Task 1 - Digital Workflows

1. If I wanted to change the workflow by adding an extra step after the stirring step, but before the summary, what would I have to do?

We would have to make the following modifications in the template YML file:

1. The new step would have to be defined under the steps key with a unique name associated with it.
2. It will need to be added to the flow list before the summary step.

The new structure of the file will look like shown below (existing steps collapsed for better readability):

```yaml
steps:
  weighing: …

  stirring: …

  new_step:
    info:
      title: My new step
    substeps: …

  summary: …

flow:
  - weighing
  - stirring
  - new_step
  - summary
```

2. When adding the iced tea mix to the flask, we also want to show the user the target weight, as defined at the beginning of the workflow. How would you accomplish this?

The target weight field is defined under the fields key. We can reference the field value and add it in the description template as follows:

```
steps:
  weighing:
    info:
      title: Weighing
    substeps:
      - primary: Place an empty flask on {{Balance}}. Tare the balance to continue. …

      - primary: Put {{TargetWeight}} of Ice Tea into the flask and press print.
        expandDescription: true
        description: /
          %col
            ### Target Weight: {{TargetWeight}}
            <br />
            ### Stable Weight: {{StableWeight}}
            <br/>
            ### Delta Weight: {{Delta}}
          <br/>
          <br/>
          %col
            {{button|print}}
```

3. Regarding the screencast and line 146 of the template: What's the value of the "data_point.qty"in that specific example?

Whenever a data_point event is received, we set the StableWeight field's value to the qty value emitted. This is handled by the following logic:

```
139            - when:
140                on_data_point:
141                  device: Balance
142                  channel: weight
143                do:
144                  - set_field:
145                      field: StableWeight
146                      value: data_point.qty
```

In this case, since the StableWeight value is set as 9.69g, we can safely say that the value of data_point.qty received is 9.69g. The following screenshot has been taken from the screencast, which shows the StableWeight value at that instance:

Stable Weight: 9.69 g

4. Please explain what happens when the timer runs out on its own vs. when the user stops the timer manually.

The timer stopping on its own and the user stopping the timer are two different events as defined in the following section of the template:

```
- when:
    - on_timer_stop
    - on_timer_complete
  do:
    - send_command:
        device: Stirrer
        command: set_stirrer_status
        data: 0
    - complete_substep
```

According to the logic defined, both these events trigger a command to set the status of the Stirrer to 0. This means that regardless of the time running out or the user manually stopping, the stirrer will be turned off and the step will be marked as complete.