

**CSCI 3236 Homework #2**  
**Due date: May 26, 2020 (Tuesday), 11:59am**

## **Chapter 2 Languages**

1. Using induction on  $i$ , prove that  $(w^R)^i = (w^i)^R$  for any string  $w$  and all  $i \geq 0$ .

Hints: feel free to use the following *Theorem* in your proof

$$\text{Let } u, v \in \Sigma^*, \text{ then } (uv)^R = v^R u^R.$$

*For the following exercises, give a **regular expression** that represents that described set.*

2. The set of strings over  $\{a, b, c\}$  in which all the  $a$ 's precede the  $b$ 's, which in turn precede the  $c$ 's. It is possible that there are no  $a$ 's,  $b$ 's, or  $c$ 's.
3. The same as Exercise 2 without the null string.
4. The set of strings over  $\{a, b\}$  that contain the substring  $aa$  and the substring  $bb$ .

## **How to hand in the assignment**

When you have finished your assignment, you will upload (submit) it to the same assignment area where you found it. I remind you that if you do not submit the assignment before the due date, you will not be able to submit it.

1. Complete the assignment in a MS word file or PDF file.
2. Return to the dropbox folder for this assignment.
3. Look for the "Add a File" button in the Submit Files area.
4. Browse for the assignment that you have on your computer, and select it so that it uploads to the assignment area.
5. Click "Submit".