Day 8 Exercises

1. **Skyscraper Area**
    - **Problem**
        - Given a list of heights of continguous rectangular skyscrapers, output the largest rectangular area (starting from the ground) the skyscrapers make.
    - **Notes**
        - Assume the width of each skyscraper is always **1 unit**
        - Skyscrapers are assumed to be two-dimensional
        - Skyscraper **K** is beside skyscrapers **K – 1** and **K + 1**
        - Use a linked implementation of a stack
        - Your solution must be in **O(n)**
        - Do not use built-in data structures
    - **Input**
        - Source is **standard input**
        - Positive integers representing the height of each skyscraper
        - Ends with a sentinel value of **0**
        - The **K**th integer corresponds to the height of skyscraper **K**
    - **Output**
        - Largest possible area given the constraints

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2. **Friends in Line**
    - **Problem**
        - Given groups of friends, simulate a queue wherein people line up.
        - Friends will make other friends cut in line–the newcomer will cut in line and be placed behind the *most behind friend* in their group of friends.
    - **Notes**
        - Possible operations are defined as follows:
            - `<name>`
                - Inserts `<name>` into line
                - `<name>` may not be part of any group
                - If `<name>` is a part of a group, get the last person of the group
            - *
                - Serves the next person in line
                - Output the name of person being served
    - **Input**
        - Source is a file named **friends.txt**

- <# of groups G>
  <group 1 member 1>, …,<group 1 member X>
  <group 2 member 1>, …,<group 2 member Y>
  …
  <group G member 1>, …,<group G member Z>
  <# of operations P>
  <operation 1>
  …
  <operation P>

- **Output**
  - Return values of dequeue operations (in order, one line each)