Database Design
9-1: Introduction to Relational Database Concepts
Practice Solutions
Vocabulary

Directions: Identify the vocabulary word for each definition below.

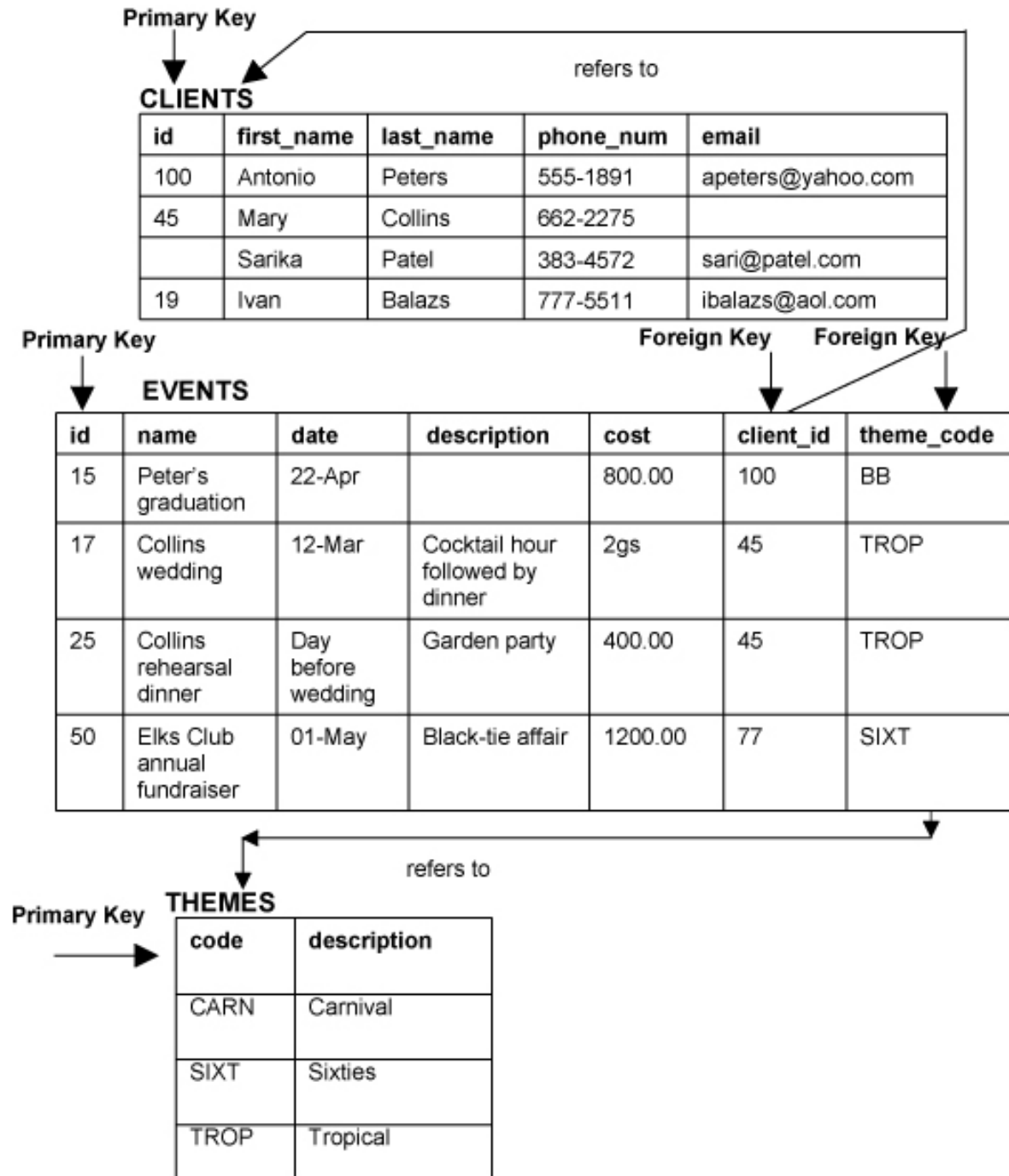|	
Primary key	A constraint which ensures that the column contains no null values and uniquely identifies each row of the table
Foreign key	A column or set of columns that refers to a primary key in the same table or another table
Row	An entry in a table, consisting of values for each appropriate column
Column	An implementation of an attribute or relationship in a table
Unique key	An integrity constraint that requires every value in a column or set of columns be unique.
Relational database	Collections of objects or relations, set of operators to act on those relations, and data integrity for accuracy and consistency.
Candidate key	More than one column or combination of columns that could serve as the table's primary key

Try It / Solve It

1. Identify the integrity rules below.

Column-integrity rule	A column must contain only values consistent with the defined data format of the column
Data-integrity rule	Define the relationally correct state for a database; they ensure that users can perform only those operations that leave the database in a correct, consistent state
Entity integrity rule	A primary key must be unique and no part of the primary key can be null
Referential integrity rule	A foreign key must match an existing primary key value (or else be null)
User-defined integrity rule	The data stored in a database must comply with the rules of the database

2. Data Integrity in the DJs Database

Examine the sample data for these tables in the DJs on Demand database. Check for entity, referential, and column integrity. Identify any data-integrity violations. Assume that all date columns should have a date format and all amount (cost) columns should have a number format.

Primary Key → **CLIENTS** ← refers to

CLIENTS

id	first_name	last_name	phone_num	email
100	Antonio	Peters	555-1891	apeters@yahoo.com
45	Mary	Collins	662-2275	
	Sarika	Patel	383-4572	sari@patel.com
19	Ivan	Balazs	777-5511	ibalazs@aol.com

Primary Key → **Foreign Key** **Foreign Key**

EVENTS

id	name	date	description	cost	client_id	theme_code
15	Peter's graduation	22-Apr		800.00	100	BB
17	Collins wedding	12-Mar	Cocktail hour followed by dinner	2gs	45	TROP
25	Collins rehearsal dinner	Day before wedding	Garden party	400.00	45	TROP
50	Elks Club annual fundraiser	01-May	Black-tie affair	1200.00	77	SIXT

refers to

Primary Key → **THEMES**

code	description
CARN	Carnival
SIXT	Sixties
TROP	Tropical

Solution:

CLIENTS table
Entity integrity: ID for Sarika Patel should not be null.
EVENTS TABLE
Column integrity: Cost for Collins wedding (event id = 17) is not numeric.
Column integrity: Date for Collins rehearsal dinner (event id = 25) is not a valid date format.
Referential integrity: There is no client 77 in the CLIENTS table (event id = 50).
Referential integrity: There is no theme corresponding to "BB" in the THEMES table (event id = 15).