Year 01 Semester 01 Examination

19 May 2021

CS105.3 Database Management Systems

Should not pay for Security Facility. Because this is a small manufacturing organization, and this DB is shared with other five members.

Should pay for Concurrency Control. Because the DB is shared with others. Because at the same time the DB will access five members.

Should pay for Crash Control, because if any system failure happens, they can roll back the system to the last checkpoint.

**Similarities**

These 3 data models belong to the Representational category. Need some technical knowledge to understand these models.

|  |  |  |
| --- | --- | --- |
| **Flat Model** | **Hierarchical Model** | **Network Model** |
| Like 2D Matrix | Tree like structure | Graph like structure |
| No hierarchy | Does have hierarchy | No hierarchy |
| No relationships | 1:M Relationship (Parent child Relationship) | 1:M and M:N Relationships |
| Only one relation | There is only one path to one node | The are many paths to one node |

Diagram

Description automatically generated

Diagram

Description automatically generated

CREATE TABLE CAR (

Registration VARCHAR (40) PRIMARY KEY,

Make VARCHAR (40) NOT NULL,

Model VARCHAR (40) NOT NULL,

YearOfManufacturee INT NOT NULL

);

CREATE TABLE DRIVEN\_BY (

Registration VARCHAR (40),

CustCode VARCHAR (40),

MilesDriven INT NOT NULL,

DateHired DATE NOT NULL,

PRIMARY KEY (Registration, CustCode),

FOREIGN KEY (Registration) REFERENCES CAR(Registration)

);

CREATE TABLE CUSTOMER (

CustCode VARCHAR (40) PRIMARY KEY,

CustName VARCHAR (40) NOT NULL,

Location VARCHAR (40) NOT NULL,

Age INT NOT NULL

);

ALTER TABLE DRIVEN\_BY

ADD FOREIGN KEY (CustCode) REFERENCES CUSTOMER(CustCode);

INSERT INTO CAR VALUES ('ABU 2522', 'Hyundai', 'Elantra', 1999), ('ABA 1978', 'Honda', 'City', 1998), ('WKC 6256', 'Perodua', 'Kancil', 1997);

INSERT INTO CUSTOMER VALUES ('E100', 'Salim', 'Perak', 28), ('C100', 'Harsha', 'Perak', 40), ('K201', 'Chin', 'Kuala Lumpur', 35);

INSERT INTO DRIVEN\_BY VALUES ('ABU 2522', 'E100', 2300, '2000-05-02');

INSERT INTO DRIVEN\_BY VALUES ('ABA 1978', 'C100', 1200, '2000-06-02');

INSERT INTO DRIVEN\_BY VALUES ('WKC 6256', 'K201', 100, '2000-07-02');

SELECT CustName FROM CUSTOMER

WHERE Location = 'Perak' AND Age >= 30;

SELECT COUNT(\*) FROM CAR

WHERE Make = 'Perodua' AND YearOfManufacturee = '1997-00-00';

INSERT INTO CUSTOMER VALUES ('23136', 'Ravindu', 'Piliyandala', 20);

SELECT \* FROM CUSTOMER

WHERE Location = 'Perak'

ORDER BY CustName DESC;

ALTER TABLE CUSTOMER

ADD COLUMN Country VARCHAR (40);

DESCRIBE CUSTOMER;

ALTER TABLE CUSTOMER

DROP COLUMN Country;

SELECT \* FROM CUSTOMER

WHERE Location NOT IN ('Kuala Lumpur', 'Perak');

DROP TABLE CUSTOMER;