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COSC 4820

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Homework 1

**QUESTION 1:**

“A database has four relations whose schema are…” assuming the database has already been created, then the following tables/schema belong to that database. If this is an incorrect interpretation, then assume that ‘CREATE DATABASE Computer\_Component’ was ran and selected first.

1. **[5 points] A suitable schema for relation Product.**

CREATE TABLE Product (

model VAR CHAR(100) NOT NULL PRIMARY KEY,

maker ENUM(‘Ex1’, ‘Ex2’, ‘Ex3’, … ), // Or VAR CHAR **here** if that’s more efficient, we’re-

type VAR CHAR(300) NOT NULL // -early enough in the class that I don’t know.

)

1. **[5 points] A suitable schema for relation PC.**

CREATE TABLE PC (

model VAR CHAR(100) NOT NULL PRIMARY KEY,

speed DECIMAL(10, 4) NOT NULL,

ram INT UNSIGNED NOT NULL,

hd INT UNSIGNED NOT NULL,

price INT // markets are weird, so I’ll allow ‘price’ to be as well

)

1. **[5 points] A suitable schema for relation Laptop.**

CREATE TABLE Laptop (

model VAR CHAR(100) NOT NULL PRIMARY KEY,

speed DECIMAL(10, 4) NOT NULL,

ram INT UNSIGNED NOT NULL,

hd INT UNSIGNED NOT NULL,

screen DECIMAL(48, 4) NOT NULL, // a laptop with a screen larger than 48” isn’t a **lap**top

price INT // markets are weird, so I’ll allow ‘price’ to be as well

)

1. **[5 points] A suitable schema for relation Printer.**

CREATE TABLE Printer (

model VAR CHAR(100) NOT NULL PRIMARY KEY,

color BOOL,

type ENUM(laser, inkjet),

price INT // markets are weird, so I’ll allow ‘price’ to be as well

)

1. **[5 points] An alteration of your Printer schema from (d) to delete the attribute color.**

ALTER TABLE Printer

DROP COLUMN color;

1. **[5 points] An alteration of your Laptop schema from (c) to add the attribute od (optical-disk type, e.g., cd or dvd). Let the default value for this attribute be ‘none’ if the laptop does not have an optical-disk.**

ALTER TABLE Laptop

ADD COLUMN od ENUM(‘cd’, ‘dvd’, ‘none’) DEFAULT ‘none’ AFTER screen;

**QUESTION 2:**

“Another database, capital ships in World War II, also has four relations whose schema are” again I assume the database is created and selected, otherwise run ‘CREATE DATABATE Capital\_Ships’ and select it first.

1. **[5 points] A suitable schema for relation Classes.**

CREATE TABLE Classes (

class VAR CHAR(50) NOT NULL PRIMARY KEY,

type VAR CHAR(2) NOT NULL,

country VAR CHAR(3) NOT NULL, // (following [ISO 3166-1 alpha-3](https://en.wikipedia.org/wiki/ISO_3166-1))

numGuns SMALLINT UNSIGNED,

bore DECIMAL (40, 5), // Tsar cannon (largest in history) was a 35-inch bore

displacement MEDIUMINT NOT NULL

)

1. **[5 points] A suitable schema for relation Ships**

CREATE TABLE Ships (

name VAR CHAR(100) NOT NULL PRIMARY KEY,

class VAR CHAR(50) NOT NULL,

launched DATE NOT NULL

)

1. **[5 points] A suitable schema for relation Battles.**

CREATE TABLE Battles (

name VAR CHAR(100) NOT NULL PRIMARY KEY,

MEDIUMBLOB // or any size blob, I don’t know the full nature of this database

)

1. **[5 points] A suitable schema for relation Outcomes.**

CREATE TABLE Outcomes (

Battle VAR CHAR(100) NOT NULL PRIMARY KEY,

ship VAR CHAR(100) NOT NULL,

result ENUM(‘sunk’, ‘damaged’, ‘ok’)

)

1. **[5 points] An alteration of your Classes schema from (a) to delete the attribute bore.**

ALTER TABLE Classes

DROP COLUMN bore;

1. **[5 points] An alteration of your Ships schema from (b) to include the attribute yard giving the shipyard where the ship was built.**

ALTER TABLE Ships

ADD COLUMN yard VAR CHAR(100) NOT NULL AFTER launched;