Homework Assignment: 2
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1. XSort Algorithm

   (a)
   $$EXAMPLE \Rightarrow AXEMPLE \Rightarrow AEXMPLE \Rightarrow AEEMPLX$$
   $$\Rightarrow AEELPMX \Rightarrow AEELMPX$$

   (b) Time Efficiency: $O(n^2)$
   Space Efficiency:

   (c)

2. Bubble Sort

   (a)
   $$EXAMPLE \Rightarrow EAMPLEX \Rightarrow AELEMPX \Rightarrow AEELMPX$$
   $$\Rightarrow AEELMPX \Rightarrow AEELMPX$$

   (b)

   (c)

3. Show that $n^2 \in \mathrm{O}(\mathrm{n}^2 + 10n), n \geq 0$

4. Show that $n \notin \Omega(n^2)$

   Choose $k = 1$

   Assuming $n > 1$, then

   $\frac{f(n)}{g(n)} = \frac{n}{n^2} < \frac{n^2}{n^2} = 1$

   Choose $c = 1$. Note that $n < n^2$

   Thus $n \notin \Omega(n^2)$ because $n < n^2$ when $n > 1$