Day 2 lab work

This is the Core Class lab work for day 2. To earn certification from this class, you must complete this lab work during the designated time in class.

Instructions

Using the same project we have been working on throughout the class today, complete the following steps.

Create a UDT

1. Create a new **UDT.**
2. Name it **Conveyor UDT**.
3. Add a **parameter** to the UDT.
4. Name the parameter **ConveyorNumber**.
5. Set its data type to **integer**.
6. In the new UDT, add the **Amps, HOA, Speed**, and **Totalizer** tags from any of the Conveyors.
7. Click the Amps tag.
8. Update the tag's **OPC Item Path** to be dynamic by editing the path to use the **ConveyorNumber** parameter.
9. Repeat steps 7-8 for the other three tags.
10. Add a **memory tag** to the UDT.
11. Name the memory tag **SpeedSP**.
12. Set the data type of the memory tag to **Double**, and give it a default value of **0**.

Add UDT instances

1. Create a new **folder** in the Tag Browser.
2. Name the folder **ConveyorInstances.**
3. Use the **Multi-instance Wizard** to create an instance for each of the 15 Conveyors.
4. Set the Base Tag Name to **Conveyor** followed by a **space**.
5. Set the Tag Name Pattern and the Parameter Pattern so that the instances and their parameters are numbered **1 through 15**.
6. Be sure to use the **preview feature** in the Wizard to ensure everything is set correctly.

Create a Vision template

1. Create a **new template** in Vision.
2. Name the template **Conveyor Template**.
3. Add a template parameter named **ConveyorNumber**.
4. Add a **label** component. This will be a header for this conveyor.
5. Use a **dynamic expression binding** to set the label's **Text** property to display the name of the conveyor instance; for example, Conveyor 1.
6. Add a **multi-state button**.
7. Use **indirect bindings** to allow operators to both **control** and **view** the **HOA** tag using the multi-state button.
8. Add an **LED** component.
9. Use an **indirect binding** to display the value of the **Amps** tag.
10. Add a **label** component.
11. Set the label's **Text** property to **Amps**.
12. **Repeat steps 8-11** for the **Speed, SpeedSP** and **Totalizer** tags.

Add a Lab work day 2 window

1. Add a new **Vision window**. Alternatively, you can duplicate and rename the **Empty** window.
2. Name the window **Lab work day 2**.
3. Add a **label** to the top of the window.
4. Set the label's **Text** property to match the name of the window. If you duplicated the Empty window in step 1, update the header text instead.
5. Add an **instance of the Conveyor template** to the window.
6. Set the value of the template's parameter to **1**.
7. **Repeat steps 5 and 6** to add three more instances of the Conveyor template.
8. Set the template's parameter on the second instance to **6**.
9. Set the template's parameter on the third instance to **10**.
10. Set the template's parameter on the fourth instance to **15**.

Set navigation

1. Add the **Lab work day 2** main window to your **navigation Tab Strip**.

Test your work

1. Open the **Lab work day 2** window in the Vision Client.
2. Verify that the **LED Display** components are showing the correct values.
3. Click the **Multi-state Button** and ensure that it indicates a new value.

Lab work check

Once you have completed all of the steps above, please let your instructor know so that they can check your work. Please do the following:

1. Have the Designer open to show the **Lab work day 2 window**. Also ensure that your **Conveyor 1/6/10/15 instances** are expanded and visible in the Tag Browser. The instructor will:
    a. Verify that you have UDT instances that are set up correctly.
    b. Verify that you have the correct number of template instances and that they are showing the correct values and that the multistate button changes the HOA value.

Additional challenges

If you finish the lab work early, give these challenges a try.

Completing these challenges is not required for certification. Your instructor will not cover these in the lab work review.

1. Display all of the **Conveyors** using a **Template Repeater**.
2. Add a **Dropdown List** to allow an operator to select a specific **Conveyor**.
3. Create a new **Window**. Add a **Dropdown List** and **3 LED displays**. Populate the **Dropdown List** with the **Flavor** values. Create **bindings** to change the **LED** values to those in the **Recipe** based on the **Dropdown List** selection.

Virtual classes only

If you are taking the class virtually, please use the Windows Start menu to properly shut down the machine after your work is checked.