University of New Brunswick

Computer Science

Computer Architecture and Organization

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Due Date: July 26, 2024 − 11:59 PM

LAB 2

Pre-lab instructions:

- Complete and test the setup required for the remote access to the FCS labs:https://www.cs.unb.ca/help/

    - Set up UNB VPN: https://unbcloud.sharepoint.com/sites/ITServices/SitePages/VPN.aspx

    - Set up SSH for the command line mode access: https://www.cs.unb.ca/help/ssh-help.shtml

    - Set up VNC for the remote desktop access:https://www.cs.unb.ca/help/remote-lab-gui-access.shtml

- Start a VNC session before the lab session.

Reference materials

- LogicWorks 5, by Capilano Computing Systems, Benjamin-Cummings. Chapter 4, pages 21 to 33, provides a tutorial with advanced features.

- Sample LogicWorks tutorial online: https://www.cs.uregina.ca/Links/class-info/201/LW5/lecture.htm

General instructions:

- Log in to Windows in the FCS lab.

- Using remote access to the FCS labs is recommended.

- Complete lab exercises and prepare a lab report.

- Group work is allowed, however, individual D2L submissions are required from each student.

- You may finish the lab on your own time.

Submission instructions:

- Submit the pdf files to the Desire2Learn dropbox

Task 1. Use NAND gates to implement the AND, OR, and NOT functions as discussed in lecture 5. You should use two switches as input, and an LED as output.

Task 2. Build a logic circuit to verify the DeMorgan's laws, see lecture 5 for the basic boolean identities. Design both parts of the equation separately and have the outputs of each go to a separate LED.