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1. What are the characteristics of a relation?

1. Rows contain data about an entity

2. Columns contain data about attributes of the entity

3. Cells of the table hold a single value

4. All entries in a column are of the same kind

5. Each column has a unique name

6. The order of the columns is unimportant

7. The order of the rows is unimportant

8. No two rows may hold identical sets of data values

1. What are the characteristics of a surrogate key?

Surrogate keys are short and numeric and never change—they are ideal primary keys. Because the values of the surrogate primary key will have no inherent meaning to users, they are often hidden on forms, query results, and reports.

1. Explain referential integrity constraint with an example.

It is important to ensure that every value of a foreign key matches a value of the primary key. EXAMPLE: the value of Department in every row of EMPLOYEE should match a value of DepartmentName in DEPARTMENT. If this is the case (and it usually is), then we declare the following rule: Department in EMPLOYEE must exist in DepartmentName in DEPARTMENT Such a rule is called a referential integrity constraint. Whenever you see a foreign key, you should always look for an associated referential integrity constraint.

1. Explain functional dependencies with an example, identifying the determinant in the example.

CookieCost = NumberOfBoxes \* $5

A more general way to express the relationship between CookieCost and NumberOfBoxes is to say that CookieCost depends upon NumberOfBoxes. Such a state-ment tells the character of the relationship between CookieCost and NumberOfBoxes, even though it doesn’t give the formula. More formally, we can say that CookieCost is functionally dependent on NumberOfBoxes. Such a statement, which is called a functional de-pendency, can be written as follows: NumberOfBoxes S CookieCost This expression says that NumberOfBoxes determines CookieCost.

The term on the left, **NumberOfBoxes**, is called the **determinant**.