**CS32 Homework 4**

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**1e.**

The test 3 use vector as a container, when its elements reach its max capacity, it will be relocated to a different memory address. Therefore, the iterator will point to WRONG memory address which causes the error.

**3.**

The Coord class is not define the “operator<” function, so the program doesn’t know how to compare them when we call Set<Coord>::insert.

**4b.**

The one-parameter listAll() method cannot record current file’s path, so we need two-parameter listAll() method to solve the problem.

**5a.**

There are three nested loops, each cost O(N) time, so the overall time complexity is **O(N3)**.

**5b.**

The time complexity is still **O(N3)**, since reduce repetitive compare between dist[i][j] and dist[j][i] will cost O(N/2) = O(N) time. So the overall time complexity will be same.

**6a.**

The worst-case time complexity of “sp->get(k, v)” is O(N), since we have to access each node in the linked list in the worst case. And the outer loop will cost O(N) time. Therefore, the time complexity in the worst-case is **O(N2)**.

**6b.**

The time complexity is **O(NlogN)**, since sort() function will take O(NlogN) time and the left operations are O(N).

**6c.**

The time complexity is **O(N)**. since two sets are sorted, we just need to access each node for one time when we merge two sets.