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Show Name: CompTIA IT Fundamentals (Exam FC0-U61)

Topic Name: Databases

Episode Name: Database Concepts

Show Description: In this episode, Ronnie and Don explore what makes up a modern database. They discuss the different types of databases, the advantages for using databases, and even some of the alternatives to using a database.

Database Concepts

- What is a database?
 - Repository of information
 - Ordered for quick access
 - Supports data-driven business decisions
 - Data capture and collection
 - Data correlation
 - Meaningful reporting
 - Records
 - Storage
- What can you do with a database?
 - Input data
 - Data entry
 - Output data
 - Query
 - Represent data
 - Reports
 - Archive data
 - Data persistence
- Why not use a flat file like Excel?
 - Multiple concurrent users
 - Scalability
 - Speed
 - Variety of data
- What types of databases are there?
 - Structured vs. semi-structured vs. non-structured
 - Relational databases
 - Non-relational databases
 - Key/value databases
 - Document databases

Generate a list of employees with their hire date

```
SELECT p.FirstName,p.LastName,h.JobTitle,h.HireDate
FROM Person.Person AS p
JOIN HumanResources.Employee AS h ON p.BusinessEntityID=h.BusinessEntityID;
```

Ranking employees by bonus amount

```
SELECT
    s.BusinessEntityID,
    p.FirstName,
    p.LastName,
    s.Bonus,
    RANK() OVER (ORDER BY Bonus DESC) AS Ranking
FROM Sales.SalesPerson AS s
JOIN Person.Person AS p
ON s.BusinessEntityID=p.BusinessEntityID
ORDER BY Ranking
```