## ****Off-the-job apply activities – reliable data architectures****

## ****Task 1: Creating Database Diagrams with Lucidchart****

### ****Scenario 2: Financial Institution's Customer Data Platform****

### ****Step 1: Identifying Main Entities and Relationships****

**Entities:**

* Customer
* Bank Account
* Credit Card Transactions
* Investment Portfolio
* Customer Interactions (Online Banking, Mobile App, Branch Visits)

**Relationships:**

* A **customer** owns one or more **bank accounts**.
* A **bank account** has multiple **transactions**.
* A **customer** can have an **investment portfolio**.
* A **customer** interacts with the bank through **various channels**.

### ****Step 2-3: Creating a Use Case Diagram in Lucidchart****

### ****Step 4-5: Define Actors and Use Cases****

**Actors:**

* **Customer** (Primary user)
* **Branch Staff** (Assists customers in branches)
* **Automated System** (Processes transactions)

**Use Cases:**

* **View Account Balance**
* **Make Transactions**
* **Track Investment Portfolio**
* **Receive Personalized Offers**
* **Fraud Detection System Monitors Transactions**

**Relationships:**

* The **customer** interacts with most use cases.
* The **automated system** monitors for fraud.

### ****Step 6-10: Finalizing the Diagram****

* Add **annotations** and **comments** explaining data flows.
* Save and download the **image** for submission.

## ****Task 2: Designing a Data Product****

### ****Step 1-2: Identifying Business Problem & Stakeholder Needs****

A financial institution wants to improve **fraud detection** using **real-time transaction monitoring**.

### ****Step 3: Designing the Data Product****

* **Data Sources:**
  + Credit card transactions
  + Customer location
  + Account history
* **Processing:**
  + Machine learning algorithms detect fraudulent patterns.
* **Visualization:**
  + A dashboard showing risk levels.

### ****Step 4: Wireframes and Mockups****

Use **Figma** or **Balsamiq** to design:

* A **fraud alert dashboard**.
* A **transaction summary page** with risk scores.

### ****Step 5-6: Proposal Document****

* **Value Proposition:** Reducing fraud and protecting customer funds.
* **Target Users:** Bank’s security team.
* **Expected Benefits:** Lower financial risk and improved customer trust.

## ****Task 3: Applying TOGAF Principles to Data Governance****

### ****Step 1: Research TOGAF Principles****

TOGAF provides a structured **framework** for data governance.

### ****Step 2-6: Governance Plan****

* **Data Ownership:** Assign roles for managing customer data.
* **Data Quality Standards:** Define rules for data accuracy, security, and compliance.
* **Governance Structure:** Establish policies for fraud monitoring.

**Visual Representation:**

* Use **Microsoft Visio** or **Lucidchart** to create a **flowchart** of the governance structure.
* Include **decision-making processes and key roles**.

### ****Final Submission Steps:****

1. Attach the **Lucidchart Use Case Diagram**.
2. Provide wireframes/mockups for the **fraud detection dashboard**.
3. Submit the **data governance flowchart**.
4. Upload the final document to the learning portal.