Let $C$ be the language of all strings of $a$'s, $b$'s, $c$'s and $d$'s, such that the number of $a$'s equals the number of $b$'s, and the number of $c$'s equals the number of $d$'s.

Prove that $C$ is not context-free: regular

Assume $C$ is regular
let $k$ be constant of PL
let $w = a^k b^k c^k d^k$
Note $w$ in $C$ and $|w| > k$.
Assume $w = xyz$ with $y \neq \epsilon$ and $|xy| \leq k$
Then $y$ contained within block of $a$'s.
So $xy^2z$ has more $a$'s than $b$'s and so is not in $C$.
A contradiction of PL.
Therefore $C$ is not regular.