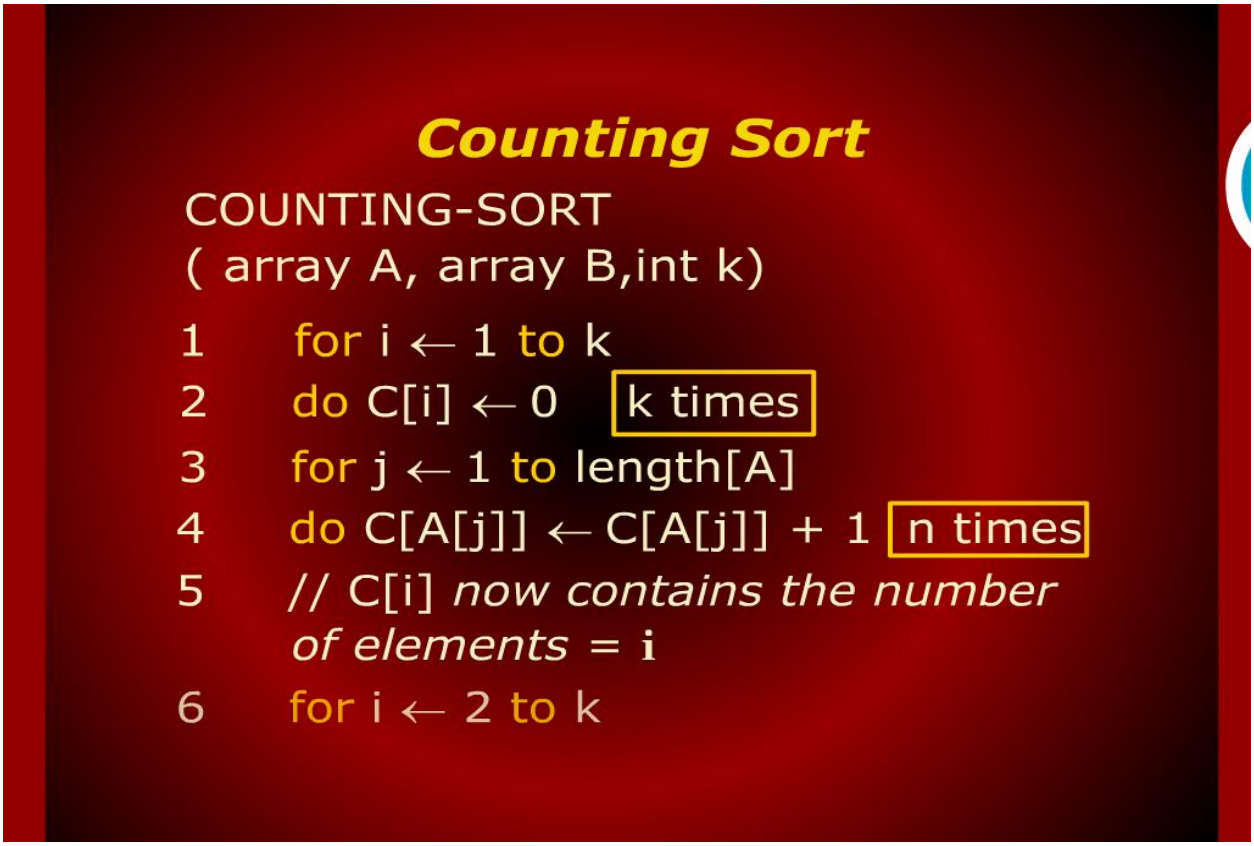
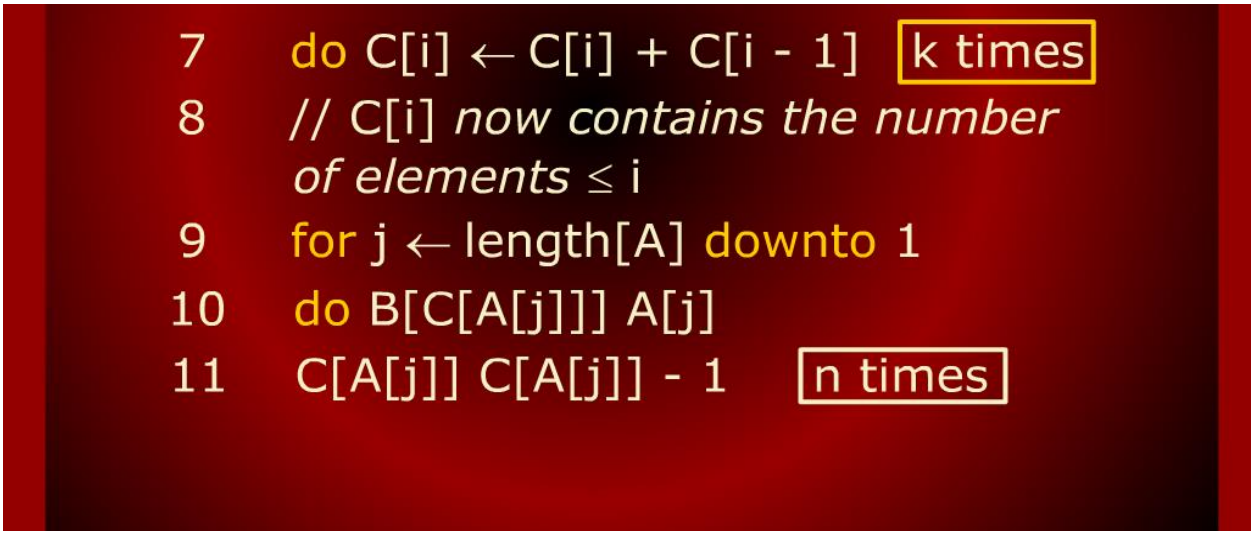
Q1. Assume that you have given input array of integers

$$A = (2,5,3,0,2,3,0,3),$$

write an algorithm to sort the array in $\theta(n)$ times, without comparison. Also show the time complexity of the algorithm.

ANS:





Time Complexity of Courting Sort:

$$k + n + k + n$$

Where the $k\ and\ n$ is the maximum length of the loop; we can say its $\theta(n)$

Q2.

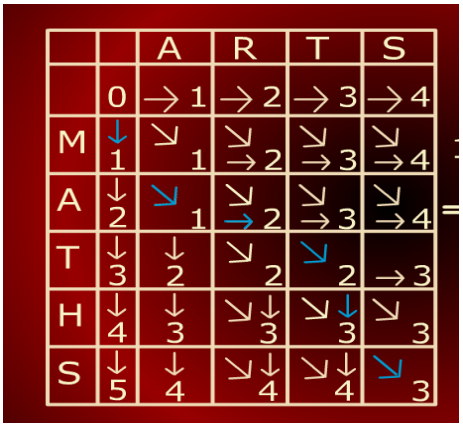
a. Using $Edit\ Distance$; model the transformation of string ALGORITHM to ALTRUISTIC. The above model should reflect the $Edit\ transcript$.

Ans:

M	M	D	S	M	I	M	I	M	S	S
A	L	G	O	R	_	I	_	T	H	M
A	L	_	T	R	U	I	S	T	I	C

b. Show matrix model which reflects the possibilities of Edit Transcript which helps in the transformation of MATHS into ARTS.

Ans:



Possible paths are three (3)

1. $S\ S\ M\ D\ M$

2. $D\ M\ I\ M\ D\ M$

3. $S\ D\ I\ M\ D\ M$