**Question 3**

**Zeal Liang**

**Z5325156**

**Subproblems:**

Let be the problem of determining , count the number of n-digit numbers in which the digit k appears an even number of times:

**Recurrence:**

For :

**Base cases:**

since after remove one from 0 to 9 there still have 9 numbers left, so

**The time complexity of the algorithm is .**