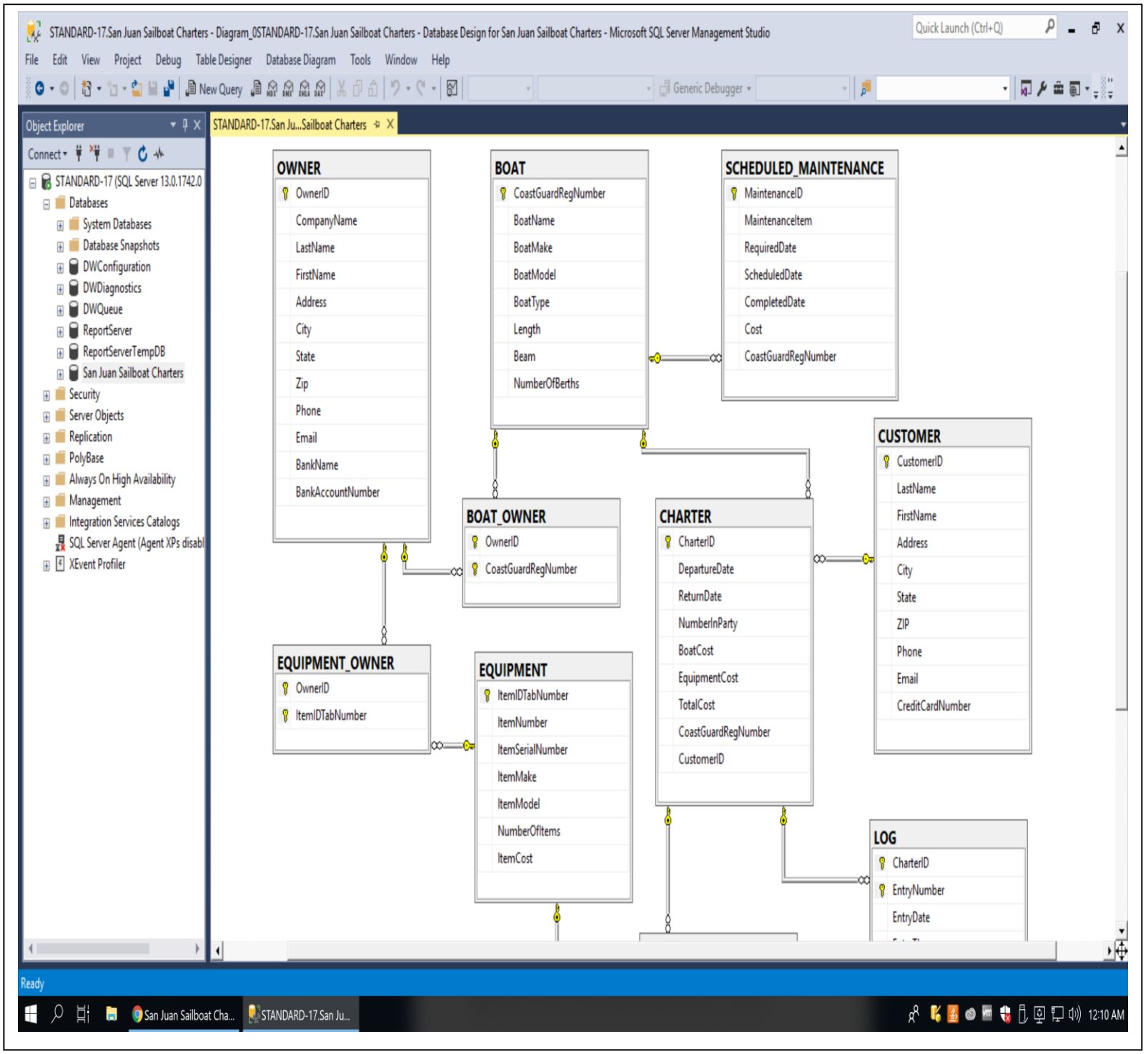
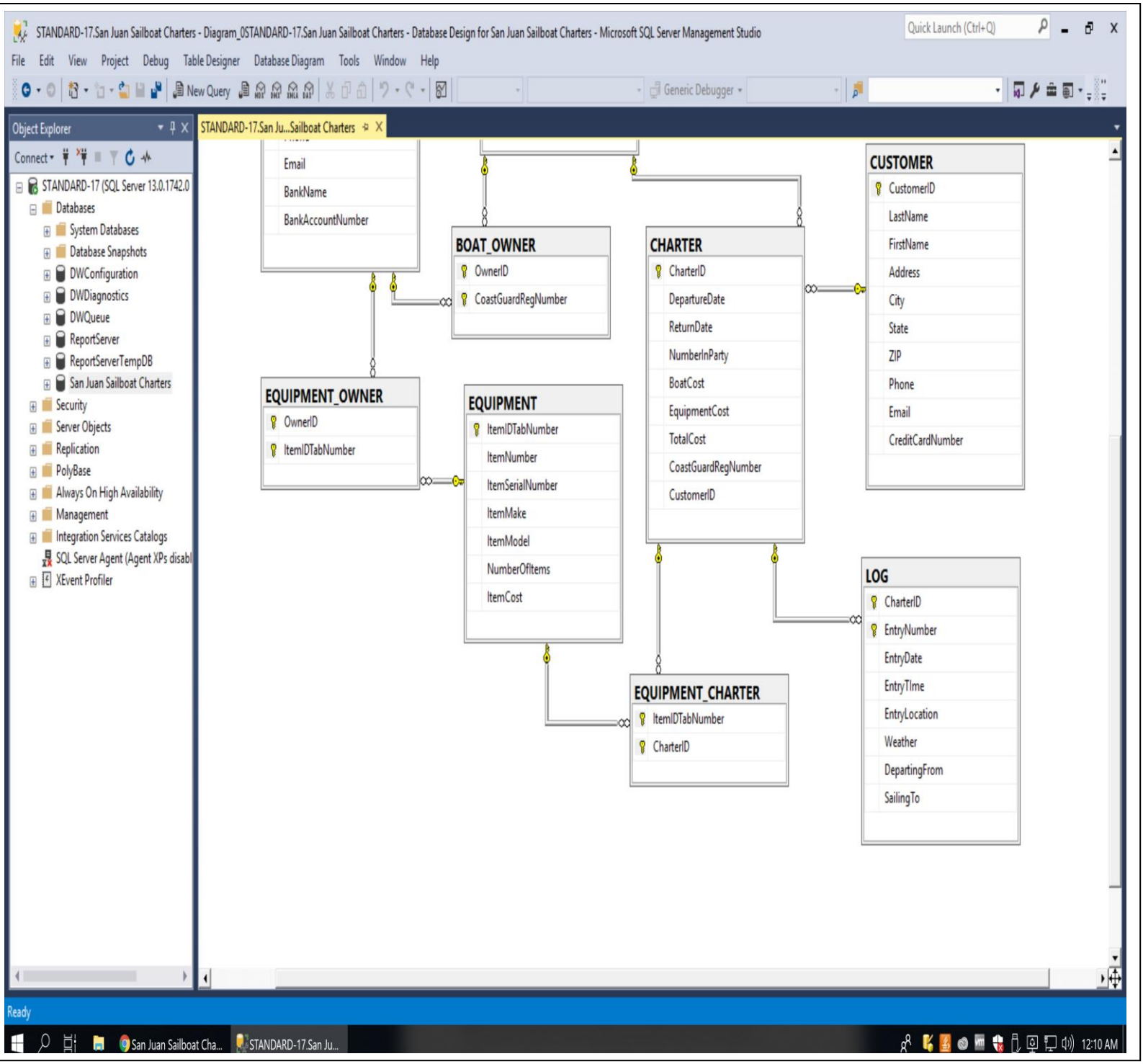
ASSIGNMENT 4

A.




STANDARD-17.San Juan Sailboat Charters - Diagram_0STANDARD-17.San Juan Sailboat Charters - Database Design for San Juan Sailboat Charters - Microsoft SQL Server Management Studio
Quick Launch (Ctrl+Q)
File Edit View Project Debug Table Designer Database Diagram Tools Window Help
New Query
Generic Debugger
Object Explorer
Connect
STANDARD-17 (SQL Server 13.0.1742.0
Databases
System Databases
Database Snapshots
DWConfiguration
DWDiagnostics
DWQueue
ReportServer
ReportServerTempDB
San Juan Sailboat Charters
Security
Server Objects
Replication
PolyBase
Always On High Availability
Management
Integration Services Catalogs
SQL Server Agent (Agent XPs disabl
XEvent Profiler
STANDARD-17.San Ju...Sailboat Charters
Email
BankName
BankAccountNumber
BOAT_OWNER
OwnerID
CoastGuardRegNumber
CHARTER
CharterID
DepartureDate
ReturnDate
NumberInParty
BoatCost
EquipmentCost
TotalCost
CoastGuardRegNumber
CustomerID
CUSTOMER
CustomerID
LastName
FirstName
Address
City
State
ZIP
Phone
Email
CreditCardNumber
EQUIPMENT_OWNER
OwnerID
ItemIDTabNumber
EQUIPMENT
ItemIDTabNumber
ItemNumber
ItemSerialNumber
ItemMake
ItemModel
NumberOfItems
ItemCost
LOG
CharterID
EntryNumber
EntryDate
EntryTIme
EntryLocation
Weather
DepartingFrom
SailingTo
EQUIPMENT_CHARTER
ItemIDTabNumber
CharterID
Ready
San Juan Sailboat Cha...
STANDARD-17.San Ju...
12:10 AM

- ***TABLES***

  OWNER
  BOAT
  SCHEDULED_MAINTENANCE
  BOAT_OWNER
  CHARTER
  CUSTOMER
  EQUIPMENT
  EQUIPMENT_OWNER
  EQUIPMENT_CHARTER
  LOG.

- ***PRIMARY KEYS: -***

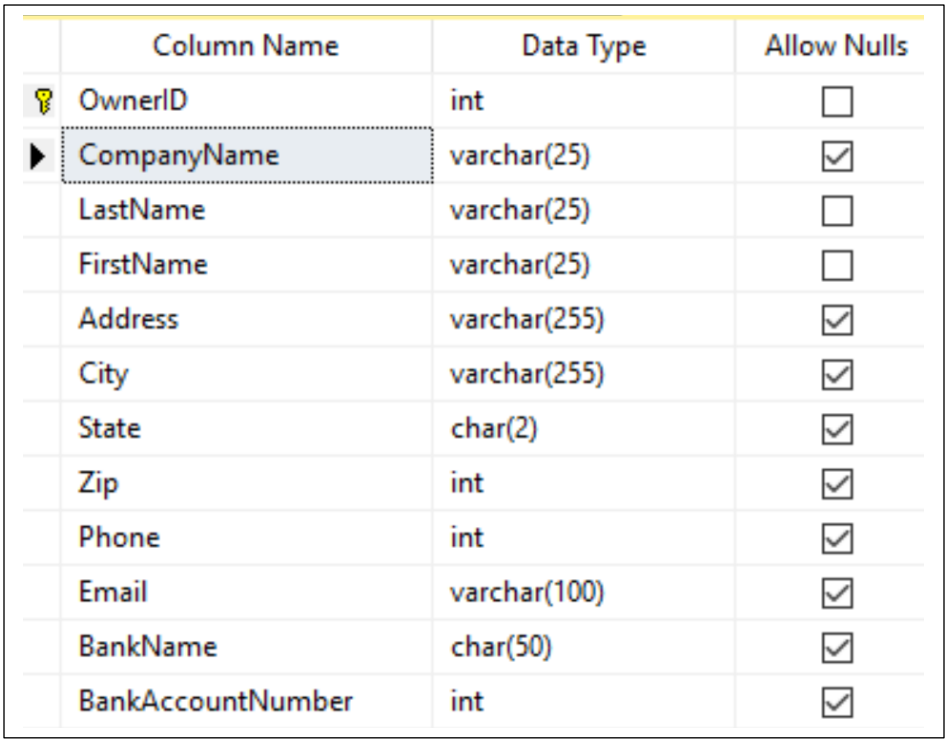
  OwnerID for OWNER
  CoastGuardregNumber for BOAT
  OwnerID ad CoastGuardregNumber for BOAT_OWNER
  MaintenanceID for SCHEDULED_MAINTENANCE
  CharterID for CHARTER
  CustomerID for CUSTOMER
  ItemIDTabNumber for EQUIPMENT
  ItemIDTabNumber and OwnerID for EQUIPMENT_OWNER
  CharterID and ItemIDTabNumber for EQUIPMENT_CHARTER
  CharterID and EntryNumber for LOG.

- ***FOREIGN KEYS: -***

  No foreign keys in OWNER, BOAT, CUSTOMER and EQUIPMENT tables.
  CoastGuardRegNumber for SCHEDULED_MAINTENANCE.
  OwnerID and CoastGuardRegNumber for BOAT_OWNER.
  OwnerID and ItemIDTabNumber for EQUIPMENT_OWNER.
  CoastGuardRegNumber and CustomerID for CHARTER.
  ItemIDTabNumber and CharterID for EQUIPMENT_CHARTER.
  CharterID for LOG.

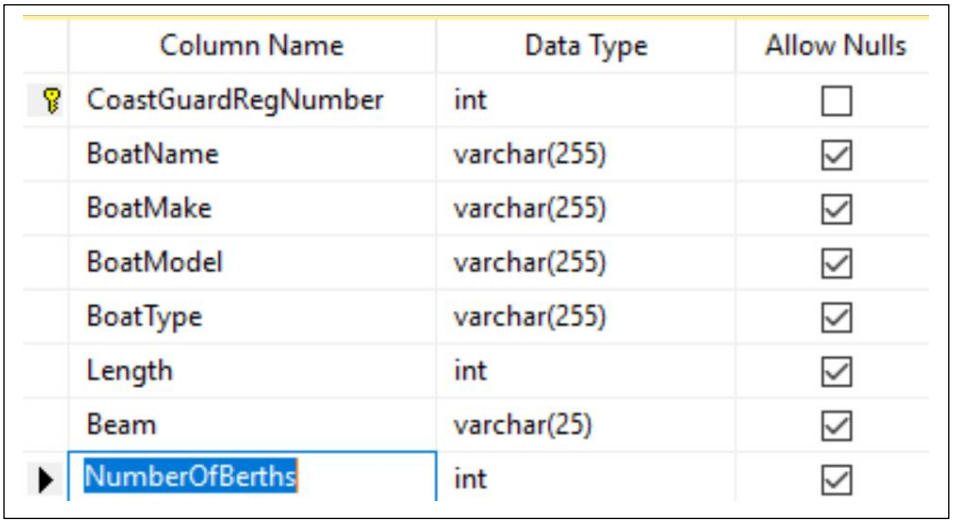
- ***COLUMN PROPERTIES: -***

1. **OWNER** table column properties



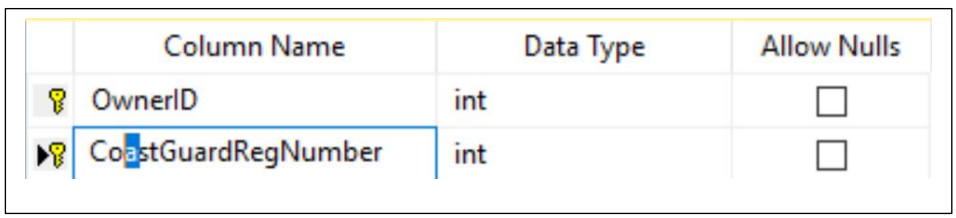
Column Name	Data Type	Allow Nulls
OwnerID	int	☐
CompanyName	varchar(25)	☑
LastName	varchar(25)	☐
FirstName	varchar(25)	☐
Address	varchar(255)	☑
City	varchar(255)	☑
State	char(2)	☑
Zip	int	☑
Phone	int	☑
Email	varchar(100)	☑
BankName	char(50)	☑
BankAccountNumber	int	☑

2. **BOAT** table column properties



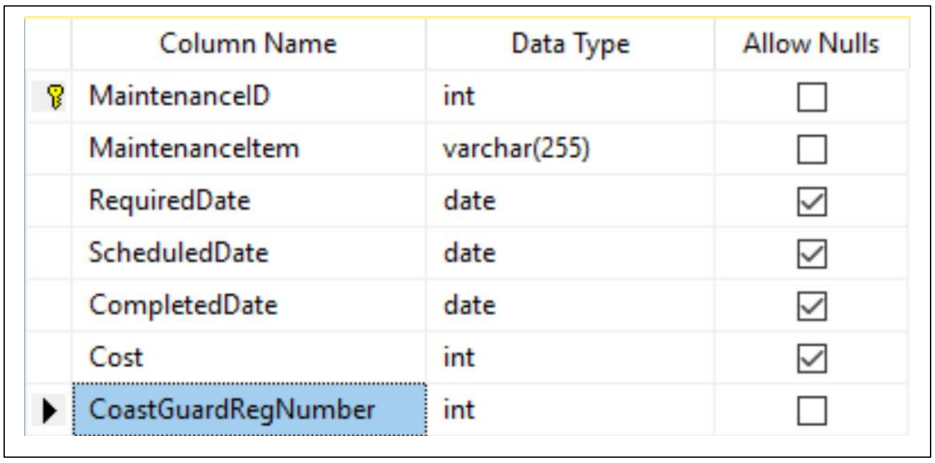
Column Name	Data Type	Allow Nulls
CoastGuardRegNumber	int	☐
BoatName	varchar(255)	☑
BoatMake	varchar(255)	☑
BoatModel	varchar(255)	☑
BoatType	varchar(255)	☑
Length	int	☑
Beam	varchar(25)	☑
NumberOfBerths	int	☑

3. **BOAT_OWNER** table column properties



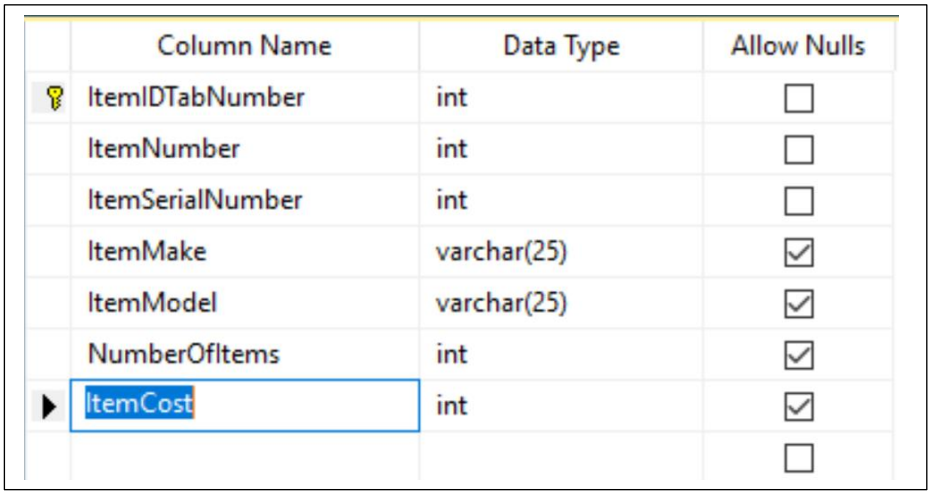
Column Name	Data Type	Allow Nulls
OwnerID	int	☐
CoastGuardRegNumber	int	☐

4. **SCHEDULED_MAINTENANCE** table column properties



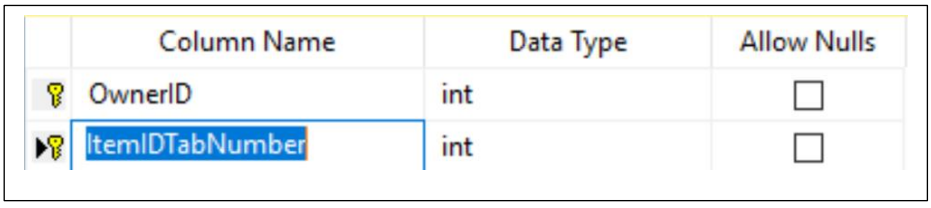
Column Name	Data Type	Allow Nulls
MaintenanceID	int	☐
MaintenanceItem	varchar(255)	☐
RequiredDate	date	☑
ScheduledDate	date	☑
CompletedDate	date	☑
Cost	int	☑
CoastGuardRegNumber	int	☐

5. **EQUIPMENT** table column properties



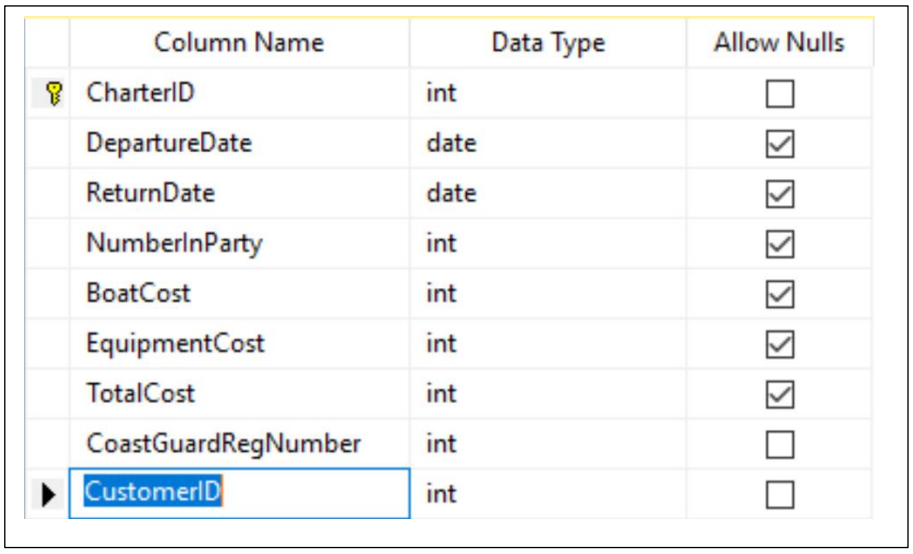
Column Name	Data Type	Allow Nulls
ItemIDTabNumber	int	☐
ItemNumber	int	☐
ItemSerialNumber	int	☐
ItemMake	varchar(25)	☑
ItemModel	varchar(25)	☑
NumberOfItems	int	☑
ItemCost	int	☑
		☐

6. **EQUIPMENT_OWNER** table column properties



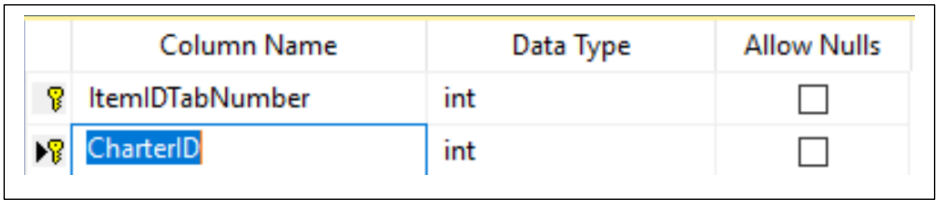
Column Name	Data Type	Allow Nulls
OwnerID	int	☐
ItemIDTabNumber	int	☐

7. **CHARTER** table column properties



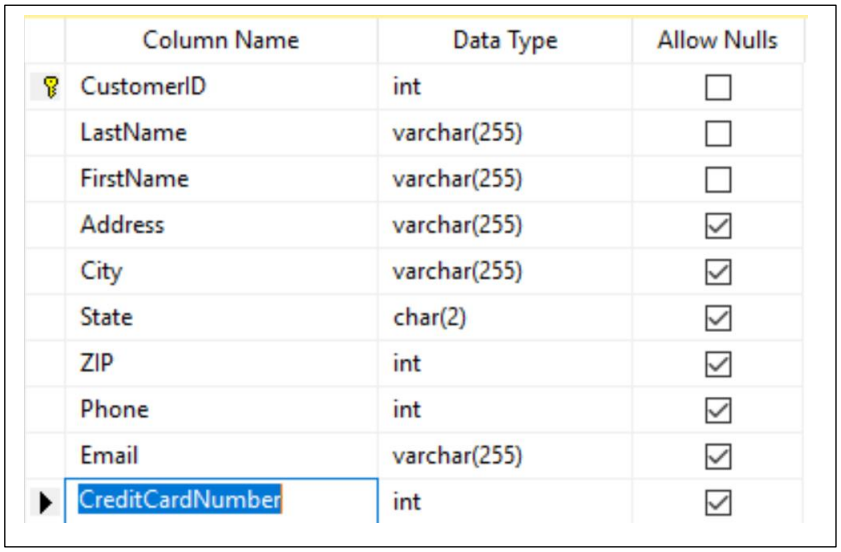
Column Name	Data Type	Allow Nulls
CharterID	int	☐
DepartureDate	date	☑
ReturnDate	date	☑
NumberInParty	int	☑
BoatCost	int	☑
EquipmentCost	int	☑
TotalCost	int	☑
CoastGuardRegNumber	int	☐
CustomerID	int	☐

8. **EQUIPMENT_CHARTER** table column properties



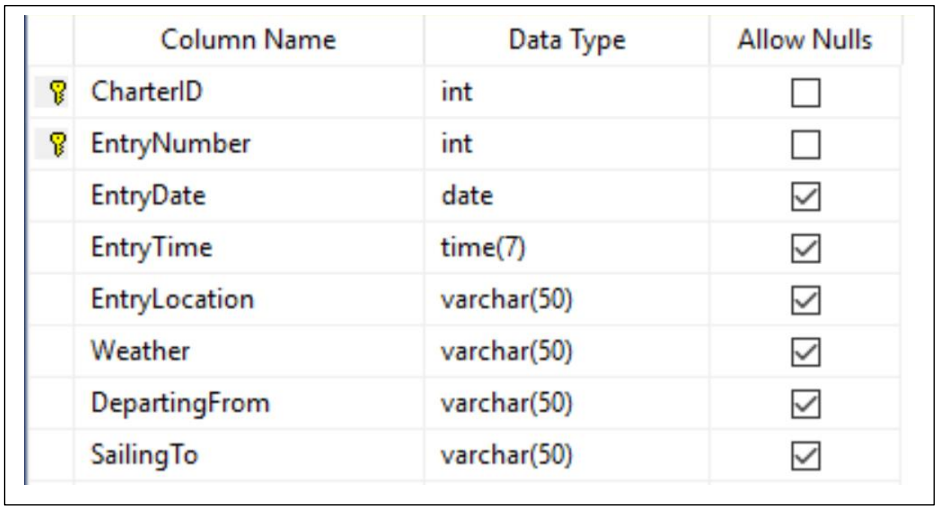
Column Name	Data Type	Allow Nulls
ItemIDTabNumber	int	☐
CharterID	int	☐

9. **CUSTOMER** table column properties



Column Name	Data Type	Allow Nulls
CustomerID	int	☐
LastName	varchar(255)	☐
FirstName	varchar(255)	☐
Address	varchar(255)	☑
City	varchar(255)	☑
State	char(2)	☑
ZIP	int	☑
Phone	int	☑
Email	varchar(255)	☑
CreditCardNumber	int	☑

10. **LOG** table column properties



Column Name	Data Type	Allow Nulls
CharterID	int	☐
EntryNumber	int	☐
EntryDate	date	☑
EntryTime	time(7)	☑
EntryLocation	varchar(50)	☑
Weather	varchar(50)	☑
DepartingFrom	varchar(50)	☑
SailingTo	varchar(50)	☑

B. WEAK ENTITIES REPRESENTATION

The weak entities in my database design are BOAT_OWNER, EQUIPMENT_OWNER, EQUIPMENT_CHARTER, LOG and SCHEDULED_MAINTENANCE.

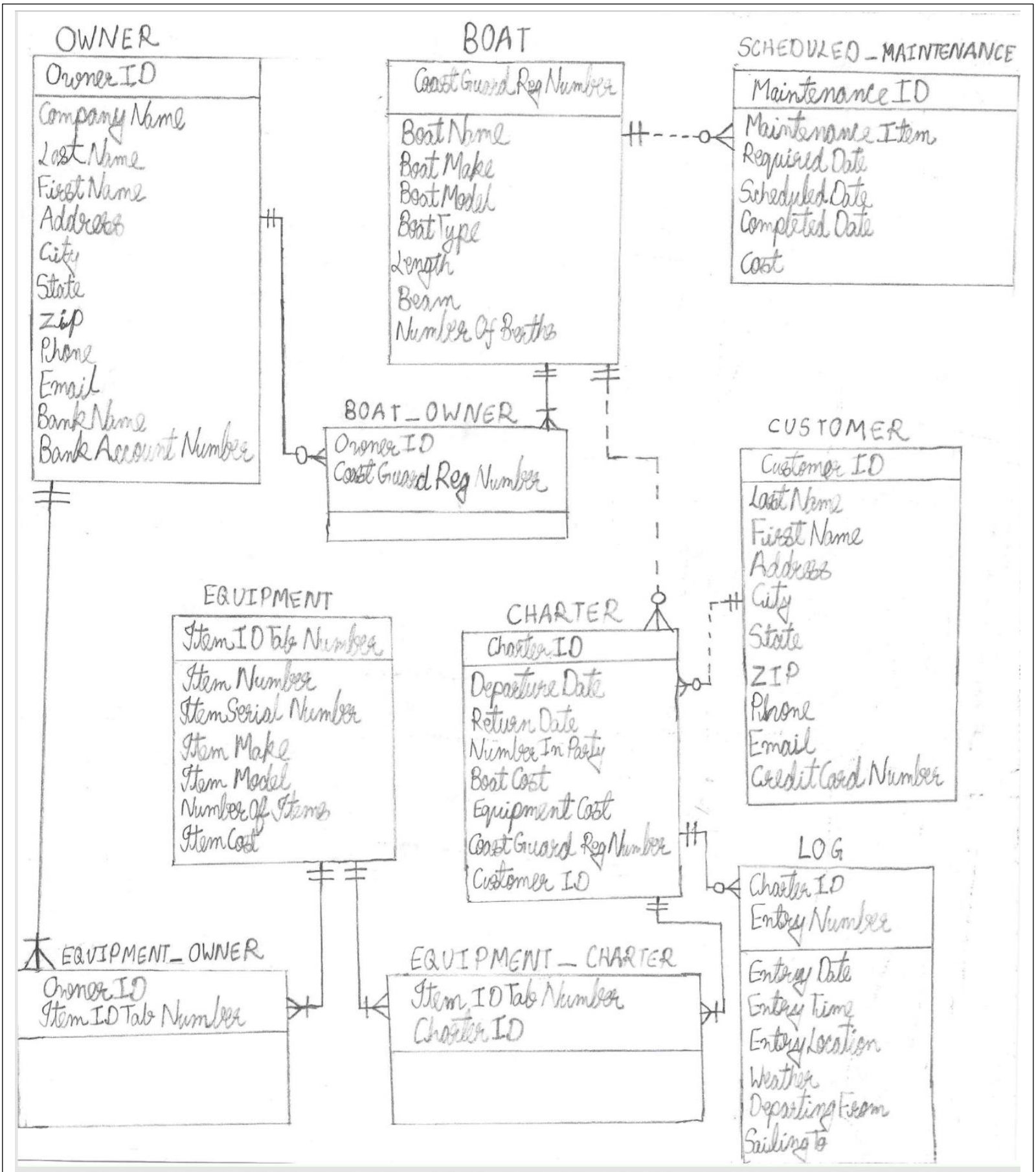
The entities BOAT_OWNER, EQUIPMENT_OWNER, EQUIPMENT_CHARTER and LOG are represented by adding the primary key of the parent table as the primary of these tables. All these entities are ID-Dependent entities in the database model. In Crow's Foot E-R diagram their relationship with their parent is represented with solid lines.

The entity SCHEDULED_MAINTENANCE is also a weak entity and so is represented by adding the primary key of BOAT entity as foreign key of SCHEDULED_MAINTENANCE entity. The entity SCHEDULED_MAINTENANCE is weak because there can't be maintenance if there is no boat. This entity is NON-ID dependent because the primary key of BOAT is not the primary key of SCHEDULED_MAINTENANCE. Further, in Crow's foot E-R diagram the relationship between BOAT and SCHEDULED_MAINTENANCE will be represented by dotted line.

C. REPRESENTATION OF SUBTYPES AND SUPERTYPES ENTITIES

In my database design there are no subtypes and supertypes and so are not represented.

D.


OWNER
Owner ID
Company Name
Last Name
First Name
Address
City
State
Zip
Phone
Email
Bank Name
Bank Account Number
BOAT
Coast Guard Reg Number
Boat Name
Boat Make
Boat Model
Boat Type
Length
Beam
Number Of Berths
SCHEDULED_MAINTENANCE
Maintenance ID
Maintenance Item
Required Date
Scheduled Date
Completed Date
Cost
BOAT_OWNER
Owner ID
Coast Guard Reg Number
CUSTOMER
Customer ID
Last Name
First Name
Address
City
State
ZIP
Phone
Email
Credit Card Number
EQUIPMENT
Item ID Tab Number
Item Number
Item Serial Number
Item Make
Item Model
Number Of Items
Item Cost
CHARTER
Charter ID
Departure Date
Return Date
Number In Party
Boat Cost
Equipment Cost
Coast Guard Reg Number
Customer ID
LOG
Charter ID
Entry Number
Entry Date
Entry Time
Entry Location
Weather
Departing From
Sailing To
EQUIPMENT_OWNER
Owner ID
Item ID Tab Number
EQUIPMENT_CHARTER
Item ID Tab Number
Charter ID

E.

RELATIONSHIP		***REFERENTIAL INTEGRITY CONSTRAINT***
PARENT	***CHILD***	
OWNER	BOAT_OWNER	OwnerID in OWNER_BOAT table must exist in OWNER table
OWNER	EQUIPMENT_OWNER	OwnerID in EQUIPMENT_OWNER table must exist in OWNER table
BOAT	BOAT_OWNER	CoastGuardRegNumber in OWNER_BOAT table must exist in BOAT table
BOAT	SCHEDULED_MAINTENANCE	CoastGuardRegNumber in SCHEDULED_MAINTENANCE table must exist in BOAT table
BOAT	CHARTER	CoastGuardRegNumber in CHARTER table must exist in BOAT table
CUSTOMER	CHARTER	CustomerID in CHARTER table must exist in CUSTOMER table
CHARTER	LOG	CharterID in LOG table must exist in CHARTER table
EQUIPMENT	EQUIPMENT_CHARTER	ItemIDTabNumber in EQUIPMENT_CHARTER table must exist in EQUIPMENT table
CHARTER	EQUIPMENT_CHARTER	CharterID in EQUIPMENT_CHARTER table must exist in CHARTER table
EQUIPMENT	EQUIPMENT_OWNER	ItemIDTabNumber in EQUIPMENT_OWNER table must exist in EQUIPMENT table