PLC Lab #5
Counters

Program: Electrician Technician

Course: EL- 180 – Programmable Logic Controls -

Objectives: Under the supervision of your instructor, you should be able to do the following:

- Explain why counters are retentive.
- Explain how counters and timers work together.

Lab Equipment:

- Click PLC
- Computer system

Required Tools:

- N/A

Material:

- N/A

Safety:

- N/A

Resources:

- N/A

Instructors Notes:

- N/A

Required time: 240 minutes.

Shop Maintenance:

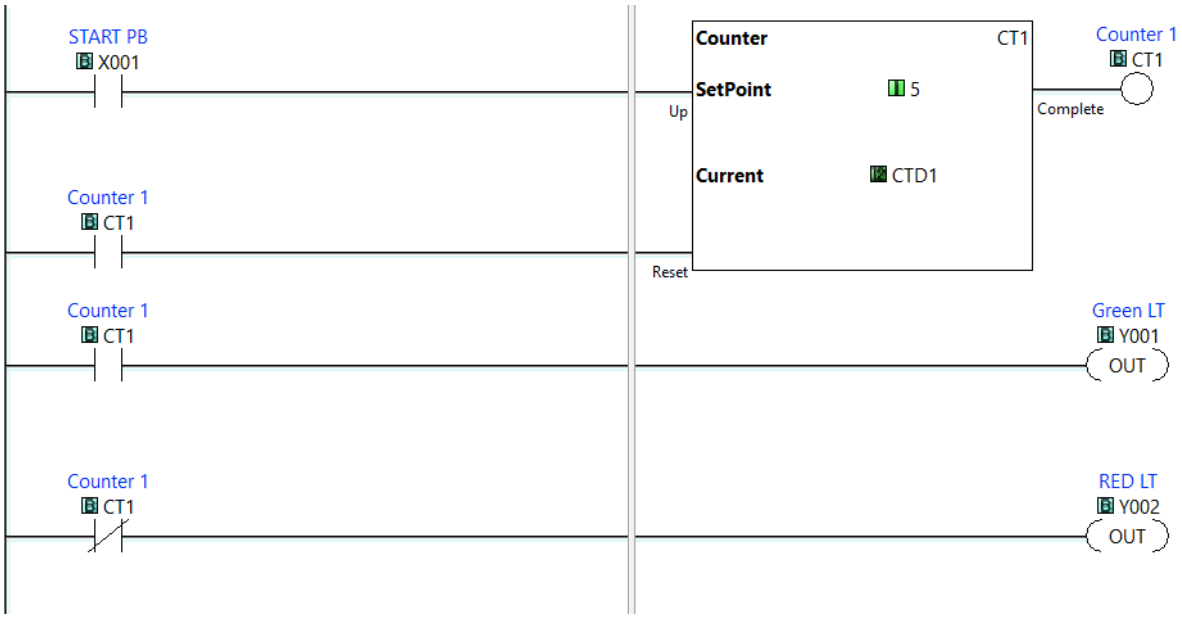
- All work will cease 20 minutes prior to the end of class.
- All work areas must be cleaned.
- Tools and equipment must be cleaned and returned to the designated areas (cage, tool room, cabinets etc.)
- Any broken or missing tools must be reported immediately.
- Tools and equipment are students' responsibility.

Procedures:

Exercise 1 Up Counter logic

Control Concepts used: Counter Up

Program and test the following:



1. Q: Describes what happens when X001 is pressed and held down.

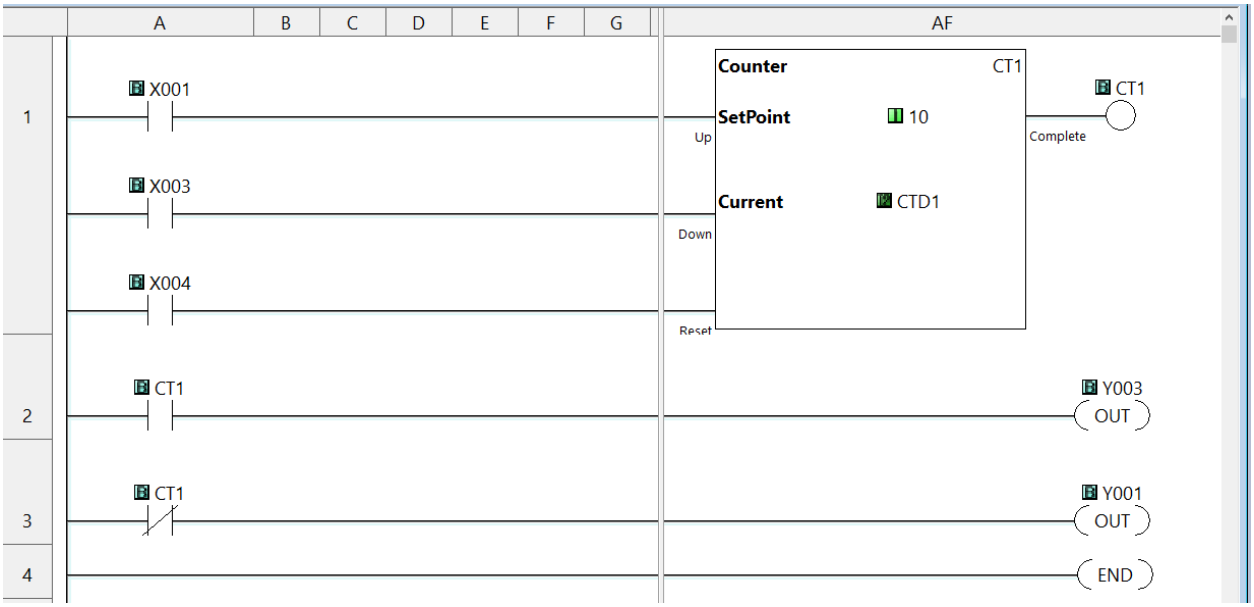
_____
_____
_____
_____
_____

Exercise 2 Up Down Counter logic

Control Concepts - Up Down Counter

X001 represents cars entering a parking garage. X003 represents cars leaving a parking garage. When the Parking garage is full, 150 cars, the GREEN light is Off and the RED light is ON.

Program and test the following:



1. Q: What would happen if X004 is left in the ON position?

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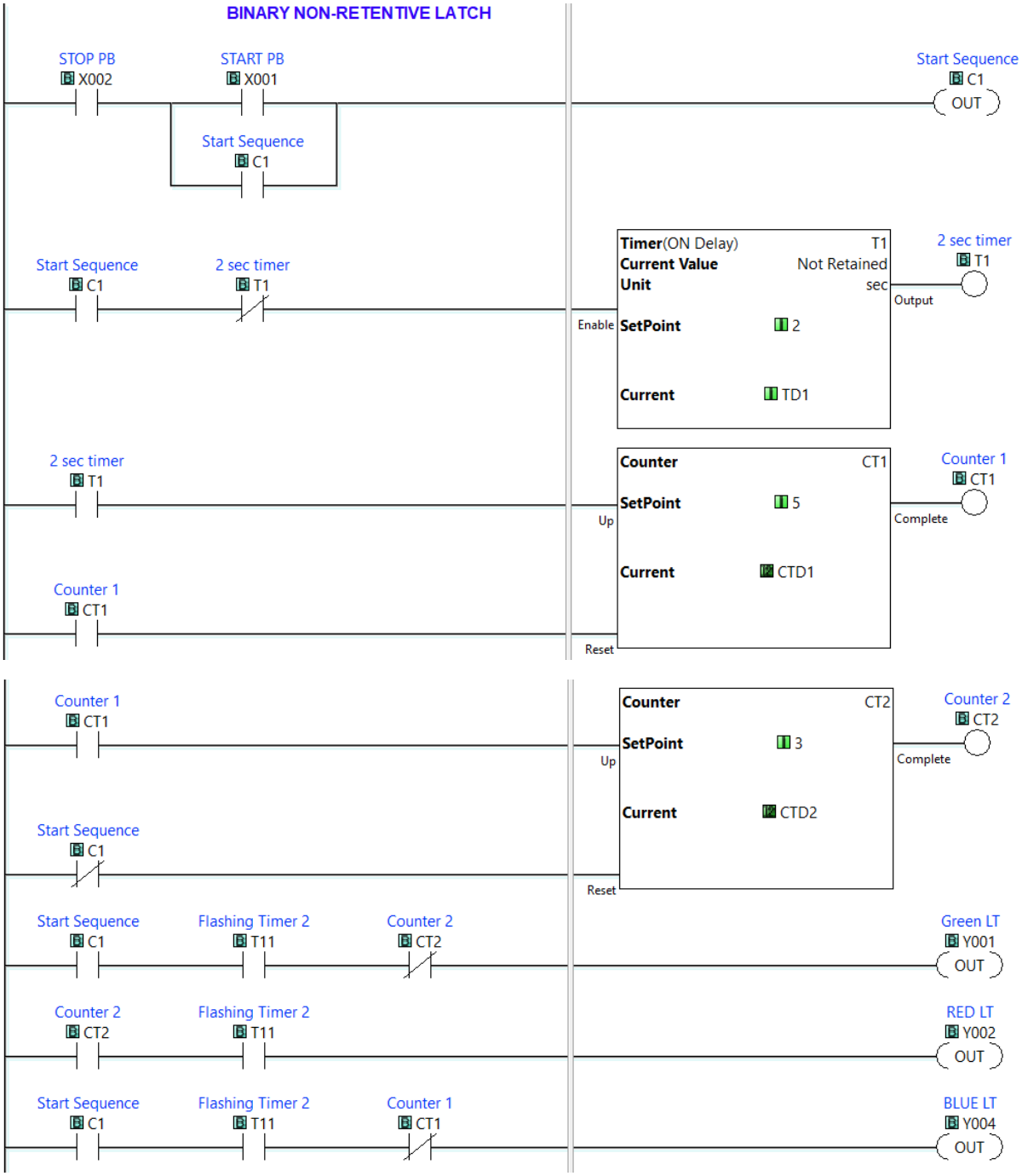
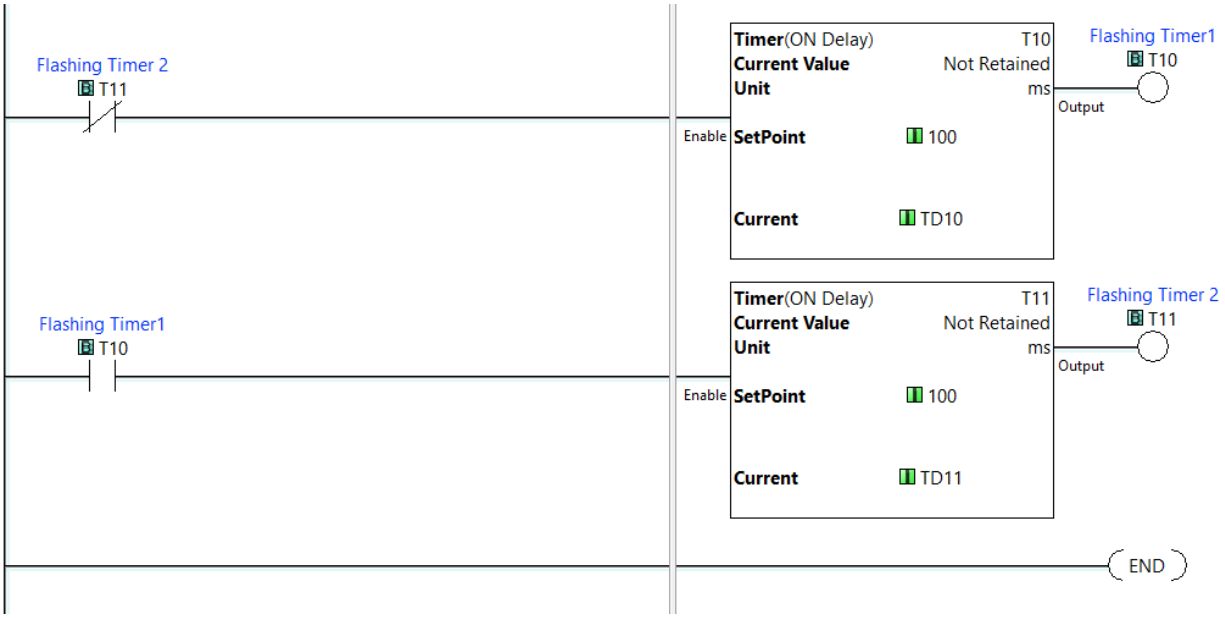
_____

Exercise 3 Timers and Counters

In this exercise we begin to learn how TIMERS and COUNTERS work together. This combination is used extensively throughout industry giving production rates in processes allowing for keeping tract of production and identifying machines and processes that are underperforming.

Program and test the following:





1. Q: How much time does it take for the entire sequence? _____

2. Q: What resets the entire sequence?

_____

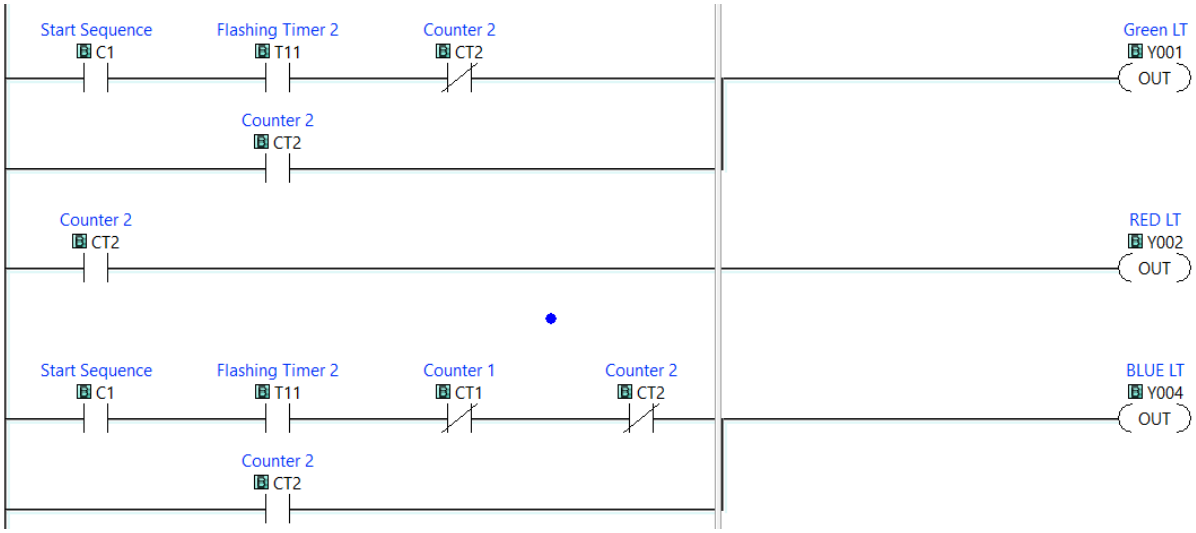
_____

_____

If Time allows complete the following:

Exercise 4 In the exercise 7.3, ADD the follow logic that will turn ALL the lights on SOLID when the sequence is complete.

Program and test the following:



7.4.1 Q: Describe how this logic works.

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