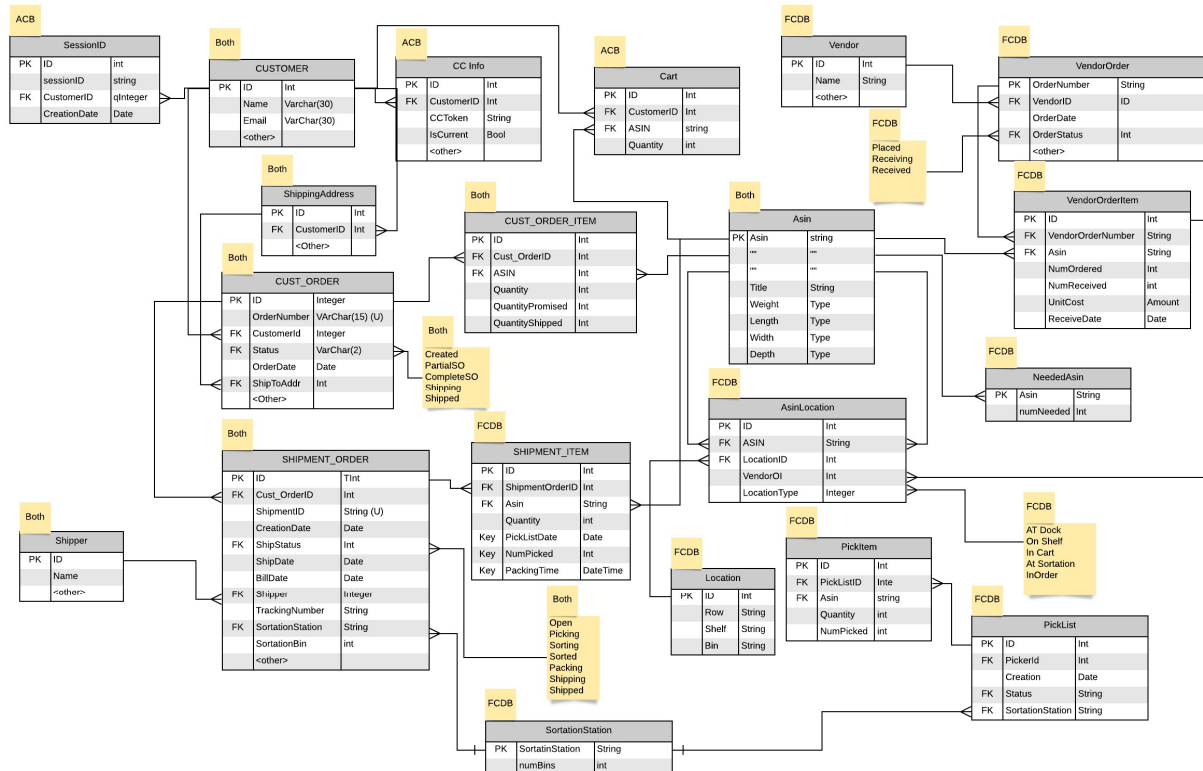# Project 5 Group 5
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Business Problem
Amazon Database is getting overloaded and it needs to be fixed before it dies. Also, there is latency in different fulfillment centers that caused the system to be slow.

Schema

SessionID (ACB)

PK	ID	int
	sessionID	string
FK	CustomerID	qInteger
	CreationDate	Date

CUSTOMER (Both)

PK	ID	Int
	Name	Varchar(30)
	Email	VarChar(30)
	<other>	

CC Info (ACB)

PK	ID	Int
FK	CustomerID	Int
	CCToken	String
	IsCurrent	Bool
	<other>	

Cart (ACB)

PK	ID	Int
FK	CustomerID	Int
FK	ASIN	string
	Quantity	int

Vendor (FCDB)

PK	ID	Int
	Name	String
	<other>	

Placed
Receiving
Received (FCDB)

VendorOrder (FCDB)

PK	OrderNumber	String
FK	VendorID	ID
	OrderDate	
FK	OrderStatus	Int
	<other>	

ShippingAddress (Both)

PK	ID	Int
FK	CustomerID	Int
	<Other>	

CUST_ORDER_ITEM (Both)

PK	ID	Int
FK	Cust_OrderID	Int
FK	ASIN	Int
	Quantity	Int
	QuantityPromised	Int
	QuantityShipped	Int

Asin (Both)

PK	Asin	string
	'''	'''
	'''	'''
	Title	String
	Weight	Type
	Length	Type
	Width	Type
	Depth	Type

VendorOrderItem (FCDB)

PK	ID	Int
FK	VendorOrderNumber	String
FK	Asin	String
	NumOrdered	Int
	NumReceived	int
	UnitCost	Amount
	ReceiveDate	Date

CUST_ORDER (Both)

PK	ID	Integer
	OrderNumber	VArChar(15) (U)
FK	CustomerId	Integer
FK	Status	VarChar(2)
	OrderDate	Date
FK	ShipToAddr	Int
	<Other>	

Created
PartialSO
CompleteSO
Shipping
Shipped (Both)

NeededAsin (FCDB)

PK	Asin	String
	numNeeded	Int

AsinLocation (FCDB)

PK	ID	Int
FK	ASIN	String
FK	LocationID	Int
	VendorOI	Int
	LocationType	Integer

SHIPMENT_ORDER (Both)

PK	ID	TInt
FK	Cust_OrderID	Int
	ShipmentID	String (U)
	CreationDate	Date
FK	ShipStatus	Int
	ShipDate	Date
	BillDate	Date
FK	Shipper	Integer
	TrackingNumber	String
FK	SortationStation	String
	SortationBin	int
	<other>	

SHIPMENT_ITEM (FCDB)

PK	ID	Int
FK	ShipmentOrderID	Int
FK	Asin	String
	Quantity	Int
Key	PickListDate	Date
Key	NumPicked	Int
Key	PackingTime	DateTime

AT Dock
On Shelf
In Cart
At Sortation
InOrder (FCDB)

Shipper (Both)

PK	ID	
	Name	
	<other>	

Open
Picking
Sorting
Sorted
Packing
Shipping
Shipped (Both)

Location (FCDB)

PK	ID	Int
	Row	String
	Shelf	String
	Bin	String

PickItem (FCDB)

PK	ID	Int
FK	PickListID	Inte
FK	Asin	string
	Quantity	int
	NumPicked	int

PickList (FCDB)

PK	ID	Int
FK	PickerId	Int
	Creation	Date
FK	Status	String
FK	SortationStation	String

SortationStation (FCDB)

PK	SortatinStation	String
	numBins	int

Solution
Making copies on some tables in ACB to create FCDB that only uses tables required for the fulfillment center functions. Reduce the workload and risk of crashing by dividing the difference update job to difference FCDB. We will use replication to update the tables that are shared between both databases.

Customer:
- Create ACB -> FCDB

Shipping Address:
- Create ACB ->FCDB

Cust_Order:
- Create ACB -> FCDB
- Status update FCDB -> ACB
- ACB may change Status from Created to Canceled.

Cust_Order_Item:
- Create ACB -> FCDB

- Quantity shipped update FCDB -> ACB

Asin:
- Create FCDB ->ACB

AsinLocation:
- Create FCDB ->ACB

Shipping_Order:
- Create ACB -> FCDB
- Status, shipper, sortstation, sortstationbin, shipDate updated FCDB ->ACB

Shipping_Item:
- Create FCDB->ACB
- Quantity update ACB ->FCDB

Shipping Address:
- Create ACB->FCDB

Shipper:
- Create FCDB

Use cases after changes(What database is use and what tables is include)
1. Customer logging on
   - Database: ACB
   - Table:SessionID Customer
2. searching and putting items in cart
   - Database: ACB
   - Table:SessionID Customer Cart
3. Creating the Customer Order<process on ACB>
   - Database: ACB
   - Table: Asin SessionID Customer Cart ShippingAddress CUST_ORDER CUST_ORDER_ITEM
4. Creating a Shipment Order<change the update by FCDB base on the status>
   - Database: FCDB
   - Table:Shipment_Order SHIPMENT_ITEM cust_order custoreritem asin asin_location, sortationstation
5. Shipment Overview
   - Database: FCDB
   - Table:Shipment_Order SHIPMENT_ITEM cust_order custoreritem asin asin_location
6. Pick List and Picking<change>
   - Database: FCDB
   - Table:Shimpent_order SHIPMENT_ITEM location asin_location location picklist PickItem SortationStation

7. Assembling the order
   - Database: FCDB
   - Table:Shimpent_order SHIPMENT_ITEM picklist pickitem sortationstation
8. Shipping

- ○ Database: FCDB
- ○ Table: Shimpent_order SHIPMENT_ITEM shipper
9. Deciding what to buy
   - ○ Database:FCDB
   - ○ Table: AsinLocation NeededAsin VenderOrderItem CustomerOrder_Item
10. Ordering
    - ○ Database:FCDB
    - ○ Table: Vendor VendorOrder VendorOrderItem NeededAsin
11. Receiving inventory into the FC and putting it on shelves
    - ○ Database:FCDB
    - ○ Table: VendorOrder VendorOrderItem asin asin_location location
12. Browse my orders
    - ○ Database:ACB
    - ○ Table: SessionID customer cust_order cus_order_item SHIPMENT_ITEM Shipper shipment_order