if x is a vowel, for this we can create a hashset consisting of all the vowels i.e. `{a, e, i, o, u}` and check if x is present in the hashset. If it is present return `Alice`.
- Now let us check if x is equal to `y` if so, then return `nobody`
- If both the above conditions are not satisfied, then x is a consonant and not equal to `y`. In this case, return `Bob`.

Test Set 2

We can use the same approach for this test as well, but there is a small catch. In Test Set 1, because of the constraints, $\mathbf{kingdom}$ has at least 3 letters so x is always lowercase. In Test Set 2, $\mathbf{kingdom}$ can have only one letter, so x is an uppercase. We need to convert it to lowercase and then check if it is a vowel or equal to `y`.

Time Complexity

Creating a hashset of vowels: $O(5)$, which is equivalent to $O(1)$.
For each test case:
Converting x to a lowercase in case of $\mathbf{kingdom}$ having only one letter: $O(1)$.
Checking if x is a vowel: $O(1)$.
Checking if x is equal to `y`: $O(1)$.
We have $\mathbf{T}$ test cases, hence the overall time complexity is $O(\mathbf{T})$

Note

Please take care of adding a `.>` (terminating period) at the end of the output sentence.