3620: Project

This project may be done in a team of two. Please submit the code, and the report as one zipped/tar file. Demos will be held in the lab across from the office. Try to submit as early as possible. Due before the last day of classes, [2018-04-12 Thu]

- The project is to program one of the following data structures. You may use C/C++/Python/Haskell/Go or your favourite programming language.

  - Skiplist
  - Red black tree
  - Treap
  - kd-tree
  - Finger trees
  - PQ tree
  - Suffix tree
  - Fibonacci heap
  - Cuckoo Hashing
  - Trie

- Conduct experiments to evaluate the performance of the implementation, i.e, perform a sequence of random operations on the data structure. Measure the statistics for each operation. The statistics of interest are the time taken, and the memory usage. Evaluate the performance on multiple sequences of operations.

- Write a report that i) describes the data structure and its operations ii) establish the correctness of the operations and the worst-case or the amortized running time iii) describe the experiments and the results, iv) what conclusions can you draw from the experiments v) how do the experimental results compare to the the theoretical bounds on the running time. The report should be 4-5 pages long, single spaced with reasonable margins.