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AI-generated content may be incorrect.SQL ASSESSMENT WORKBOOK V2 Step-2: Preventive Controls – Automated Reconciliation, Monitoring, and Business Rule Validation**

**EduFin SQL Skill Assessment Workbook: Step 2 Evaluation**

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

**Objective :**

To assess learners’ ability to:

* Design automated reconciliation queries for early detection.
* Build real-time data quality monitoring checks.
* Write SQL-driven business rule validations to prevent future discrepancies.

# SQL Skill Check Assessment – Pretraining Workbook

## PART A: Query Writing (60 points)

**Q1 (10 pts) — Automated Reconciliation**  
Write a reconciliation query to compare today's loan disbursements between the main system and backup system, highlighting any discrepancies in count and total amount.

**Your Answer:**

**Q2 (10 pts) — Institution Reconciliation Summary**  
Create a data quality monitoring query that calculates completeness scores for critical fields in the loans table and alerts when quality drops below 95%.

**Your Answer:**

**Q3 (10 pts) — Real-time Null Check**  
Design a business rule validation query that checks if loan-to-income ratios exceed 10x annual income and provides a compliance percentage.

**Your Answer:**

**Q4 (10 pts) — Business Rule Validation**  
Build an early warning alert system that detects when daily loan volume deviates by more than 2 standard deviations from the 30-day average.

**Your Answer:**

**Q5 (10 pts) — Monitoring Trend**  
Create a trend analysis query that shows 7-day moving averages for key metrics and identifies negative trends requiring attention.

**Your Answer:**

**Q6 (10 pts) — Consolidated Risk Report**  
Develop a constraint violation detection query that identifies orphaned records, duplicates, and invalid status values across all tables.

**Your Answer:**

## PART B: Multiple Choice (40 points)

**Q7:** What is the primary purpose of reconciliation checks?

- A) Improve query performance

- B) Ensure data consistency across systems

- C) Format data for reports

- D) Create backup copies

**Answer:**

**Q8:** Which function is best for preventing division by zero in percentage calculations?

- A) COALESCE()

- B) NULLIF()

- C) ISNULL()

- D) CASE WHEN

**Answer:**

**Q9:** What does a data quality score of 85% typically indicate?

- A) Excellent quality, no action needed

- B) Good quality, minor improvements suggested

- C) Poor quality, immediate action required

- D) Critical quality issues, system shutdown needed

**Answer:**

**Q10:** In trend analysis, what does a 2-standard deviation threshold typically represent?

- A) 50% probability of occurrence

- B) 90% probability of occurrence

- C) 95% probability of occurrence

- D) 99% probability of occurrence

**Answer:**

**Q11:**  Which SQL operator is most effective for finding missing records between two tables?

- A) INNER JOIN

- B) LEFT JOIN with IS NULL

- C) UNION

- D) INTERSECT

**Answer:**

**Q12:** What is the recommended approach for handling constraint violations?

- A) Delete the violating records

- B) Log violations and alert administrators

- C) Automatically correct the data

- D) Ignore minor violations

**Answer:**

**Q13:** In business rule validation, what happens when violation\_percentage exceeds 5%?

- A) System automatically shuts down

- B) Critical alert should be generated

- C) Records are automatically corrected

- D) No action is needed

**Answer:**

**Q14:** Which metric is most important for early warning systems?

- A) Historical averages

- B) Current absolute values

- C) Rate of change and trends

- D) Maximum values only

**Answer:**

**Q15:**  What is the primary benefit of real-time quality monitoring?

- A) Reduces storage costs

- B) Improves query speed

- C) Detects issues before they become critical

- D) Simplifies database design

**Answer:**

**Q16:** In executive dashboards, what color coding typically indicates "Needs Attention"?

- A) Green

- B) Yellow/Orange

- C) Red

- D) Blue

**Answer:**

## Passing Criteria

* Minimum score: **80/100**
* Query section: **≥ 48/60**
* MCQ section: **≥ 32/40**
* Time: **90 minutes**

## Skills Validated

Upon achieving 80%, you will have demonstrated:

- ✅ Automated reconciliation check design

- ✅ Real-time data quality monitoring

- ✅ Business rule validation framework

- ✅ Early warning system development

- ✅ Executive dashboard creation

- ✅ Trend analysis and alerting

- ✅ Constraint violation detection

- ✅ Risk prevention methodology

## STUDY RECOMMENDATIONS

1. **Master reconciliation logic** - crucial for preventing data inconsistencies

2. **Focus on threshold setting** - critical for effective early warning systems

3. **Practice trend analysis** - essential for predictive monitoring

4. **Understand constraint validation** - prevents data integrity issues

5. **Get comfortable with alert logic** - enables proactive crisis prevention

**Time Investment:** Allow 5-6 hours for complete mastery before assessment.

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