Zachery Nyman Written Assignment 3

Assume there is a space at the end of each word except for Query because Radix sort only runs correctly on n elements with d digits. Query has 1 more "digit" than the rest of the input values.

1.

input	1st iteration	2nd iteration	3rd iteration	4th iteration	5th iteration
QUIZ	QUIZ	JAMB	FLAK	JACK	CHIP
JACK	JACK	JACK	JACK	JAMB	FLAK
JUMP	JUMP	FLAK	NECK	NECK	JACK
JAMB	JAMB	NECK	QUERY	ZERO	JAMB
QUERY	JURY	ZERO	CHIP	CHIP	JUMP
JURY	FLAK	JUMP	QUIZ	FLAK	JURY
FLAK	NECK	CHIP	JAMB	QUERY	NECK
NECK	CHIP	QUERY	JUMP	QUIZ	QUERY
CHIP	ZERO	JURY	ZERO	JUMP	QUIZ
ZERO	QUERY	QUIZ	JURY	JURY	ZERO

2.

index	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
TEXT:	C	G	C	C	T	A	G	C	C	G	C	T	A	T	A	C	G	A	G	C
PATTERN:	C	G	A	G	C	T	C	C												
INIT																				
n = 20																				
m = 8																				
Prefix Function	0	0	0	0	1	0	1	1												
q = 0																				
for i =	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
while q > 0 && P[q+1] != T[i]	not ex	not ex	q = 0	q = 0	q = 0	not ex	not ex	not ex	q = 0	not ex	q = 0	q = 0	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex
if P[q+1] == T[i]	q = 1	q = 2	q = 1	q = 1	not ex	not ex	not ex	q = 1	q = 1	q = 2	q = 1	not ex	not ex	not ex	not ex	q = 1	q = 2	q = 3	q = 4	q =5
if q == m	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex	not ex

3. Preprocessing:
    a. Make a "Node" inner class that contains original index and value
    b. Pass in a "new Node(originalIndex, value)" to the ArrayList<Node>

    Perform Quicksort based on the Node's value

    Postprocessing:

    a. ArrayList is sorted, but original indices are out of order, so perform counting sort on the Node's original indices.