ECON 381 HOMEWORK 2

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1. In Okey, the data structure containing the keys must be altered in order to add or remove keys.

Among the possible actions are:

-Adding operation: Give the board a new tile. This might entail adding it to a linked list or array, making sure there is room for 14 tiles.

Removing an existing piece from the board is the removal operation.

This may require finding the stone and changing the structure, such as moving elements in an array or reconnecting nodes in a linked list.

-Searching operation: To create legitimate groups, find particular tiles.

-Validation operation: After adding or deleting tiles, make sure the board is in a valid condition.

2. To confirm whether the player's board is legitimate:

-Grouping check: We must verify that each of the 14 keys forms correct groups in blocks of three or moves numbers of the same color or similar numbers of more than one color.

-Pair check: As an alternative, confirm that there are seven pairs of identical tiles on the board

-For these tests, effective sorting or traversal strategies could be needed.

3. During a fixed-size array is straightforward and povides constant-time access, it could need to be recognized or sorted during playing.

Seperating groups and pairs using linked lists or multiple arrays may make validation easier.

Since there are always the same number of tiles, it may be easier to start with a fixed-size array which is 14.

ADDING AND REMOVING KEYS

Array: Since it has a fixed size, an empty cell of the array is added to.

Linked list: To add a new stone, a node is created and linked to the end of the list.

<u>Procedures for removal:</u>

When a piece is removed from the array, the elements must rearranged.

In linked lists, the node is removed and the links are rearranged.

DATA STRUCTURE CHOICE

-A single fixed size array

-Linked list or polyarray

Both should be considered and the most adventageous one should be chosen.

A. OkeyKey Class: Keeps the number and color properties of the Stones. The equals and hashCode methods are specialized for comparing tiles and using them in collections.

B. OkeyBoard Class: It represents the board and contains basic information such as adding and removing tiles, block and pair control.

C. isAllBlocks Method: Checks whether all Stones form consecutive groups.

D. isAllPairs Method: Checks whether all tiles form 7 pairs.