1. Let \( \{x_k\} \) and \( \{y_k\} \) be convergent sequences and set

\[
L_1 = \lim_{k \to \infty} x_k \\
L_2 = \lim_{k \to \infty} y_k.
\]

Show that if \( x_k \leq y_k \) then \( L_1 \leq L_2 \). Give an example to show that \( x_k < y_k \) does not imply \( L_1 < L_2 \).