

Emilio Quiambao / CSC340-01
Assignment 5 - Complexity Analysis

Q 1	<pre>double sum_triples(double array[], int n) { //n: size of the array. Assume n is divisible by 3 double sum=0; for (int i=0; i<n; i=i+3) sum = sum + array[i]; return sum; }</pre>	<p>RUNS: 1</p> <p>RUNS: $(n / 3) + 1$</p> <p>RUNS: $n / 3$</p> <p>RUNS: 1</p>
Q 2	<pre>double sum_exponentials(int n) { //n is a power of 2, i.e., $n=2^k$ or $k=\log_2 n$ int sum=0; for (int i=1; i<n; i=i*2) sum = sum + i; return sum; }</pre>	<p>RUNS: 1</p> <p>RUNS: $\log_2 n + 1$</p> <p>RUNS: $\log_2 n$</p> <p>RUNS: 1</p>
Q 3	<pre>for (int i=0; i<10; i++) for (int j=0; j<n; j++) cout << i << ", " << j << endl;</pre>	<p>RUNS: 11</p> <p>RUNS: $10n + 10$</p> <p>RUNS: $10n$</p>
Q 4	<pre>for (int i=0; i<n; i++) for (int j=0; j<n; j++) cout << i << ", " << j << endl;</pre>	<p>RUNS: $n + 1$</p> <p>RUNS: $n^2 + n$</p> <p>RUNS: n^2</p>
Q 5	<pre>for (int i=0; i<n; i++) //assume n is divisible by 2 for (j=n/2; j>i; j--) sum = i+j;</pre>	<p>RUNS: $n + 1$</p> <p>RUNS: $(n^2 + 10n) / 8$</p> <p>RUNS: $(n^2 + 2n) / 8$</p>
Q 6	<pre>double sum_matrix(double matrix[][], int m, int n) { //m: num of rows; n: num of cols double sum=0; for (int i=m-1; i>=0; i--) { for (int j=n-1; j>=0; j--) { sum = sum + matrix[i][j]; } } return sum; }</pre>	<p>RUNS: 1</p> <p>RUNS: $m + 1$</p> <p>RUNS: $nm + m$</p> <p>RUNS: nm</p> <p>RUNS: 1</p>