BLG 335E: Analysis of Algorithms I
Project 1 Report

Compiling & running:

- To compile:
  - g++ csvRow.cpp csvRow.h main.cpp
- To run:
  - ./a.out –algo A –feature F –size N
    - A = ‘m’ for merge sort, ‘i’ for insertion sort
    - F = ‘p’ for last_price, ‘t’ for time_stamp;
    - N = number of lines.
    - (without single quotation marks);

a. Asymptotic upper bounds:

i. Merge Sort:
- O(n*logn)
-
  1. It takes log2(n) steps to divide the input,
  2. log2(n) + 1 quotients.
  3. It takes n steps to merge,
  4. So c*n*(log2(n) + 1)
  5. = cnlog(n) + cn
  6. Then it is O(nlogn).

ii. Insertion Sort:
- O(n^2)

b. Running each algorithm 10 times for each N:

N	1000	10 000	100 000	1 000 000
Merge Sort				
Insertion Sort				