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Database Principles

Quiz 1

1. **Physical Level** – Describes how a record is stored on a disk.
    - Unlikely to be known by the programmer and may be decided by a hardware engineer or other discipline that finds the most optimal place for it to reside.

   Logical Level – Describes data stored in a database, and the relationships among it. (Database Schema)
    - This level will be where the database programmers are designing, querying, and creating new relationships between data.

   View Level – Application programs hide details of data types. Views can hide information for security purposes.
    - This would be users of the application or programmers who do not know the underlying systems that make it work.
2.
    a) A relation has 2^n – 1 Super Keys so Materials has 7.
    b) (MaterialName, Color, IsMachineWashable)

       (MaterialName, Color)

       (IsMachineWashable, Color)

       (MaterialName, IsMachineWashable)

       (MaterialName)

       (Color)

       (IsMachineWashable)

c) The Candidate Keys are going to be anything with MaterialName since it is the most uniquely identifying field:

(MaterialName, Color, IsMachineWashable)

(MaterialName, Color)

(MaterialName, IsMachineWashable)

(MaterialName)

d) (MaterialName) is the primary key since a combination is unneeded.

e)
```
CREATE TABLE IF NOT EXISTS Material(
        MaterialName varchar(100) not null,
        Color varchar(50),
        IsMachineWashable tinyint(1),
        primary key (MaterialName)
);
```

3.
```
DROP TABLE IF EXISTS SewingPattern;
CREATE TABLE SewingPattern (
        PatternName varchar(100)  not null,
        PublisherName varchar(200)  ,
        SkillLevel int,
        MaterialName varchar(100),
        Yardage double,
        primary key (PatternName)
);
```

4.

a. Select GameName

   From Game

   Where DeveloperName = “Capcom”;

b. – Used Id to differentiate between players with the same username.

   Select Username, Id, FavoriteGame

   From Player;

5.

a) Select GameName, DeveloperName

   From Game

   Order by GameName, DeveloperName ASC;

b) Select count(distinct s.PlayerId)

   From Score as s, Game as g

   Where s.Score >= 185000 and g.GameName = “Asteroids”

c) Select g.GameName, max(s.Score) as HighScore

   From Score as s, Game as g

   Where s.GameId = g.Id;

   Group by g.GameName