**User acceptance Testing**

User Acceptance Testing is the final phase of testing before deploying a solution. It ensures that the system meets real-world user needs and works as expected in actual business scenarios  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

✅ User Acceptance Testing (UAT) for Traffic Tellogence ML Project

**📌 What is UAT?**

User Acceptance Testing is the final phase of software testing where real users test the system to verify if it meets business requirements and is ready for deployment.

In the Traffic Tellogence ML project, UAT ensures that:

Traffic predictions are usable, accurate, and actionable.

Salesforce integrations (alerts, reports) work as intended.

Users (traffic planners, city officials) are satisfied with the system.

**🚦 UAT Plan: Traffic Tellogence**

🧩 1**. UAT Objectives**

Validate accuracy of ML traffic volume forecasts.

Confirm timely delivery of alerts in Salesforce.

Ensure dashboards are user-friendly and actionable.

Check system handles real-time and historical data smoothly.

Verify workflows (notifications, escalations, reports).

🧑‍💼 2**. UAT Stakeholders / Users**

User Role Responsibilities

Traffic Analyst Review traffic volume reports and alerts

City Planner Use predictions for route planning

Operations Officer Respond to alerts/escalations

results to stakeholders Salesforce Admin Monitor integrations and workflows

🧪 3. **UAT Test Scenarios**

Test Case ID Description Expected Result

TC01 Predict traffic volume for a given location/time Traffic prediction displayed correctly

TC02 Receive alert when traffic is above threshold Notification received in Salesforce (email/SMS/case)

TC03 View trend dashboard in Salesforce Dashboard loads correct charts & data

TC04 Compare predicted vs actual traffic Error margin is within accepted limit (e.g., <10%)

TC05 Holiday/event impact on predictions Model adjusts for external factors

TC06 Sensor offline/invalid data input System handles gracefully and logs issue

TC07 Case created for congestion zone Case appears with relevant prediction attached

TC08 Public portal updates daily traffic trends Portal shows updated predictions & AQI overlays

🔍 4**. Sample UAT Test Case (Detailed Format**)

Test Case ID TC02

Title Alert Trigger for High Traffic Volume

Input Simulated vehicle count = 3200/hour

Expected Output Alert generated in Salesforce (email + case created)

Actual Result ✅ Passed – alert received

Tester City Traffic Officer

Date 2025-06-30

📋 5. **UAT Entry Criteria**

ML model is trained and deployed via API.

Sensor data and predictions are flowing to Salesforce.

Dashboards are configured and accessible.

Test users have access and training.

🛑 6. **UAT Exit Criteria**

All critical and high-severity test cases passed.

Error rate of traffic prediction within accepted limits.

Alerts are delivered with <1 min latency.

User feedback collected and implemented (if feasible).

📈 7. **UAT Success Metrics**

**Metric Target**

Prediction accuracy (R²) ≥ 0.85

Mean Absolute Error (MAE) < 100 vehicles/hour

Dashboard load time < 3 seconds

Alert response time < 1 minute

User satisfaction (survey) ≥ 90% positive response

📝 8. **UAT Documentation**

UAT Test Plan (with scenarios, timeline)

UAT Test Cases with results (Excel or tool like TestRail)

UAT Feedback Summary

UAT Sign-Off Sheet (signed by stakeholders

📦 **Deliverables After UAT**

1. ✅ Signed UAT Completion Report

2. ✅ Bug fixes (if any) resolved

3. ✅ Final Go-Live Approval

4. ✅ Training for operational users (via Salesforce or portal)

**🧠 Summary**

UAT for Traffic Tellogence ensures:

ML model predictions are reliable.

Salesforce alerting, dashboards, and reporting work flawlessly.