Task seven.

Target:

- Implement Queues.
- Exercises about Queue.

Resources:

- Google it!
- Adel Nasim link: link
- Session link : link:

Task:

Please read all task before you start to solve it especially Note Part !!

This task consists of six parts :

- First part :
  - Implement Queue using fixed array.
- Second part :
  - Implement Queue using Stacks (hint use more than one stack).

- **Third part :**
  - **Implement Queue using LinkedList .**
- **Fourth part:**
  - **Method that receive Queue and reverse it.**
- **Fifth part :**
  - **Implement Priority Queue.**
- **Six part:**
  - **Solve the problem in the last of pdf.**

Note:

- **All implementations should be contain this methods :**
  - **enqueue()**
  - **dequeue()**
  - **peek()**
  - **isEmpty()**
  - **isFull()**
  - **size() : return number of items in Queue.**
  - **print() : this method should print items in queue only !!**

- **Write Complexity time for Each method.**

Problem: Hot Potato Game

Description:

Simulate the "Hot Potato" game using a queue. Start with a queue of children and a number representing the number of tosses before eliminating a child. Each time a child is eliminated, they're removed from the front of the queue and added to the rear for the specified number of tosses. Continue this process until only one child remains.

Method Signature:

public static String hotPotato(String[] children, int tosses)

Input:

First line : contain the number of children:

Second line : An array of strings representing the names of children.

-Third line: An integer representing the number of tosses before eliminating a child.

Output:

- Returns the name of the last remaining child after the game.

Example:

Example 1:

Input:

```
4
reda zeid abdo tahoon
1
```

Output:

```
The winner is: tahoon
```

Example 2:

Input:

```
5
Alice Bob Cathy Dave Eva
 3
```

Output:

```
The winner is: Dave
```

Example 3:

Input:

```
4
A B C D
3
```

Output:

```
The winner is: A
```

For mor details search about game or read it from this link

4.13. Simulation: Hot Potato — Problem Solving with Algorithms and Data Structures (runestone.academy)

Deadline:

After Final.