1) (5 pts) ANL (Algorithm Analysis)

What is the big O runtime for the following segment of code in terms of N and M? (Note: let min(x, y) denote the minimum of x and y and max(x, y) denote the maximum of x and y. You may use either of these in your answer. **In addition to your answer, please provide justification for your answer.**

```
int fun(int N, int M, int ** grid) {
   int a1 = 0, a2 = 0;
   for (int i = 0; i < N || i < M; i++) {
      if (i < N) a1 += grid[i][0];
      if (i < M) a2 += grid[0][i];
   }
   if (a1 < a2) return a2;
   return a1;
}
```

The value i increments by 1 until it passes both the value N and M (technically not the sum). The value will run max of N and M time. In terms of Big-Oh we can express the solution as **O(max(N, M))**.

Since the sum of N + M can be bounded by 2*max(N, M), an equally valid way to express the same answer is **O(N + M).**

Grading: 5 pts for correct answer; 2/5 for O(n) or O(m), 3/5 for O(n || m), 3/5 for O(min(n,m))