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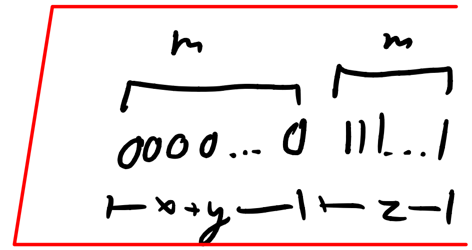
*3. L3 = $\{ 0^i 1^j : i \geq j \}$ (Homework 5)

- Assume L3 เป็น regular, Let m be the number of states in DFA.
- We pick a string $w \in L3$, $|w| \geq m \Rightarrow 0^m 1^m$
- Opponent decomposes w into xyz, $|xy| \leq m$, $|y| \geq 1$



- We pick $i = 0$ to pump xz. The result is $0^{m-k} 1^m$ where $k = |y|$, $k \geq 1$
- Since $m-k < m$, $0^{m-k} 1^m \notin L3$
- Contradiction with Pumping Lemma! Therefore, L3 is not regular language.