

<b>KING SAUD UNIVERSITY</b> <b>COLLEGE OF COMPUTER AND INFORMATION SCIENCES</b> <b>Computer Science Department</b>		
<b>CSC 339</b> <b>Theory of Computation</b>	<b>Tutorial # 7</b> Turing Machine (TM)	<b>2<sup>nd</sup> Semester 1443-2022</b>

## Exercise 1

Construct a two-tape Turing machine with input alphabet  $\{a, b, c\}$  accepts the language  $\{a^i b^i c^i \mid i \geq 0\}$ .

## Exercise 2

Construct a two-tape Turing machine that accepts strings in which each  $a$  is followed by an increasing number of  $b$ 's; that is the strings are of the following form:

$$ab^{n_1}ab^{n_2} \dots ab^{n_k} \text{ where } k > 0 \text{ and } n_1 < n_2 < \dots < n_k$$