8-Puzzle Game, Part IV: Priority queue

Input: enqueue a state or dequeue from a priority queue
Output: effects of actions

Description

- There are two actions, **enqueue** and **dequeue**.
- When the action is "enqueue",
  the next input line gives a state and its *g* and *h* scores (for *cost* and *heuristic*, respectively).
- Your priority queue should always put the node with the lowest *f* (= *g* + *h*) score at the top.
  If tied, follow the first-in-first-out policy.
- If the action is "enqueue", insert this state into your priority queue and print "Insert OK!" as output.
- If the action is "dequeue", get and remove the top state of your priority queue and print that state as output.
  Note that you should check if the queue has been empty.

範例一 Example 1:

Input	Meaning
32 enqueue 724560831 1 17 enqueue 107835264 2 15 enqueue 876543210 1 20 enqueue 281637405 3 13 enqueue 426301785 3 12 enqueue 420316785 4 10 enqueue 412306785 5 8 dequeue enqueue 387015264 5 15 enqueue 572084361 6 13 dequeue dequeue enqueue 142608753 7 10 enqueue 102648753 8 9 enqueue 012648753 9 8 enqueue 712540638 10 7 enqueue 012548673 11 6 enqueue	Number of test data Action of test data #1 The **state**, ***g*-score**, and ***h*-score** of test data #1 Action of test data #2 The **state**, ***g*-score**, and ***h*-score** of test data #2 . . . . (Note that this action is dequeue) (Note that this action is enqueue) . . . .

102645738 12 5 dequeue dequeue dequeue dequeue dequeue dequeue dequeue dequeue dequeue dequeue dequeue dequeue dequeue dequeue	. . . . (dequeue from an empty queue) (dequeue from an empty queue)

Output	Meaning
Insert OK! Insert OK! Insert OK! Insert OK! Insert OK! Insert OK! Insert OK! Got 412306785 Insert OK! Insert OK! Got 420316785 Got 426301785 Insert OK! Insert OK! Insert OK! Insert OK! Insert OK! Insert OK! Got 281637405 Got 107835264 Got 142608753 Got 102648753 Got 012648753 Got 712540638 Got 012548673 Got 102645738 Got 724560831 Got 572084361 Got 387015264 Got 876543210 Queue is empty!! Queue is empty!!	Output of an enqueue action (test data #1) Output of an enqueue action (test data #2) . . . . . Output of a dequeue action . . Output of a dequeue action Output of a dequeue action . . . . Output of a dequeue action when the queue is empty Output of a dequeue action when the queue is empty

範例二 Example 2:

Input	Meaning
27 enqueue 026431785 1 12 enqueue	Number of test data Action of test data #1 The **state**, ***g*-score**, and ***h*-score** of test data #1 Action of test data #2

426731085 1 14 enqueue 426301785 1 12 dequeue enqueue 426031785 2 13 enqueue 206431785 2 13 dequeue enqueue 406321785 2 13 enqueue 426381705 2 13 enqueue 426031785 2 13 enqueue 426310785 2 11 dequeue enqueue 420316785 3 10 enqueue 426315780 3 10 enqueue 426301785 3 12 dequeue enqueue 426310785 4 11 enqueue 402316785 4 9 dequeue enqueue 426310785 4 11 enqueue 426315708 4 9 dequeue enqueue 412306785 5 8 enqueue 042316785 5 8 enqueue 420316785 5 10 dequeue enqueue 426305718 5 10	The **state**, ***g*-score**, and ***h*-score** of test data #2 . . (Note that this action is dequeue) . . . . (Note that this action is enqueue) . . . .

Output	Meaning
Insert OK! Insert OK! Insert OK! Got 026431785 Insert OK! Insert OK! Got 426301785 Insert OK! Insert OK! Insert OK! Insert OK! Got 426310785	Output of an enqueue action (test data #1) Output of an enqueue action (test data #2) . Output of a dequeue action . . Output of a dequeue action . . . .

Insert OK! Insert OK! Insert OK! Got 420316785 Insert OK! Insert OK! Got 426315780 Insert OK! Insert OK! Got 402316785 Insert OK! Insert OK! Insert OK! Got 426315708 Insert OK!	