DATABASE CLASS-WORK

1. **Name three sources for databases.**
    - from the development of new information systems
    - from the redesign of existing databases.
    - From existing data
2. **What is the basic premise of this chapter?**
    - We have received one or more tables of existing data.
    - The data is to be stored in a new database.
3. **Explain what is wrong with the table in Figure 3-2**
    - Multivalve dependency
4. **Define each of the terms listed in Figure 3-3.**
    - Relation: a relation is a special case of a table. This means that all relations are tables, but not all tables are relations
    - Functional Dependency: exists when the value of one or more attributes determines the value of another attribute. Determinant
    - Candidate Key: A candidate key is a determinant that determines all of the other columns in a relation
    - Composite Key: Keys that have two or more columns are called composite key
    - Primary Key: this is a key candidate key selected as the primary means of identifying rows in a relation
    - Surrogate Key: A surrogate key is an artificial column that is added to a table to serve as the primary key
    - Foreign Key: A foreign key is a column or composite of columns that is the primary key of a table other than the one in which it appears.
    - Referential integrity constraint: A **referential integrity constraint** is a statement that limits the values of the foreign key to those already existing as primary key values in the corresponding relation
    - Normal forms: this help you debug anomaly
    - Multivalued dependency: anomalies arise because of another kind of dependency called a multivalued dependency.
5. **Describe the characteristics of a table that make it a relation. Define the term domain, and explain the significance of the domain integrity constraint to a relation.**

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Characteristics of Relations
Rows contain data about an entity.
Columns contain data about attributes of the entities.
All entries in a column are of the same kind.
Each column has a unique name.
Cells of the table hold a single value.
The order of the columns is unimportant.
The order of the rows is unimportant.
No two rows may be identical.

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- Domain means a grouping of data that meets a specific type definition.

6. Give an example of two tables that are not relations.

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EmployeeNumber	FirstName	LastName	Department	EmailAddress	Phone
100	Jerry	Johnson	Accounting	JJ@somewhere.com	518-834-1101
200	Mary	Abernathy	Finance	MA@somewhere.com	518-834-2101
300	Liz	Smathers	Finance	LS@somewhere.com	518-834-2102
400	Tom	Caruthers	Accounting	TC@somewhere.com	518-834-1102, 518-834-1191, 518-834-1192
500	Tom	Jackson	Production	TJ@somewhere.com	518-834-4101
600	Eleanore	Caldera	Legal	EC@somewhere.com	518-834-3101
700	Richard	Bandalone	Legal	RB@somewhere.com	518-834-3102, 518-834-3191

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EmployeeNumber	FirstName	LastName	Department	EmailAddress	Phone
100	Jerry	Johnson	Accounting	JJ@somewhere.com	518-834-1101
200	Mary	Abernathy	Finance	MA@somewhere.com	518-834-2101
300	Liz	Smathers	Finance	LS@somewhere.com	518-834-2102
400	Tom	Caruthers	Accounting	TC@somewhere.com	518-834-1102
				Fax:	518-834-9911
				Home:	518-723-8795
500	Tom	Jackson	Production	TJ@somewhere.com	518-834-4101
600	Eleanore	Caldera	Legal	EC@somewhere.com	518-834-3101
				Fax:	518-834-9912
				Home:	518-723-7654
700	Richard	Bandalone	Legal	RB@somewhere.com	518-834-3102

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7. **Suppose that two columns in two different tables have the same column name. What convention is used to give each a unique name?**
    - The Alias keyword
8. **Must all the values in the same column of a relation have the same length?**
    - No they must not
9. **Explain the three different sets of terms used to describe tables, columns, and rows.**
    -

Table	Column	Row
Relation	Attribute	Tuple
File	Field	Record

10. **Explain the difference between functional dependencies that arise from equations and those that do not**

S/N	functional dependencies that arise from equations	Those that do not
1.	They involve calculations	They need to be assigned

11. **Explain the intuitive meaning of the functional dependency PartNumber → PartWeight**
    - If you know part number then you can determine part weight
12. Explain the following statement: "The only reason for having relations is to store instances of functional dependencies.
13. Explain the meaning of the expression
    - the two fields on the left (First name, last name) determine the field on the
14. What is a composite determinant?
    - when two or more attributes determines another field
15. If (A, B) S C, then can we also say that A S C?
    - **No**
16. If A S (B, C), then can we also say that A S B?
    - **Yes**
17. For the SKU_DATA table in Figure 3-1, explain why Buyer determines Department but Department does not determine Buyer

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- Buyer determines because knowing the buying we know things he bought and where it was taken from but from the department we can't know because we'll only get a list of buyers that took things

18. For the SKU_DATA table in Figure 3-1, explain why SKU_Description S (SKU, Department, Buyer)

- **2**

19. If it is true that PartNumber S PartWeight does that mean that PartNumber will be unique in a relation?

- **V**

20. Under what conditions will a determinant be unique in a relation?

- When it is candidate key

21. What is the best test for determining whether a determinant is unique?

- no duplicates in the values of the determinant

22. What is a composite key?

- Composite key: a key consisting or 2 or more colum

23. What is a candidate key?

- Candidate key: a key with no repeated value. And it identifies each record in a table.

24. 3.24 What is a primary key?

- primary keys are candidate key s used to identify each record in a file and takes no null value No two rows represent the same entity

25. Explain the significance of the entity integrity constraint to a primary key

- We can have more the one candidate key in a table but we can't have more than one primary key in a

26. What is a surrogate key?

- surrogate key: a column the database generate to serve as a primary key if non

27. Where does the value of a surrogate key come from?

- the DBM

28. 3.28 When would you use a surrogate key?

- When there's no column to use key

29. What is a foreign key? Explain the significance of the referential integrity constraint to a foreign key.

- a column or set of column of a table that references a primary key in another table significance: value of a foreign key must exist in the referenced table

30. . The term domestic key is not used. If it were used, however, what do you think it would mean?

31.