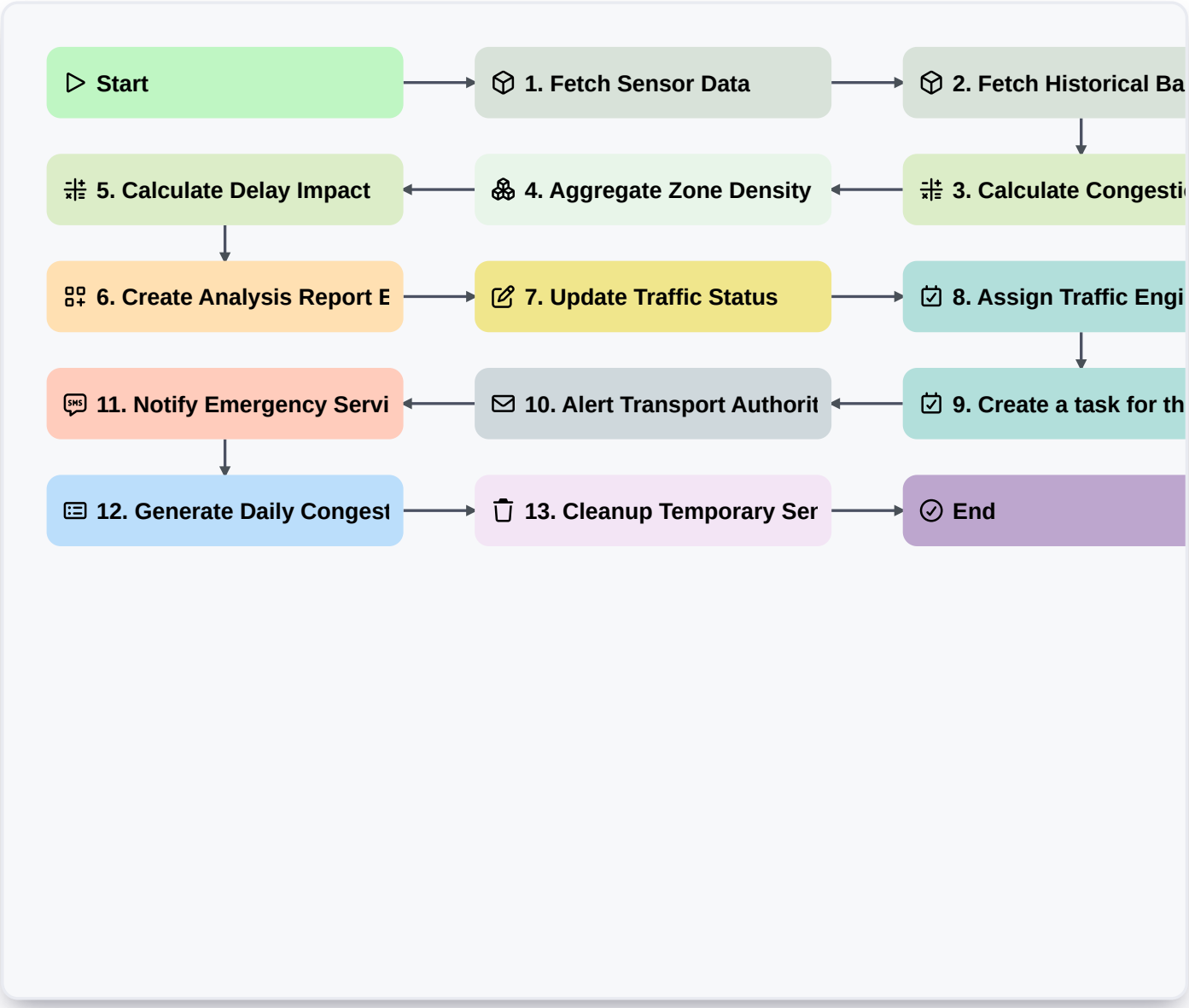
# ChecklistGuro

# Real-Time Traffic Congestion Impact Analysis




## Start
Start of the Workflow/Process.

## 1. Fetch Sensor Data
Retrieve real-time vehicle count and speed data from IoT traffic sensors in the target zone.

## 2. Fetch Historical Baseline
Retrieve historical average traffic patterns for the same day and time from the historical data model.

## 3. Calculate Congestion Index
Calculate the deviation percentage between real-time speed and historical baseline speed.

## 4. Aggregate Zone Density
Calculate the average vehicle density across all active sensors within the analyzed area.

## 5. Calculate Delay Impact
Estimate the total extra travel time (in minutes) caused by the current congestion.

## 6. Create Analysis Report Entry
Generate a new record in the Analysis Data Model containing the calculated congestion metrics and timestamp.

## 7. Update Traffic Status
Update the 'Current Status' field in the Road Segment Data Model (e.g., from 'Green' to 'Red').

## 8. Assign Traffic Engineer Review
Create a task for the Duty Engineer to manually verify high-severity congestion anomalies.

## 9. Create a task for the field unit if congestion is caused by a detected incident/accident.
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## 10. Alert Transport Authorities
Send an automated email alert to the Department of Transportation regarding critical congestion levels.

## 11. Notify Emergency Services
Send an SMS alert to emergency responders if the analysis detects a sudden drop in speed indicating a possible crash.

## 12. Generate Daily Congestion Summary
Create a visual PDF report summarizing the daily congestion trends and impact levels for stakeholders.

## 13. Cleanup Temporary Sensor Logs
Delete temporary high-frequency raw data entries that are no longer needed after analysis completion.

## End
End of the Workflow/Process.