1. A **surrogate key** is a unique identifier for a record in a database that is artificially created rather than derived from existing business data. It is usually a system-generated value, such as an **auto-incrementing number or a UUID (Universally Unique Identifier)**, and is used as the **primary key** instead of natural keys (which are based on real-world attributes).

**Key Characteristics of Surrogate Keys:**

* **Uniqueness**: Ensures each record has a distinct identity.
* **Non-meaningful**: It has no business meaning or real-world significance.
* **Immutable**: Once assigned, it does not change.
* **Substitutes Natural Keys**: It avoids issues related to natural keys, such as changes in business data.

**Example:**

| **EmployeeID (Surrogate Key)** | **EmployeeCode (Natural Key)** | **Name** | **Department** |
| --- | --- | --- | --- |
| 1 | EMP001 | John Doe | HR |
| 2 | EMP002 | Jane Doe | IT |

Here, EmployeeID is a **surrogate key** (system-generated), while EmployeeCode is a **natural key** (derived from business data).

1. **Snowflake**, a table is a structured object that stores data in a columnar format for efficient querying and analytics. Snowflake tables support different types, including **permanent, transient, and temporary tables**, depending on the use case.

**Creating a Table in Snowflake**

You can define a table with **columns, data types, constraints (like primary keys, foreign keys), and default values**.

**Example: Creating a Table with a Surrogate Key**

sql

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CREATE OR REPLACE TABLE Employees (

EmployeeID INT AUTOINCREMENT PRIMARY KEY, -- Surrogate Key

EmployeeCode STRING NOT NULL, -- Natural Key

Name STRING,

Department STRING,

HireDate DATE

);

* EmployeeID is a **surrogate key** (auto-incremented).
* EmployeeCode is a **natural key** (business-defined).
* Other columns store relevant employee details.

**Loading Data into Snowflake Table**

You can **INSERT** data manually:

sql

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INSERT INTO Employees (EmployeeCode, Name, Department, HireDate)

VALUES ('EMP001', 'John Doe', 'HR', '2022-01-15');

Or use **COPY INTO** to bulk-load data from files:

sql

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COPY INTO Employees

FROM @my\_stage

FILE\_FORMAT = (TYPE = 'CSV', SKIP\_HEADER = 1);

**Querying the Table**

sql

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SELECT \* FROM Employees WHERE Department = 'HR';