HW1 Report
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I. Environment

OS: macOS 10.13.6
Language: Python3.6
Editor: Visual Studio Code

II. Method

- **Parse string from Input.txt**
  In order to parse Input.txt, the script reads the first line of the text file, getting the number of young tableaus to be processed. The script then read the whole remaining string into the variable, split it into n (n=the number of young tableaus) parts, and put each part into the handler function to do further processing.

- **Process each of tableaus according to the required operation and write out the results to output.txt**
  In the handler function, the script first parses the input string into numpy array, then having the numpy array go to different operational function.
  1. **For inserting operation, the index, where inf value seated in the table is found, and the inf value is replaced by the insert value. After inserting the value, the bubble up function make the insert value go up by comparing it to its neighbors (left and up elements), swapping the insert value with its neighbors if one of them has the maximum value among three elements. The bubble up function move the insert value up until it become the first element of the table, or none of its neighbors is larger than it.**
  2. **For extracting min operation, the minimum value is returned, the first element of the table is replaced by the selected value, which is the first non-inf element, selecting from right to left, bottom to top of the table. After extracting the min value and replacing the first element of the table with selected value, the bubble down function make the first element go down by comparing it to its neighbors (right and bottom elements), swapping the value with its neighbors if one of them has the minimum value among three elements.The bubble down function move the first value of the table down until it become the last element of the table, or none of its neighbors is smaller than it.**
  3. **Write out all results to the output.txt**

III. Results

Please refer to the output file.