Question 3.1

The separation of duties is a key internal control in both information security and database management. It makes sure that no single user can complete an important on task on their own, preventing errors, fraud and misuse. (Laudon & Laudon, 2022)

Prevents Fraud and Misuse:

By restricting Hannah’s access to data insertion only, she cannot add fraudulent delivery records and then immediately modify or view important information. This helps uphold security by preventing data manipulation (Whitman & Mattord, 2023).

Auditing and Accountability:

If a bad record is inserted, the action is traceable only to Hannah. If an incorrect record is run, it is traceable only to Hannah. making auditing more transparent. (Kroenke & Boyle, 2020)

Improves Data Integrity:

By separating the ability to view data John and from the ability to change or add data Hannah this will minimizes accidental or intentional data alterations, making the accuracy of delivery and billing information. (Stair & Reynolds, 2021).

4.2

Why the Model Suits Cheetah deliveries

This model is a good choice for Cheetah deliveries because it handles the complex relationships in a delivery business while keeping data quality.

Ensuring Data Integrity:

The business depends on accurate matching of vehicles, drivers and delivery items. Using Foreign Keys makes sure that a delivery record corresponds to valid entries in the Driver table, the Vehicle table, and the Delivery Items table. This stops errors that would halt logistics. (Connolly & Begg, 2020)

Size and Repetition:

As the company expands, it will gain a lot of customers and staff. Storing customer and staff details only once in their associated tables instead of repeating them in a flat file for every bill or delivery, this saves storage space and makes sure that updates like a staff member changing their phone number is only required in a single place. (Hoffer et al., 2019)

Reporting:

Sql Join operations helps the generation of detailed reports by linking driver and vehicle details quickly and accurately. This makes it simple for managerial reporting and supports informed decision making (Kroenke & Auer, 2021).

Question 5.2: Explain PL/SQL Block Components

In Oracle PL/SQL blocks are structured programming units that allows you to combine code like if/then logic and loops with SQL statements. This consists of (Oracle Corporation, 2023).

Declarative Section (Declare)

Purpose:

This defines all constants, variables, cursors and user-defined exceptions that allocates memory for temporary data.

Implementation in Q.5.1:

This declares variables like v\_staff\_id, v\_first\_name, v\_surname, v\_delivery\_count to hold the individual fields selected from the database, using the percent Type attribute to match the data type of the tables.

2. Executable Section (Begin and End)

Purpose:

Contains operational logic and SQL statements such as select into, insert or loops to complete database transactions.

Implementation in Q.5.1:

Declares variables like first\_name, \_surname, staff\_id and \_delivery\_count using the percent Type attribute, making sure type consistency with database columns.

3. Exception Handling Section

Purpose:

This section handles up time errors that occur in the executable section, this prevents the program from crashing. common exceptions include NO\_DATA\_FOUND or TOO\_MANY\_ROWS.

Implementation in Q.5.1:

Has a WHEN NO\_DATA\_FOUND THEN clause to handle missing data and displays a friendly message.

5.3.1

Explanation of a View:

A View is a representation of data taken from one or more tables through an SQL query. It does not physically store data but retrieves results each time it is queried (Date, 2019).

Security:

By granting Select privileges on a view, access to sensitive base tables such as Staff and Billing is restricted, making sure of confidentiality and minimizing data exposure (Oracle Corporation, 2023). This helps them pull the required report without having permissions to modify or see data that is unrelated in the base tables.

Simplification:

Views allow managers to have access to important reports without having to writing Sql statements. Instead of manually coding Group By and Join queries a manager can use Select \* From [View\_Name] statement (Coronel & Morris, 2023).

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