Theory of Computation

Prove by Pumping Lemma that the following languages are not regular.

1. L1 = $\{\ 0^i 1^j : j \text{ is a multiple of } i\ \}$

2. L2 $= \{\, 0^i 1^j : i < j \,\}$

*3.   L3 $= \{\, 0^i 1^j : i \geq j \,\}$