

FIT3155: Week 7 tutorial

Covering concepts from Weeks 6-7

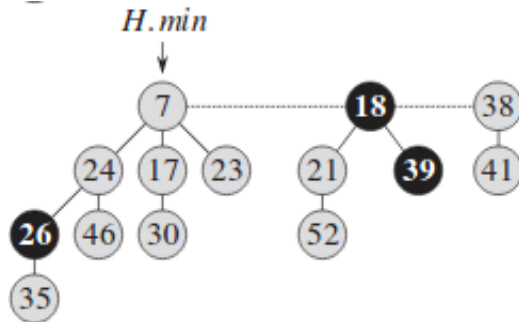
Objectives: The tutorials, in general, give practice in problem solving, in analysis of algorithms and data-structures, and in logic useful in the above.

Instructions to the class: Prepare your answers to the questions **before** the tutorial. It will probably not be possible to cover all questions unless the class has prepared them all in advance.

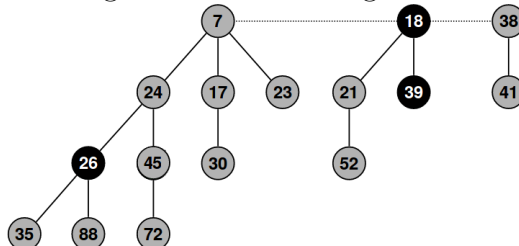
Instructions to Tutors:

- i. The purpose of the tutorials is not to solve the practical exercises.
- ii. The purpose is to check answers, and to discuss particular sticking points, not to simply make answers available.

1. Revise Fibonacci heap data structure and various operations on them.
2. Perform **extract-min** on the following Fibonacci heap:



3. Starting from the following state of a Fibonacci heap:



Run the following sequence of operations, and after each step, draw the resultant heap:

- (a) **decrease-key** of 45 to 40.

- (b) decrease-key of 40 to 12.
- (c) decrease-key of 35 to 1.
- (d) extract-min.

--o0o--
END
--o0o--