**Title of Problem:**

- Predicting Fingers.

Discussion of – or Defining the Problem:

- Using a bizarre counting method – the example girl comes up with a method of counting that we must guess where specific numbers will land.

The overall goal is to use predictive analysis of a known construct (system or function), and analyze potential end-states. Simply put –Figure out where the counting system takes us.

Breaking Apart the Problem:

* The Constraints: No finger is counted twice in a row. This makes is more difficult to make assumptions than if the thumb or little finger were counted twice once we got to each “end” of the hand/

Insight: This problem is deceptively simple and yet can become complex if overthought. Initial view might lead one to believe that the answer would either be the thumb or the little finger: as lazy reading might lead one to assume that the end fingers are counted twice in a row. This is not the case.

* The Sub-Goals:
  + Determine the finger position at an interval count of 10.
  + Determine the finger position at an interval count of 100.
  + Determine the finger position at an interval count of 1,000.
  + Find a pattern to make the above simpler.

Identifying Potential Solutions:

* The simplest, yet more tedious method of devising a solution is to simply count exactly as the girl would, and record each answer as they occur.
* Determine a pattern for where certain numbers “end” and on which fingers they occur. It is readily noted that 10 ends on the First Finger, it is also easy to note that the next two instances of “10” (i.e. 20 and 30) are on the Ring Finger, and then again return to the First Finger for two more instances of “10”. This shows a pattern, that if followed can provide faster solutions to the 100 and 1,000 marks.

Evaluating Solutions:

* The first solution to the problem is slow, however; it is guaranteed, short of human-error to provide accurate results. Life is about efficient, though.
* The second solution is faster, and after we count to 40 or 50 ‘by hand’ – provides us with a measurable pattern.

Implementing a Solution:

* Using the second possible solution – we determine the following:

Our Solution:

1. 1-10 -> First Finger
2. 1-100 -> Ring Finger
3. 1-1000 -> Ring Finger

Pattern:

1st Finger: 10, 40, 50, 80, 90,

Ring Finger: 20, 30, 60, 70, 100