CSCI3287 Homework7

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1. Database Design

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1. Create the database

-- MySQL Script generated by MySQL Workbench

-- Wed Apr 26 20:33:01 2023

-- Model: New Model Version: 1.0

-- MySQL Workbench Forward Engineering

SET @OLD\_UNIQUE\_CHECKS=@@UNIQUE\_CHECKS, UNIQUE\_CHECKS=0;

SET @OLD\_FOREIGN\_KEY\_CHECKS=@@FOREIGN\_KEY\_CHECKS, FOREIGN\_KEY\_CHECKS=0;

SET @OLD\_SQL\_MODE=@@SQL\_MODE, SQL\_MODE='ONLY\_FULL\_GROUP\_BY,STRICT\_TRANS\_TABLES,NO\_ZERO\_IN\_DATE,NO\_ZERO\_DATE,ERROR\_FOR\_DIVISION\_BY\_ZERO,NO\_ENGINE\_SUBSTITUTION';

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-- Schema mydb

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CREATE SCHEMA IF NOT EXISTS `mydb` DEFAULT CHARACTER SET utf8 ;

USE `mydb` ;

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-- Table `mydb`.`Customer`

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DROP TABLE IF EXISTS `mydb`.`Customer` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Customer` (

`customer\_ID` INT NOT NULL,

`customer\_name` VARCHAR(50) NOT NULL,

`customer\_address` VARCHAR(100) NOT NULL,

`customer\_phone` VARCHAR(50) NOT NULL,

`customer\_email` VARCHAR(50) NOT NULL,

`customer\_DOB` DATE NOT NULL,

PRIMARY KEY (`customer\_ID`))

ENGINE = InnoDB;

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-- Table `mydb`.`Plan`

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DROP TABLE IF EXISTS `mydb`.`Plan` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Plan` (

`plan\_ID` INT NOT NULL,

`plan\_type` VARCHAR(50) NOT NULL,

`plan\_name` VARCHAR(50) NOT NULL,

`plan\_duration` INT NOT NULL,

`plan\_cost` DECIMAL(10,2) NOT NULL,

`plan\_features` VARCHAR(500) NOT NULL,

PRIMARY KEY (`plan\_ID`))

ENGINE = InnoDB;

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-- Table `mydb`.`Transaction`

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DROP TABLE IF EXISTS `mydb`.`Transaction` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Transaction` (

`transaction\_ID` INT NOT NULL,

`customer\_ID` INT NOT NULL,

`plan\_ID` INT NOT NULL,

`transaction\_type` VARCHAR(50) NOT NULL,

`transaction\_date` DATE NOT NULL,

`transaction\_amount` DECIMAL(10,2) NOT NULL,

PRIMARY KEY (`transaction\_ID`),

INDEX `customer\_ID\_idx` (`customer\_ID` ASC) VISIBLE,

INDEX `plan\_ID\_idx` (`plan\_ID` ASC) VISIBLE,

CONSTRAINT `customer\_planfk\_ID`

FOREIGN KEY (`customer\_ID`)

REFERENCES `mydb`.`Customer` (`customer\_ID`)

ON DELETE NO ACTION

ON UPDATE NO ACTION,

CONSTRAINT `plan\_planfk\_ID`

FOREIGN KEY (`plan\_ID`)

REFERENCES `mydb`.`Plan` (`plan\_ID`)

ON DELETE NO ACTION

ON UPDATE NO ACTION)

ENGINE = InnoDB;

-- -----------------------------------------------------

-- Table `mydb`.`Call\_traffic`

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DROP TABLE IF EXISTS `mydb`.`Call\_traffic` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Call\_traffic` (

`call\_ID` INT NOT NULL,

`call\_date` DATE NOT NULL,

`call\_duration` INT NOT NULL,

`call\_cost` DECIMAL(10,2) NOT NULL,

`call\_type` VARCHAR(45) NOT NULL,

`customer\_ID` INT NOT NULL,

PRIMARY KEY (`call\_ID`),

INDEX `customer\_ID\_idx` (`customer\_ID` ASC) VISIBLE,

CONSTRAINT `customer\_traffic\_ID`

FOREIGN KEY (`customer\_ID`)

REFERENCES `mydb`.`Customer` (`customer\_ID`)

ON DELETE NO ACTION

ON UPDATE NO ACTION)

ENGINE = InnoDB;

-- -----------------------------------------------------

-- Table `mydb`.`Customer\_Plan`

-- -----------------------------------------------------

DROP TABLE IF EXISTS `mydb`.`Customer\_Plan` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Customer\_Plan` (

`customer\_ID` INT NOT NULL,

`plan\_ID` INT NOT NULL,

PRIMARY KEY (`customer\_ID`, `plan\_ID`),

INDEX `plan\_ID\_idx` (`plan\_ID` ASC) VISIBLE,

CONSTRAINT `customer\_ID`

FOREIGN KEY (`customer\_ID`)

REFERENCES `mydb`.`Customer` (`customer\_ID`)

ON DELETE NO ACTION

ON UPDATE NO ACTION,

CONSTRAINT `plan\_ID`

FOREIGN KEY (`plan\_ID`)

REFERENCES `mydb`.`Plan` (`plan\_ID`)

ON DELETE NO ACTION

ON UPDATE NO ACTION)

ENGINE = InnoDB;

-- -----------------------------------------------------

-- Table `mydb`.`Cancellation`

-- -----------------------------------------------------

DROP TABLE IF EXISTS `mydb`.`Cancellation` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Cancellation` (

`cancellation\_ID` INT NOT NULL,

`customer\_ID` INT NOT NULL,

`cancellation\_date` DATE NOT NULL,

`cancellation\_reason` VARCHAR(500) NULL,

PRIMARY KEY (`cancellation\_ID`),

INDEX `customer\_ID\_idx` (`customer\_ID` ASC) VISIBLE,

CONSTRAINT `customer\_cancellationfk\_ID`

FOREIGN KEY (`customer\_ID`)

REFERENCES `mydb`.`Customer` (`customer\_ID`)

ON DELETE NO ACTION

ON UPDATE NO ACTION)

ENGINE = InnoDB;

SET SQL\_MODE=@OLD\_SQL\_MODE;

SET FOREIGN\_KEY\_CHECKS=@OLD\_FOREIGN\_KEY\_CHECKS;

SET UNIQUE\_CHECKS=@OLD\_UNIQUE\_CHECKS;

1. Insert Data

USE mydb;

-- Insert Data

INSERT INTO `customer`(`customer\_ID`, `customer\_name`, `customer\_address`, `customer\_phone`, `customer\_email`, `customer\_DOB`) VALUES

('1', 'Elon Mask', '4156 Brannon Street', '(310)-720-6740', 'vibix70301@syinxun.com', '2004-11-25') ,

('2', 'Steven Li', '2742 Glenwood Avenue', '(494) 699-7762', 'kavkaz7777@chantellegribbon.com', '2001-01-25') ,

('3', 'Chengming Li', '820 Bel Meadow Drive', '(683) 641-6204', 'jillianoreilly@naverly.com', '1999-08-23') ,

('4', 'Lidiya Freida', '3385 Michael Street', '(424) 575-4621', '986530898@dgaga.com', '2004-01-01') ,

('5', 'Lycus Maral', '4907 Desert Broom Court', '(966) 352-2198', '49697438@syinxun.com', '1980-07-13') ;

INSERT INTO `plan`(`plan\_ID`, `plan\_type`, `plan\_name`, `plan\_duration`, `plan\_cost`, `plan\_features`) VALUES

('1', 'prepaid', 'prepaid-individual', '120', '9.99', '2G DATA and 120 mins phone call'),

('2', 'postpaid', 'postpaid-individual', '100', '9.99', '2G DATA and 100 mins phone call'),

('3', 'pre-paid', 'prepaid-family', '120', '69.99', 'unlimit DATA and 120 mins phone call for 7 people'),

('4', 'data-only', 'data-only-individual', '0', '19.99', 'unlimit DATA');

INSERT INTO `transaction`(`transaction\_ID`, `customer\_ID`, `plan\_ID`, `transaction\_type`, `transaction\_date`, `transaction\_amount`) VALUES

('1', '1', '1', 'plan activation', '2021-04-26', '9.99'),

('2', '1', '1', 'plan renewal', '2021-05-26', '9.99'),

('3', '1', '4', 'plan change', '2024-04-26', '19.99'),

('4', '2', '1', 'plan activation', '2018-01-03', '9.99'),

('5', '2', '1', 'plan renewal', '2018-02-03', '9.99'),

('6', '2', '1', 'cancellation', '2018-03-03', '0.00'),

('7', '3', '2', 'plan activation', '2020-11-09', '9.99'),

('8', '3', '2', 'plan renewal', '2020-12-10', '9.99'),

('9', '3', '3', 'plan change', '2021-01-10', '69.99'),

('10', '4', '4', 'plan activation', '2020-07-01', '19.99'),

('11', '4', '4', 'plan renewal', '2020-08-10', '19.99'),

('12', '4', '3', 'plan change', '2020-09-10', '69.99'),

('13', '5', '1', 'plan activation', '2021-04-26', '9.99'),

('14', '5', '1', 'plan renewal', '2021-05-26', '9.99'),

('15', '5', '4', 'plan change', '2021-07-26', '19.99');

INSERT INTO `customer\_plan`(`customer\_ID`, `plan\_ID`) VALUES

('1', '1'),

('1', '4'),

('2', '1'),

('3', '2'),

('3', '3'),

('4', '3'),

('4', '4'),

('5', '1'),

('5', '4');

INSERT INTO `call\_traffic`(`call\_ID`, `customer\_ID`, `call\_date`, `call\_duration`, `call\_cost`,`call\_type`) VALUES

('1', '1', '2015-04-26', '10', '0.00', 'local'),

('2', '1', '2018-04-26', '150', '5.00', 'local'),

('3', '1', '2023-02-26', '10', '0.00', 'national'),

('4', '2', '2015-01-06', '1', '0.00', 'local'),

('5', '2', '2018-07-26', '15', '15.00', 'international'),

('6', '2', '2020-02-13', '10', '5.00', 'national'),

('7', '3', '2015-04-09', '10', '0.00', 'local'),

('8', '3', '2018-04-26', '190', '190.00', 'international'),

('9', '3', '2019-11-16', '7', '3.50', 'national'),

('10', '4', '2019-07-26', '10', '10.00', 'international'),

('11', '4', '2019-06-28', '150', '15.00', 'local'),

('12', '4', '2020-02-26', '10', '5.00', 'national'),

('13', '5', '2021-07-26', '10', '10.00', 'international'),

('14', '5', '2021-08-08', '150', '150.00', 'international'),

('15', '5', '2021-12-16', '10', '10.00', 'international');

INSERT INTO `cancellation`(`cancellation\_ID`, `customer\_ID`, `cancellation\_date`, `cancellation\_reason`) VALUES

('1', '2', '2018-03-03', 'choose other carrier');

1. Query

-- Create a Customer Summary showing all plans for each customer, including any cancellations

SELECT customer\_name, plan.plan\_type, plan\_name

FROM customer

INNER JOIN customer\_plan

ON customer.customer\_ID = customer\_plan.customer\_ID

INNER JOIN plan

ON customer\_plan.plan\_ID = plan.plan\_ID;

Table

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-- Create a Customer Call Log

SELECT customer\_name, call\_date, call\_duration, call\_cost, call\_type

FROM customer

INNER JOIN call\_traffic

ON customer.customer\_ID = call\_traffic.customer\_ID;

Table

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-- Create a Plan Revenue report showing revenue for each plan

SELECT plan\_type, SUM(transaction.transaction\_amount) AS revenue

FROM plan

INNER JOIN transaction

ON plan.plan\_ID = transaction.plan\_ID

GROUP BY plan\_type

ORDER BY SUM(transaction.transaction\_amount)

DESC;

Table

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