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AI-generated content may be incorrect.SQL ASSESSMENT WORKBOOK V3 Step-2: Proactive Monitoring & Compliance**

**EduFin SQL Monitoring Workbook: A Beginner-Friendly Guide to Real-Time KPIs, Predictive Alerts, and Compliance Automation**

**Program: Skill AI Path – Data Analyst Pretraining Track  
Module: EduFin Risk Analytics Simulation  
Assessment Type: Skill Validation – SQL Query Writing + Business Understanding  
Prepared For: EduFin Data Analyst Cohort  
Organization: Krishnav Tech | Skill AI Path**

**Objective**

The objective of this session is to strengthen participants’ ability to design proactive monitoring and compliance systems using SQL. Learners will gain skills in building real-time KPI dashboards, applying predictive risk indicators, and automating compliance checks. They will also master alerting frameworks, SLA monitoring, and immutable audit trail designs, ensuring organizations can prevent crises, detect breaches early, and maintain operational integrity through unified monitoring systems.

# SQL Skill Check Assessment – Pretraining Workbook

## PART A: Query Writing (60 points)

**Question 1 (10 points)**  
Create an EWMA risk scoring system for geographic regions, weighting recent default events more heavily than historical ones.

**Your Answer:**

**Question 2 (10 points)**  
Build a predictive alert query that identifies customers likely to miss payments in the next 15 days based on payment patterns and account activity.

**Your Answer:**

**Question 3 (10 points)**  
Write a compliance monitoring query that checks for regulatory violations across multiple areas (KYC, loan limits, interest rates) and provides automated remediation recommendations.

**Your Answer:**

**Question 4 (10 points)**  
Design a data freshness validation system that monitors multiple data sources and escalates based on business impact and delay duration.

**Your Answer:**

**Question 5 (10 points)**  
Create an alert aggregation query that prevents alert fatigue by consolidating related alerts and implementing smart thresholds.

**Your Answer:**

**Question 6 (10 points)**  
Build a comprehensive SLA monitoring system for collection activities, payment processing, and customer service interactions.

**Your Answer:**

## PART B: Multiple Choice Questions (40 points)

**Question 7:**  
What is the key advantage of EWMA over simple moving averages?

- A) It's faster to calculate

- B) It weighs recent data points more heavily

- C) It requires less memory

- D) It works with smaller datasets

**Answer:**

**Question 8:**  
In compliance monitoring, what should trigger immediate escalation?

- A) Any violation detected

- B) Violations exceeding regulatory thresholds

- C) Multiple minor violations

- D) System processing delays

**Answer:**

**Question 9:**  
How should data freshness be measured for real-time monitoring?

- A) Daily batch completion time

- B) Minutes since last record creation

- C) Database connection status

- D) Query execution time

**Answer:**

**Question 10:**  
What's the best practice for alert threshold management?

- A) Fixed thresholds for all metrics

- B) Dynamic thresholds based on historical patterns

- C) Single threshold level for simplicity

- D) Manual threshold adjustment only

**Answer:**

**Question 11:**  
Why is alert escalation timing critical?

- A) Prevents system overload

- B) Ensures appropriate response urgency

- C) Reduces notification costs

- D) Improves query performance

**Answer:**

**Question 12:**  
Which approach best prevents alert fatigue?

- A) Reducing alert sensitivity

- B) Consolidating related alerts

- C) Sending fewer notifications

- D) Increasing alert thresholds

**Answer:**

**Question 13:**  
What makes an effective compliance query?

- A) Complex joins across all tables

- B) Clear violation criteria and automatic recommendations

- C) Historical trend analysis only

- D) Simple violation counting

**Answer:**

**Question 14:**  
How should immutable audit logs be validated?

- A) Check for data modifications

- B) Verify chronological sequence integrity

- C) Confirm digital signatures

- D) All of the above

**Answer:**

**Question 15:**  
What's the primary goal of predictive monitoring?

- A) Replace human decision making

- B) Identify problems before they become crises

- C) Automate all business processes

- D) Reduce monitoring costs

**Answer:**

**Question 16:**  
Which metric is most critical for executive dashboards?

- A) Technical system performance

- B) Business impact and trend indicators

- C) Database query statistics

- D) User activity logs

**Answer:**

## PASSING CRITERIA

* Minimum Score Required: **80 out of 100**
* Query Writing: **At least 48/60**
* MCQ Section: **At least 32/40**
* Time Limit: **90 minutes**
* Retakes Allowed: Unlimited until 80% is achieved

## SKILLS YOU VALIDATE

Upon achieving 80%, you will have demonstrated:

- ✅ Advanced real-time metric calculations

- ✅ Predictive alert system design

- ✅ Compliance monitoring automation

- ✅ Data quality validation techniques

- ✅ Executive dashboard development

- ✅ Alert management and escalation

- ✅ System reliability monitoring

- ✅ Business intelligence integration

## STUDY RECOMMENDATIONS

1. Reviewing SQL aggregation and window functions for KPI and EWMA calculations
2. Practicing query design for automated compliance checks and SLA validations
3. Exploring real-time dashboard frameworks and alert escalation logic
4. Studying audit trail structures to ensure data immutability and accountability
5. Applying hands-on SQL exercises for predictive monitoring and early warning indicators

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