Lab problems on Queue (Array)

1. **Waiting line simulation in a post office:**
   In a post office, a lone postal worker serves a single queue of customers. Every customer receives a token # (serial number) as soon as he/she enters the queue. After the service, the token is returned to the postal worker and the customer leaves the queue. At any point of time the worker may want to know how many customers are yet to be served.
   Write C code to implement the system using an appropriate queue data structure, simulating an arrival and departure of customers after service completion.
2. Let ***Q*** be a queue data structure and it has n numbers. Write C code to implement the following functions on *Q*
   a. Write a function to compute the maximum number in **Q**.
   b. Write a function to compute the sum of the even numbers in **Q**.
   c. Write a function to replace all odd numbers with -1 in Q.
3. A group of players, sitting around as a circle, are playing the "Pass the Buck" game where a small parcel/handkerchief is passed around from one person to another until the music stops. The player with whom the buck stops has to quit the game, and the game continues without that player in the same way. The player who has not yet been removed is considered as the winner. Simulate this game using circular queues.
4. Simulate a traffic signal with at least six roads meeting at a junction.
5. Using Stacks implement a queue. Try minimizing on the number of stacks being used.
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