525A — Vitaliy and Patty

To solve this problem we need to use array $cnt[]$. In this array we will store number of keys of every type, which we already found in rooms, but didn't use. Answer will store in variable ans.

Now, we iterate on string. If current element of string s_i is lowercase letter (key), we make $cnt[s_i]$++. Else if current element of string s_i uppercase letter (door) and $cnt[tolower(s_i)] > 0$, we make $cnt[tolower(s_i)]$--, else we make ans++. It remains only to print ans.

Asymptotic behavior of this solution — O($|s|$), where $|s|$ — length of string s.