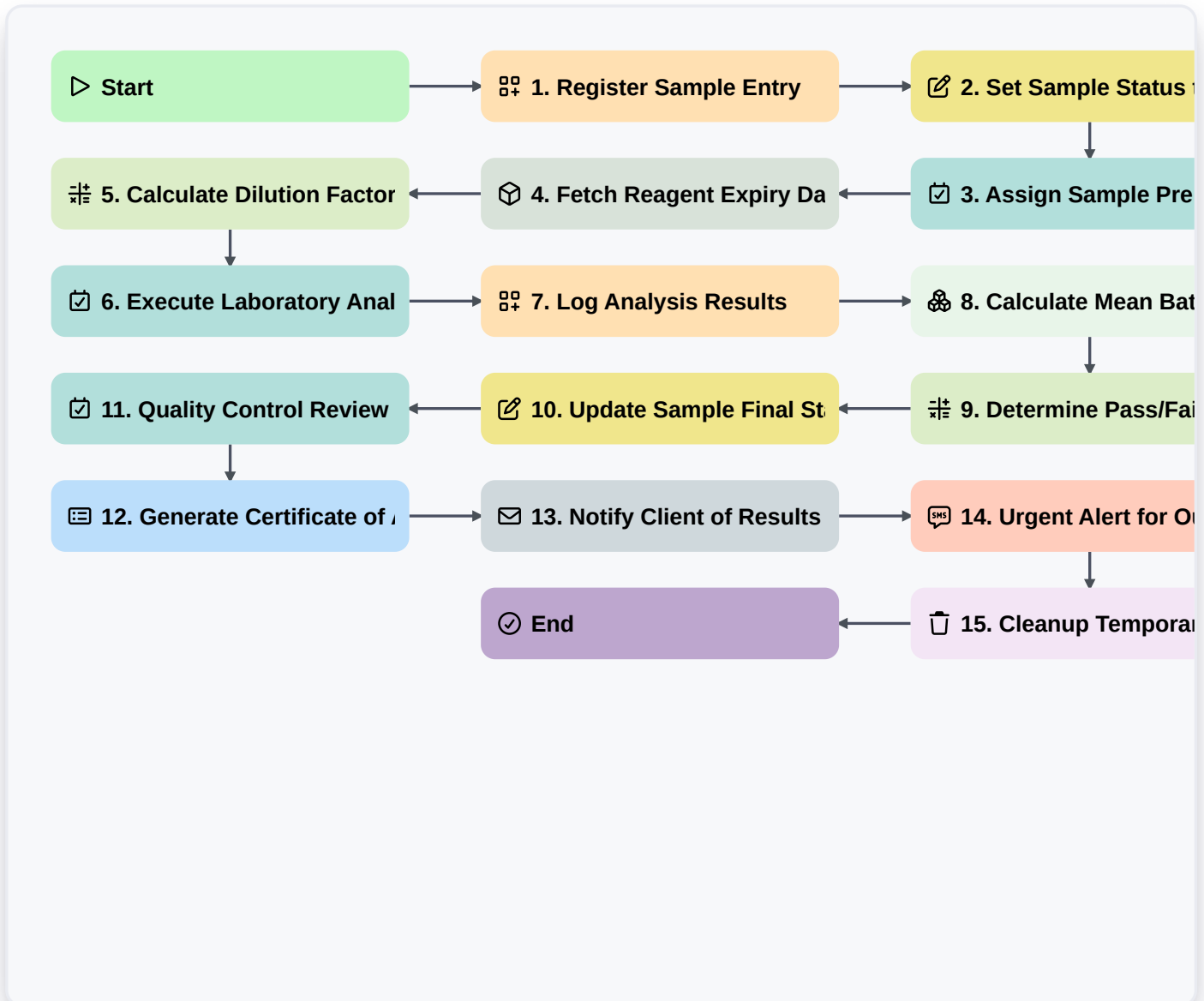


# Laboratory Information Management System (LIMS) Workflow



## ▶ Start

Start of the Workflow/Process.

### 🗄️ 1. Register Sample Entry

Create a new entry in the 'Samples' data model with metadata like Sample ID, Type, and Priority.

### ✍️ 2. Set Sample Status to 'Received'

Update the status of the newly created sample entry to 'Received' upon arrival in the lab.

### 📝 3. Assign Sample Preparation

Create a task for the Lab Technician to prepare the sample (centrifugation, dilution, etc.).

### 📦 4. Fetch Reagent Expiry Dates

Retrieve data from the 'Reagents' data model to ensure all chemicals used are within valid expiry dates.

### 🔢 5. Calculate Dilution Factor

Execute a formula to calculate the final concentration based on the initial volume and dilution ratio.



## 6. Execute Laboratory Analysis

Create a task for the Analyst to perform the actual testing/assay on the prepared sample.

## 7. Log Analysis Results

Create a new entry in the 'Test Results' data model containing the raw numerical data from the analysis.

## 8. Calculate Mean Batch Result

Aggregate all 'Test Results' entries for the same Batch ID to find the average (AVG) value.

## 9. Determine Pass/Fail Status

Compare the aggregated mean result against the predefined 'Specification Limit' constant.

## 10. Update Sample Final Status

Update the 'Samples' entry status to either 'Passed' or 'Failed' based on the calculation result.

## 11. Quality Control Review

Create a task for the Lab Manager to review the results if the status is 'Failed'.

## 12. Generate Certificate of Analysis (CoA)

Generate a formal PDF report aggregating all testing data, timestamps, and technician signatures.

## 13. Notify Client of Results

Send an email to the client's email address with the completed CoA attached.

## 14. Urgent Alert for Out-of-Spec

Send an SMS to the Lab Supervisor if a 'Failed' status is detected for a High-Priority sample.

## 15. Cleanup Temporary Logs

Delete temporary, non-traceable intermediate calculation entries to maintain database hygiene.

## End

End of the Workflow/Process.