# Algorithms Sorting – Bubble Sort

For the implementation of a sorting algorithm into the Bluebrook Airport system, the chosen algorithm is Bubble Sort. The purpose of using a sorting algorithm in the system is to sort all flight times in order of earliest, this is essential for the time board as all flight times are added to the queue data structure for the time board.  
  
**Process of Bubble Sort in the flight time board system:**  
  
1. The system will extract two times from the file  
2. compare and swap the times order if the first is later.  
3. by the end of the first cycle, the end most flight time will be the latest time in the system.  
4. Repeat the previous two steps until all flight times are in chronological order.  
5. Place ordered flight times in the queue data structure.  
  
Properties  
Amount of comparisons: n²/2  
Amount of flight time swaps: n²/2  
Big O’ Notation: O(n²) – Quadratic (Increasing growth with N for times)

Advantages  
Simple to implement in comparison to other algorithms.  
  
Disadvantages  
Slowest computational speeds of the other sorting algorithms.  
  
Future Implementation   
If the Bubble Sort implementation is successful, the systems sorting algorithm may be changed to an algorithm with a faster computational speed such as Quicksort, that involved sorting flight times around a pivot point. The issue with this algorithm is that is it more difficult to implement into the system