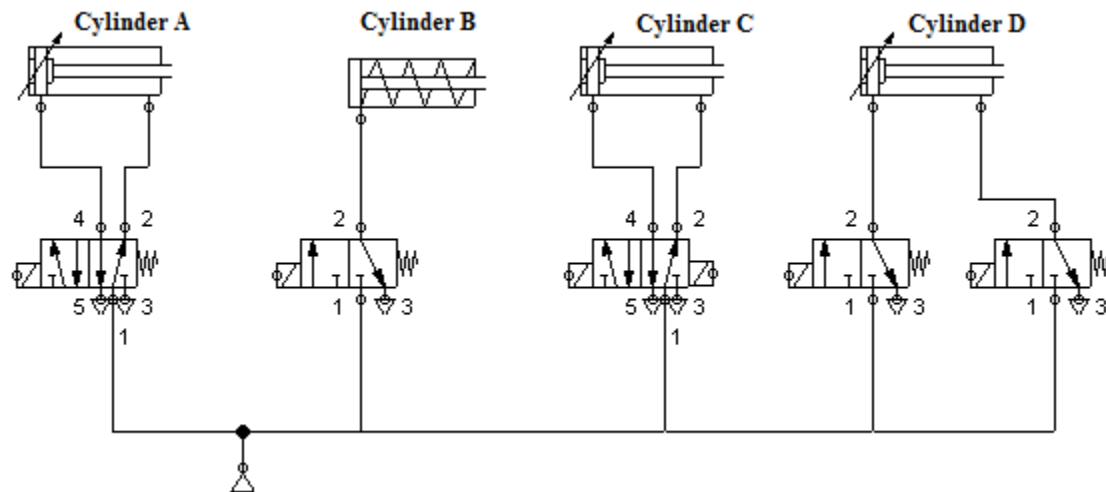




For the system in the figure below, given the address in the next table, design a **PLC ladder diagram** for each of the following tasks

1. Using Self-Latch
2. Using Set/""Reset"" Coils



Hardware	Address
A is fully retracted	I0.0
A is fully extended	I0.1
B is fully retracted	I0.2
B is fully extended	I0.3
C is fully retracted	I0.4
C is fully extended	I0.5
D is fully retracted	I0.6
D is fully extended	I0.7

Hardware	Address
Cylinder A advances	Q0.0
Cylinder B advances	Q0.1
Cylinder C advances	Q0.2
Cylinder C retracts	Q0.3
Cylinder D advances	Q0.4
Cylinder D retracts	Q0.5
"Start"	I1.0
"Stop" (NC)	I1.1
""Reset""	I1.3



Number	Level	Requered Tasks
1.	Easy	If cylinder A is fully retracted and both "Start" and "Stop" are pressed, the cylinder will fully advance then retract.
2.	Easy	If cylinder B is fully retracted and both "Start" and "Stop" are pressed, the cylinder will fully advance then retract.
3.	Easy	If cylinder C is fully retracted and both "Start" and "Stop" are pressed, the cylinder will fully advance then retract.
4.	Easy	If cylinder D is fully retracted and both "Start" and "Stop" are pressed, the cylinder will fully advance then retract.
5.	Easy	If cylinder A is fully retracted and "Start" or ""Reset" " is pressed, the cylinder will advance. It will retract if it is fully advanced and "Stop" is presed.
6.	Easy	If cylinder A is fully retracted and "Start" or ""Reset" " is pressed, the cylinder will advance. It will retract if it is fully advanced or "Stop" is presed.
7.	Medium	If cylinder D is fully retracted and "Start" or ""Reset" " is pressed, the cylinder will advance. It will retract if it is fully advanced and "Stop" is presed.
8.	Medium	If cylinder D is fully retracted and "Start" or ""Reset" " is pressed, the cylinder will advance. It will retract if it is fully advanced or "Stop" is presed.
9.	Medium	If cylinders A and B are fully retracted and "Start" is pressed, the cylinders will advance and rertract acording to the follopwing sequence: 1. B will fully advance. 2. A will fully advance. 3. B will fully retract. 4. A will fully retract.
10.	Medium	If cylinders A and B is fully retracted and "Start" is pressed, the cylinders will advance and rertract acording to the follopwing sequence: 1. B will fully advance. 2. A will fully advance. 3. Both cylinder will retract.