The College of Charleston

DISC 210 Dataset Organization and Management G. Pothering Spring, 2021 Mid-Term Exam Name Patrick McCabe

Problem	Points	Score
1.	24	18
2.	20	20
3.	25	20
4.	25	25
Total	94	83
Percentage of 100		89

1. (24 points) You are given the following instance of the tables of a database.

A	X	Y	Z
al	x1	yl	z2
al	x2	y2	z2
a2	хl	yl	23
a2	xl	yl	zl
a3	x3	v2	z3

Table	G	
В	X	Y
bl	x1	y2
b2	x1	yl
b3	x2	y2
b4	x2	yl
b5	x3	
b7	x3	yl

Table	Н		
С	A	D	В
cl	a3	cl	62
c2	a2	c2	b2
c3	a2	c1	b2
c4	a3	c3 ·	b7

Based on what you see in the database, identify for each table

(12 points; 4points) Two possible candidate keys (if a table has more than 2, you need only give 2; if a table has only 1 a. however, give the candidate key followed by "only one"). No superkeys (candidate keys that contain other candidate +6 keys) are allowed. For any compound keys, place the attribute names inside parentheses.

+2 (YZ) (X,Z)

For Table G:

b. (12 points; 4 points each) Possible foreign keys (if none, say NONE)

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For Table F:

For Table G:

AXAZ BXX (ADB

For Table H:

(20 points) Given the following database schema (say for an Uber-like company) and description of its attribute types, give SQL commands to implement one of either the CAR or DRIVER relations (your choice) and the SHIFT relation. Be sure to include declarations of primary keys, foreign keys, and allowance of NULL values (or not). Use the next page for your answer (you need not submit this page).

```
CAB (<u>CarID</u>, Make, Model, Year, LicNum)

DRIVER (<u>DID</u>, Name, Address, Phone, DrvLic)

SHIFT(<u>WrkDate</u>, <u>WrkShift</u>, <u>CarID</u>, DriverID, Mileage, Revenue)
```

Here primary key attributes are in underlined and foreign key attributes are in bold italics (it should be obvious what the foreign keys are referencing).

CAR		
Attribute Name	Туре	Not Null?
CarlD	Fixed length character string - 6	Yes
Make	Variable length character string - 8	Yes
Model	Variable length character string - 8	Yes
Year	Fixed length character string - 4	Yes
LicNum	Fixed length character string - 10	No

DRIVER			
Attribute Name	Туре	Not Null?	
DID	Fixed length character string - 8	Yes	
Name	Variable length character string - 30	Yes	
Address	Variable length character string - 50	No	
Phone	Fixed length character string - 12	No	
DrvLic	Fixed length character string - 9	Yes	

SHIFT		
Attribute Name	Туре	Not Null?
WrkDate	Date	Yes
WrkShift	Fixed length character string - 3	Yes
<u>CARID</u>	Fixed length character string - 6	Yes
Driver1D	Fixed Length character string - 8	No
Mileage	Integer	No
Revenue	Real	No

2. Code for problem 2

create table if not exist & car ((Cat Thought) % Car I D charle), not nul,

make Varchar (8) unot null, model varchar (8) unot null, Year (har (4) not mull, Lichum Charlo), primary key (car [D)

);

create table if not exists (

13/12 Urk Date Date Time not rull, Wrkshift Char (3) not null, lar [D) Char (6) not mull,

Driver ID varchar (8),

Mileage int,

Revenue Dectrual (10,2),

Primary key (Wik blate, Wik SLift, Car ID), Foreigh key (CarID) references (ar (CarID) Foreigh key (Driver ID) references Driver (DED)

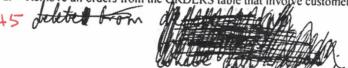
3. (25 points; 5 points each part) Given the CAP database schema from Assignment 1 (a compact version of which is reproduced below)

SD

CUSTOMERS (CID, CName, City, Discount) AGENTS (AID, AName, City, Commission) PRODUCTS(PID, PName, City, Quantity, Price) ORDERS (OrdNo, Month, CID, AID, PID, Qty, Cost))

Write SQL statements to

Remove all orders from the QRDERS table that involve customer c002



Delete from Orders Where CED = 'coo2';

b. For those Customers who had a discount less than 5% increase it to 5%

update Discount 'set Discount = '5%'
Where Discount L'5%';

SQL allows values to be calculated using arithmetic operators such as +, -, *, and names of attributes as operands. Given this, write an SQL statement expression that will increase the price of all products by 2%.

update (US+ Sct cost = cost *1,02;

d. Insert yourself as an AGENT with an agent id of a07, but do not assign a commission yet. I'm assuming you'll use your name and an appropriate city value.

insert into Agents value ('007, 'Parrie Atlabe', 'Charleston',

O. Marie Vive: 45

Insert a new product with the name chalk, price 0.75, and product id of p08. These are the only attributes that will have insert in to Products ('por, chall, NULL, NLL, 0.75).



4. (25 points) Consider the following relations from a database that keeps track of business trips of its sales people:

SPERSON(EmpID, Name, SupervisorID)
TRIP(TripID, EmpID, ToCity, StartDate, EndDate)
EXPENSE(TripID, ItemDescription, Cost)
EXPENSEITEM(Description, MaxCostAllowed)

Express the following queries in SQL

a. (3 points) Give full details of all expenses that had a "Massage" item.

Sebert *
From Expense
Where Irem Description = 'massage';

b. (7 points) Get the names of all cities that were visited across all trip. Do not list a city name more than once and give the cities in alphabetical order.

Select distinct To City from Trip Order by To City;

c. (4 points) How many trips were taken to Charleston?

Select count (Tryp ID)

From Top

Where To Eity = 'Charleston';

d. (7 points) What were the least, greatest, and average costs filed for an "airport shuttle"? Use appropriate column headings.

Select min(lost) as minimum with, marlcost) as maximum cost, wag(lost) as "Average cost"

From Expense

Where Item Description = "airport sluttle";

e. (4 points) Add yourself as a salesperson with employee id of 'S091' and with supervisor 'S019'.

There is the specion Value ('S091', Patrick milese', S011');