

CSCI 241: Runtime Analysis Practice Problems

The pseudo-code “for i in 0..N” implies the loop “for(i = 0; i < N; i++)”.

<pre>1. max = A[0] for i in 1..N: if A[i] > max: max = A[i]</pre>	<pre>2. for i in N..0: if A[i] == 5: return i;</pre>
<pre>3. for i in 0..N: for j in N..0: print "hello"</pre>	<pre>4. for i in 0..N: for j in i..N: c += a + b</pre>
<pre>5. for i in start..end: A[i] = sqrt(pow(a,2),pow(b,2))</pre>	<pre>6. i = 0 while i < N: i *= 2 doesSomethingCool() => O(N)</pre>
<pre>7. pal(s){ if(len(s) < 2): return true if(s[0] != s[len(s)-1]): return false return pal(s[1..len(s)-1]) }</pre>	<pre>8. i = N j = N while i > 0: i /= 2 while j > 0: j -= 2</pre>
<pre>9. SelectionSort: for i in 0..N: min = A[i] for j in i..N: If A[j] < min: min = A[j] j_min = j swap(A, i, j_min)</pre>	<pre>10. InsertionSort: for i in 0..N: walkDownToPosition(A[i]) => ?</pre>
<pre>11. for i_0 in 0..N: for i_1 in 1..N: for i_2 in 2..N: . . . for i_n in N..N:</pre>	<pre>12. for i_0 in 0..N: for i_1 in 0..N: for i_2 in 0..N: . . . for i_k in 0..N:</pre>
<pre>13. recursion(start, end){ for i in start..end: print "13" recursion(start, end/2) }</pre>	<pre>14. i = 0; j = 0; k = N; while i < N: i *= 2 while j < N: j *= 3 while k > 1: K /= 4</pre>