Tutorial 6: CS21003 Algorithms I

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March 3, 2022

Design appropriate data structures for the problems having the following operations and analyse their time and space complexities:

1. The operations can be insert, delete-min, delete-max coming in any order.

2. There are only insert and delete-min operations and we have m_1 insert operations followed by m_2 delete-min operations followed by m_3 insert operations followed by m_4 delete-min operations, such that $m_1 + m_3 = m_2 + m_4$.

3. The operations are insert, delete-min and find. However, the elements that are inserted come in descending order.

4. The whole sequence of insert and delete-min operations are provided upfront. After reading the full sequence you are to provide the order of key values that will be generated from the delete-min operations. The objective is to optimize the total time.