Programming Assignment #3

21st October, 2020

1. Implement Josephus Problem using circular linked list. Let *n* be the number of persons standing in a circle facing the center, let *k* be a skip number agreed upon in advance and let *A* be the person who begins the process. On each iteration, *x* will kill k^{th} person on the left, where *x* begins with *A* and is reset to be the person on the left of the person killed each time. For example if *n*=10 (*A*, *B*, *C*, *D*, *E*, *F*, *G*, *H*, *I*, *J*) and *k*=3, then *A* kills *D*, *E* kills *H*, *I* kills *B*, *C* kills *G*, etc.. Your program will accept *n* and *k* as input from the user. Output the order of execution and the number of links traversed till the program terminates.

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2. In your study material I had given you a O(*n*log*n*) merge-sort program in which I had used three intermediate arrays P[ ], Q[ ] and R[ ] for the merging operation. In this assignment you are supposed to rewrite both merge and merge-sort functions without using additional intermediate storage.

   (Hint: Use ordered linked representation of the data elements)

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