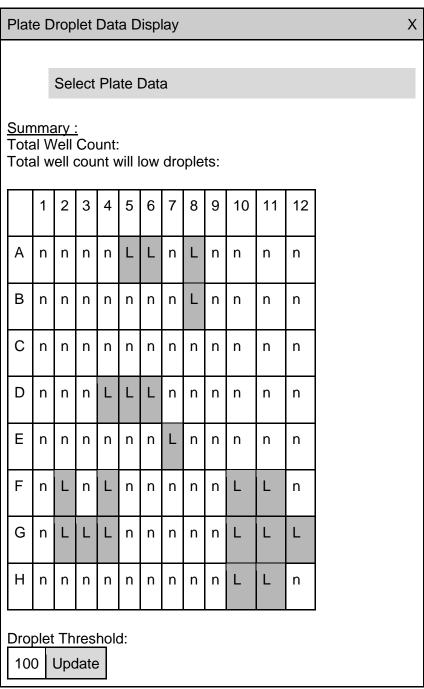
# Display droplet count in an nxn grid

## **Problem Statement:**

Given a plate that contains 48 or 96 wells and each well contains a number of droplets. Provide a GUI (as shown below) that provides users with a graphical representation of the data within each well.



#### Legend

n = normal droplet count (count is greater than the droplet threshold value)

L = low droplet count (count is less than the droplet threshold value)

<u>Inputs: (Use Attached PlateDropletInfo.json or PlateDropletsInfo\_48Wells.json - Note the plate data shown in the image is for reference only - it might not match the data in the json files)</u>

- 1. Plate droplets info file that has a collection of well indices and the droplet count for each well index.
- 2. The 96 well plate is 8 rows by 12 columns. The well indices are 0-95 where A1 is index 0, A2 is index 1 ...., H12 is index 95
- 3. The 48 well plate is 8 rows by 6 columns. The well indices are 0-47 where A1 is index 0, A2 is index 1 ...., H6 is index 47
- 4. The droplet count is a whole number between 0-500

#### Objective:

- 1. Create a WPF application using C# that displays the user interface shown above
- 2. Allow the user to browse to and select the PlateDropletsInfo file.
- 3. Adjust the rows and columns based on the data in the chosen file.
- 4. Set the default droplet threshold value to 100
- 5. Display L or n based on the droplet threshold value for each well
- 6. If the well has a low droplet count change the background color to gray
- 7. Allow the user to edit the threshold value with the acceptable range (0-500) and click the Update button to refresh the data displayed in the table.

#### What do we look for?

- 1. C# WPF desktop windows application
- 2. Clear and concise code.
- 3. Release quality Code
- 4. Use of design patterns
- 5. Use of NuGet packages
- 6. Use of MVVM architecture

### What should you submit?

- 1. Zipped solution (no binaries)
- 2. [optional] Documentation to explain the architecture or design

In the code walkthrough you will be asked to describe the code and the reason for the approach taken to complete the exercise.

#### Supplemental discussion topics:

- 1. The Droplet Threshold textbox has a default value that it displays when the application starts up. Is there a way to make this initial default value configurable (but not from the UI) so that it can be changed without needing to recompile the application?
- 2. Prepare a test plan that specifies the classes, methods, inputs and outputs that you would implement unit tests for. (Do not actually implement any unit tests).