The homework should be submitted using the `turnin` program before midnight on Feb 26. Late homeworks will not be accepted.

Remember that collaboration of any kind is not allowed.

1. Define a SCHEME function `repetitions` that accepts a list of integers \( L \) and an integer \( k \), and returns the number of occurrences of \( k \) in \( L \).
   For instance,
   
   \[
   \text{(repetitions '(1 2 3 2 3) 2)} \Rightarrow 2
   \]
   
   \[
   \text{(repetitions '(1 2 3 4) 5)} \Rightarrow 0
   \]
   
   Note: Use `equal?` to test for equality.

2. Define a SCHEME function `binaryrep` that accepts an integer \( n \) and returns a list of 0s and 1s corresponding to the binary representation of its absolute value. Leading 0s must be removed. For instance, \( \text{(binaryrep 4)} \) must return \( (1 0 0) \) and not \( (0 1 0 0) \).
   
   \[
   \text{(binaryrep 20)} \Rightarrow (1 0 1 0 0)
   \]
   
   \[
   \text{(binaryrep -13)} \Rightarrow (1 1 0 1)
   \]