

CPSC 304 Project Cover Page

Milestone #: ____2____

Date: ____Feb 26, 2021____

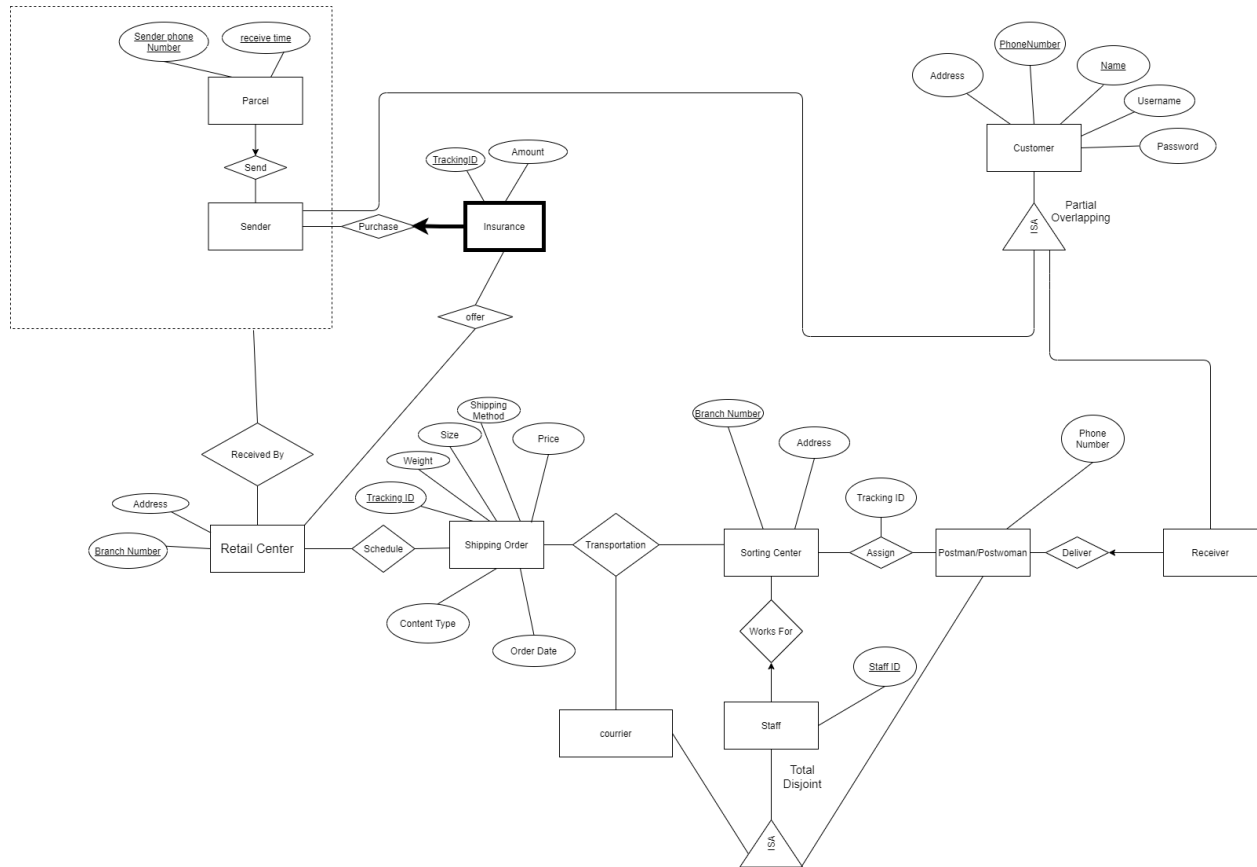
Group Number: ____44____

Name	Student Number	CS Alias (Userid)	Preferred E-mail Address
Doris Xu	49003643	n9k2b	x78371172@gmail.com
Yuchen Rao	12101614	e5u2b	rycedison@gmail.com
Fan Wu	75376004	f4b3b	realfanwu@gmail.com

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

2.



Note:

- Added sender phone number and received time attributes to Parcel entity.
(Since "primary keys are required for all entities" as indicated in the project description.)
- Added "Total Disjoint" constraints to Staff ISA because we need covering/overlap constraints.
- Deleted Employee Entity and Employee ISA. (It was a bit of vague and useless, and their job could be simply done by the "retail center")
- Added an ISA relation Customers with attributes name, phoneNumber and address for Receivers and Senders (both are customers for the company)

3. (PK is underlined, FK is **bold**)

Parcel(**SenderPhoneNumber: string**, ReceiveTime: string, **SenderName: string**)
 Insurance(TrackingID: int, Amount: int, **SenderPhoneNumber: string**)
 RetailCenter(BranchNumber: int, Address: string)
 Offer(**BranchNumber: int**, **TrackingID: int**)
 ReceivedBy(**BranchNumber: int**, **ReceiveTime: string**, **PhoneNumber: string**)
 ShippingOrder (TrackingID: int, ContentType: string, OrderDate: string, Weight: int, Size: string, ShippingMethod: string, Price: int)
 Schedule(**BranchNumber: int**, **TrackingID: int**)
 Staff(StaffID: int, **BranchNumber: int**)
 Courier (StaffID: int)
 Postman/Postwoman(StaffID: int, phoneNumber: string)
 SortingCenter(BranchNumber: int, Address: string)
 Transportation(**TrackingID: int**, **BranchNumber: int**, **StaffID: int**)
 Assign(**BranchNumber: int**, **StaffID: int**, TrackingID: int)
 Customer(PhoneNumber: string, Name: string, Username: String, Password: String, Address: string)
 Sender (**PhoneNumber: string**, **Name: string**, **Address: string**)
 Receiver(**PhoneNumber: string**, **Name: string**, **Address: string**, **Postman/PostwomanStaffID: int**)

4.

Parcel:

SenderPhoneNumber -> (ReceiveTime, SenderName)

Sender:

(PhoneNumber, Name) -> Address

Insurance:

TrackingID -> (Amount, SenderPhoneNumber)

RetailCenter:

BranchNumber -> Address

Offer:

(BranchNumber, TrackingID) -> (BranchNumber, TrackingID)

ReceivedBy:

(BranchNumber, ReceiveTime, PhoneNumber) -> (BranchNumber, ReceiveTime, PhoneNumber)

ShippingOrder(2NF):

TrackingID -> (TrackingID, ContentType, OrderDate, Weight, Size, ShippingMethod, Price)

(Weight, Size, ShippingMethod) -> Price

Schedule:

(BranchNumber, TrackingID) -> (BranchNumber, TrackingID)

Staff:

StaffID -> BranchNumber

SortingCenter:

BranchNumber -> Address

Courrier:

StaffID -> StaffID

Transportation:

(TrackingID, BranchNumber, StaffID) -> (TrackingID, BranchNumber, StaffID)

Postman/Postwoman:

StaffID -> phoneNumber

Assign:

(BranchNumber, StaffID) -> (BranchNumber, StaffID)

Receiver:

(PhoneNumber, Name, Postman/PostwomanStaffID) -> Address

Customer(2NF):

(PhoneNumber, Name) -> (PhoneNumber, Name)

UserName -> Address

5.

Customer:

Customer(PhoneNumber, Name, **Username**)

CK: Username

Account(Username, Address)

ShippingOrder:

ShippingOrder(TrackingID, ContentType, OrderDate, **Weight**, **Size**,
ShippingMethod)

ShippingPrice(Weight, Size, ShippingMethod, Price)

6.

```
CREATE TABLE Receiver(  
    Name                char(50),  
    PhoneNumber          char(20),  
    Address              char(100)          NOT NULL,  
    Postman/PostwomanStaffID int,  
    PRIMARY KEY (Name, PhoneNumber, Postman/PostwomanStaffID),  
    FOREIGN KEY (Name) REFERENCES Customer ON DELETE CASCADE,  
    FOREIGN KEY (Address) REFERENCES Customer ON DELETE CASCADE,  
    FOREIGN KEY (PhoneNumber) REFERENCES Customer ON DELETE CASCADE,  
    FOREIGN KEY (Postman/PostwomanStaffID) REFERENCES  
Postman/Postwoman(StaffID) ON DELETE CASCADE  
);
```

```
CREATE TABLE SortingCenter(  
    BranchNumber    int          PRIMARY KEY,  
    Address         char(100)  
);
```

```
CREATE TABLE PostmanPostwoman(  
    StaffID          int,  
    PhoneNumber      char(20)    UNIQUE,  
    PRIMARY KEY (StaffID),  
    FOREIGN KEY (StaffID) REFERENCES Staff(StaffID) ON DELETE CASCADE  
);
```

```

CREATE TABLE Insurance (
    TrackingID            int            PRIMARY KEY,
    Amount                int,
    SenderPhoneNumber     char(20),
    FOREIGN KEY (SenderPhoneNumber) REFERENCES Sender(PhoneNumber) ON
    DELETE SET DEFAULT
);

```

```

CREATE TABLE ShippingOrder (
    TrackingID            int            PRIMARY KEY,
    ContentType           char(50)      NOT NULL,
    OrderDate             char(50)      NOT NULL,
    Weight                int
    Size                  char(50)
    ShippingMethod        char(20)
    FOREIGN KEY (Weight,Size,ShippingMethod) REFERENCES ShippingPrice ON
    DELETE SET DEFAULT
);

```

```

CREATE TABLE ShippingPrice(
    Size                  char(50)      NOT NULL,
    Weight                int           NOT NULL,
    ShippingMethod        char(50)      NOT NULL,
    Price                 int           NOT NULL
);

```

```

CREATE TABLE Staff (
    StaffID               int            PRIMARY KEY,
    BranchNumber          int,
    FOREIGN KEY (BranchNumber) REFERENCES SortingCenter ON DELETE SET
    DEFAULT
);

```

```
CREATE TABLE Courier (  
    StaffID          int          PRIMARY KEY  
);
```

```
CREATE TABLE Parcel (  
    SenderPhoneNumber char(20),  
    ReceivedTime      char(50)    NOT NULL,  
    SenderName        char(50)    NOT NULL,  
  
    FOREIGN KEY (SenderPhoneNumber) REFERENCES Sender(PhoneNumber) ON  
    DELETE SET DEFAULT,  
  
    FOREIGN KEY (SenderName) REFERENCES Sender(Name) ON DELETE SET  
    DEFAULT,  
  
    PRIMARY KEY (SenderPhoneNumber, ReceivedTime)  
);
```

```
CREATE TABLE Sender (  
    PhoneNumber      char(20)      UNIQUE,  
    Name             char(50),  
    Address          char(100),  
  
    PRIMARY KEY (Name, PhoneNumber),  
  
    FOREIGN KEY (Name) REFERENCES Customer ON DELETE CASCADE,  
  
    FOREIGN KEY (PhoneNumber) REFERENCES Customer ON DELETE CASCADE,  
    FOREIGN KEY (Address) REFERENCES Customer ON DELETE CASCADE
```

);

CREATE TABLE Customer (

 PhoneNumber char(20)

 Name char(50) NOT NULL,

 Username char(50) UNIQUE,

 Password char(100) NOT NULL,

 PRIMARY KEY (PhoneNumber, Name)

 FOREIGN KEY (Username) REFERENCES Account ON DELETE CASCADE,

);

CREATE TABLE Account (

Username char(50) UNIQUE,

 Address char(100) NOT NULL

 PRIMARY KEY (Username)

);

CREATE TABLE RetailCenter (

 BranchNumber int PRIMARY KEY,

 Address char(100) NOT NULL

);


```

CREATE TABLE Offer (

    BranchNumber      int,

    TrackingID      int,

    PRIMARY KEY(BranchNumber, TrackingID),

    FOREIGN KEY (BranchNumber) REFERENCES SortingCenter ON DELETE
    CASCADE,

    FOREIGN KEY (TrackingID) REFERENCES Insurance ON DELETE CASCADE

);

```

```

CREATE TABLE Assign (

    BranchNumber      int,

    StaffID           int,

    TrackingID        int          NOT NULL,

    PRIMARY KEY(BranchNumber, StaffID),

    FOREIGN KEY (StaffID) REFERENCES PostmanPostwoman ON DELETE CASCADE,

    FOREIGN KEY (BranchNumber) REFERENCES SortingNumber ON DELETE
    CASCADE

);

```

```

CREATE TABLE Schedule (

    BranchNumber      int,

```

```
TrackingID          int,

PRIMARY KEY(BranchNumber, TrackingID),

FOREIGN KEY (TrackingID) REFERENCES ShippingOrder ON DELETE CASCADE,

FOREIGN KEY (BranchNumber) REFERENCES RetailCenter ON DELETE CASCADE

);
```

```
CREATE TABLE Transportation (

    TrackingID        int,

    BranchNumber      int,

    StaffID           int,

    PRIMARY KEY(TrackingID, BranchNumber, StaffID),

    FOREIGN KEY (StaffID) REFERENCES Courier ON DELETE CASCADE,

    FOREIGN KEY (BranchNumber) REFERENCES SortingCenter ON DELETE

CASCADE,

    FOREIGN KEY (TrackingID) REFERENCES ShippingOrder ON DELETE CASCADE

);
```

```
CREATE TABLE ReceivedBy (

    BranchNumber      int,

    ReceiveTime       char(50),

    PhoneNumber       char(20),
```

PRIMARY KEY(PhoneNumber, ReceiveTime, PhoneNumber),

FOREIGN KEY (PhoneNumber) REFERENCES Parcel(SenderPhoneNumber) ON
DELETE SET DEFAULT,

FOREIGN KEY (ReceiveTime) REFERENCES Parcel(ReceivedTime) ON DELETE SET
DEFAULT,

FOREIGN KEY (BranchNumber) REFERENCES RetailCenter ON DELETE SET
DEFAULT

);

7.

INSERT INTO Customer VALUES ("7783211111", "Eddie", "eddie0912", "rao912912")

INSERT INTO Customer VALUES ("7783212222", "FAN", "realfanwu", "realFan111")

INSERT INTO Customer VALUES ("7783213333", "Doris", "DorisXXX", "DX3333")

INSERT INTO Customer VALUES ("7783214444", "Yonas", "Yoyo", "YOYO123")

INSERT INTO Customer VALUES ("7783215555", "Alex", "Alexaaaa", "AlexIsGOOOd")

INSERT INTO Account VALUES ("eddie0912", "No.3 road, Mars")

INSERT INTO Account VALUES ("realfanwu", "No.4 road, Mars")

INSERT INTO Account VALUES ("DorisXXX", "No.5 road, Mars")

INSERT INTO Account VALUES ("Yoyo", "No.6 road, Mars")

INSERT INTO Account VALUES ("Alexaaaa", "No.7 road, Mars")

INSERT INTO Staff VALUES (100)

INSERT INTO Staff VALUES (101)

INSERT INTO Staff VALUES (102)

INSERT INTO Staff VALUES (103)

INSERT INTO Staff VALUES (104)

INSERT INTO Staff VALUES (105)

INSERT INTO Staff VALUES (106)

INSERT INTO Staff VALUES (107)

INSERT INTO Staff VALUES (108)

INSERT INTO Staff VALUES (109)

INSERT INTO Courier VALUES (105)

INSERT INTO Courier VALUES (106)

INSERT INTO Courier VALUES (107)

INSERT INTO Courier VALUES (108)

INSERT INTO Courier VALUES (109)

INSERT INTO Insurance VALUES (12035478, 20, "7783211111")

INSERT INTO Insurance VALUES (12032234, 100, "7783212222")

INSERT INTO Insurance VALUES (12034578, 50, "7783213333")

INSERT INTO Insurance VALUES (12036678, 10, "7783214444")

INSERT INTO Insurance VALUES (12031000, 40, "7783215555")

INSERT INTO PostmanPostwoman VALUES (100, "778012345")

INSERT INTO PostmanPostwoman VALUES (101, "778012346")

INSERT INTO PostmanPostwoman VALUES (102, "778012347")

INSERT INTO PostmanPostwoman VALUES (103, "778012348")

INSERT INTO PostmanPostwoman VALUES (104, "778012349")

INSERT INTO Parcel VALUES ("7783211111", "2021/03/02 14:37")

INSERT INTO Parcel VALUES ("7783212222", "2021/03/01 14:37")

INSERT INTO Parcel VALUES ("7783213333", "2021/02/28 15:37")

INSERT INTO Parcel VALUES ("7783214444", "2021/02/27 12:32")

INSERT INTO Parcel VALUES ("7783215555", "2021/02/26 17:37")

INSERT INTO Sender VALUES ("7783211111", "Eddie", "No.3 road, Mars")

INSERT INTO Sender VALUES ("7783212222", "FAN", "No.4 road, Mars")

INSERT INTO Sender VALUES ("7783213333", "Doris", "No.5 road, Mars")

INSERT INTO Sender VALUES ("7783214444", "Yonas", "No.6 road, Mars")

INSERT INTO Sender VALUES ("7783215555", "Alex", "No.7 road, Mars")

INSERT INTO Receiver VALUES ("7783211111", "Eddie", "No.3 road, Mars")

INSERT INTO Receiver VALUES ("7783212222", "FAN", "No.4 road, Mars")

INSERT INTO Receiver VALUES ("7783213333", "Doris", "No.5 road, Mars")

INSERT INTO Receiver VALUES ("7783214444", "Yonas", "No.6 road, Mars")

INSERT INTO Receiver VALUES ("7783215555", "Alex", "No.7 road, Mars")

INSERT INTO RetailCenter VALUES (8001, "118 No.3 Rd, Richmod, BC")

INSERT INTO RetailCenter VALUES (8002, "107 4th street, Vancouver, BC")

INSERT INTO RetailCenter VALUES (8003, "888 Ontario Street, Vancouver, BC")

INSERT INTO RetailCenter VALUES (8004, "222 Westbrook Mall, Vancouver, BC")

INSERT INTO RetailCenter VALUES (8005, "333 Wood street, New Westminster, BC")

INSERT INTO SortingCenter VALUES (7005, "123 Carter street, New Westminster, BC")

INSERT INTO SortingCenter VALUES (7004, "100 Nelson street, New Westminster, BC")

INSERT INTO SortingCenter VALUES (7003, "88 8th Ave, Vancouver, BC")

INSERT INTO SortingCenter VALUES (7002, "120 16th Ave, Vancouver, BC")

INSERT INTO SortingCenter VALUES (7001, "128 Water street, Vancouver, BC")

INSERT INTO ShippingOrder VALUES(1000000001, "normal", "2021/03/02", 0.5, "2x10x6",

"flight")

INSERT INTO ShippingOrder VALUES(1000000002, "electronic", "2021/03/01", 0.2, "5x12x8", "flight")

INSERT INTO ShippingOrder VALUES(1000000003, "normal", "2021/02/28", 0.3, "4x15x2", "flight")

INSERT INTO ShippingOrder VALUES(1000000004, "normal", "2021/02/27", 0.9, "5x11x8", "flight")

INSERT INTO ShippingOrder VALUES(1000000005, "liquid", "2021/02/26", 0.4, "12x10x10", "flight")

INSERT INTO ShippingPrice VALUES(0.5, "2x10x6", "flight", 10)

INSERT INTO ShippingPrice VALUES(0.2, "5x12x8", "flight", 10)

INSERT INTO ShippingPrice VALUES(0.3, "4x15x2", "flight", 10)

INSERT INTO ShippingPrice VALUES(0.9, "5x11x8", "flight", 10)

INSERT INTO ShippingPrice VALUES(0.4, "12x10x10", "flight", 10)

INSERT INTO Offer VALUES(8001, 1000000001)

INSERT INTO Offer VALUES(8002, 1000000002)

INSERT INTO Offer VALUES(8003, 1000000003)

INSERT INTO Offer VALUES(8004, 1000000004)

INSERT INTO Offer VALUES(8005, 1000000005)

INSERT INTO Assign VALUES(7001, 1000000001, 100)

INSERT INTO Assign VALUES(7002, 1000000002, 101)

INSERT INTO Assign VALUES(7003, 1000000003, 102)

INSERT INTO Assign VALUES(7004, 1000000004, 103)

INSERT INTO Assign VALUES(7005, 1000000005, 104)

INSERT INTO ReceivedBy VALUES(8001, "2021/03/02", "7783211111")

INSERT INTO ReceivedBy VALUES(8002, "2021/03/01", "7783212222")

INSERT INTO ReceivedBy VALUES(8003, "2021/02/28", "7783213333")

INSERT INTO ReceivedBy VALUES(8004, "2021/02/27", "7783214444")

INSERT INTO ReceivedBy VALUES(8001, "2021/02/26", "778321")

INSERT INTO Schedule VALUES(8001,1000000001)

INSERT INTO Schedule VALUES(8002,1000000002)

INSERT INTO Schedule VALUES(8003,1000000003)

INSERT INTO Schedule VALUES(8004,1000000004)

INSERT INTO Schedule VALUES(8005,1000000005)

INSERT INTO Transportation VALUES(1000000001, 7005, 105)

INSERT INTO Transportation VALUES(1000000002, 7004, 106)

INSERT INTO Transportation VALUES(1000000003, 7003, 107)

INSERT INTO Transportation VALUES(1000000004, 7002, 108)

INSERT INTO Transportation VALUES(1000000005, 7001, 109)

8.

Insertion: add a customer to the shipping company's customer list.

Post: post a new shipping order

Delete: cancel a shipping order

Update: update a location of the parcel.

Selection: track shipment with trackingID.

Projection: project all customers with their phone number and address from the customer table.

Join: list all shipping orders with their insurance amount.

Division: find shipping orders with specific shipping method and content Type.