INFO 430 A Su 22: Database Design And Management

Group Project: Karaoke Shop

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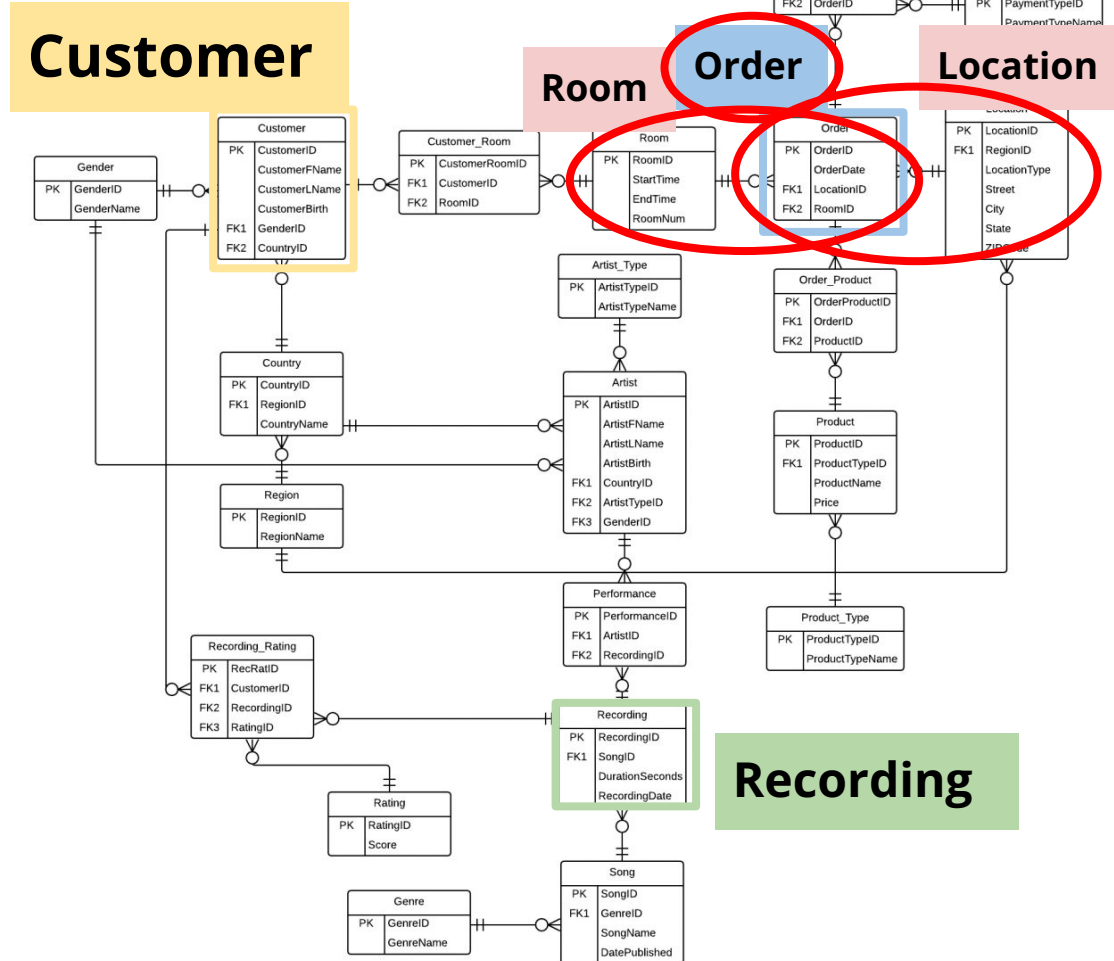
Business Problem Space
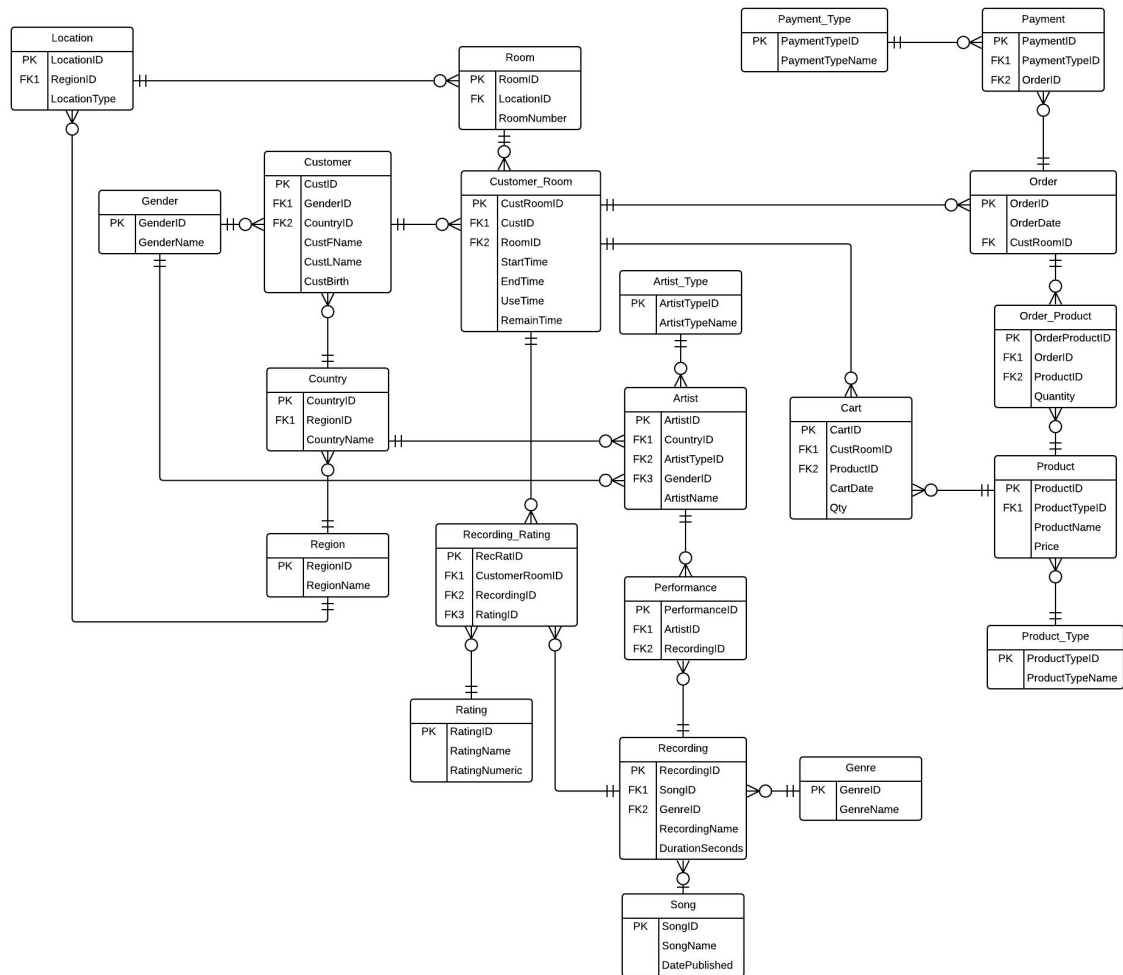
Draft ERD

Customer

Room

Order

Location

Flaws detected:
1. Order — Location
2. Order — Room

Recording

Customer
PK	CustomerID
	CustomerFName
	CustomerLName
	CustomerBirth
FK1	GenderID
FK2	CountryID

Gender
| PK | GenderID |
| | GenderName |

Customer_Room
PK	CustomerRoomID
FK1	CustomerID
FK2	RoomID

Room
PK	RoomID
	StartTime
	EndTime
	RoomNum

Order
PK	OrderID
	OrderDate
FK1	LocationID
FK2	RoomID

Location
PK	LocationID
FK1	RegionID
	LocationType
	Street
	City
	State
	ZIPCode

Payment
PK	PaymentID
FK1	PaymentTypeID
FK2	OrderID

Payment_Type
| PK | PaymentTypeID |
| | PaymentTypeName |

Artist_Type
| PK | ArtistTypeID |
| | ArtistTypeName |

Order_Product
PK	OrderProductID
FK1	OrderID
FK2	ProductID

Country
PK	CountryID
FK1	RegionID
	CountryName

Artist
PK	ArtistID
	ArtistFName
	ArtistLName
	ArtistBirth
FK1	CountryID
FK2	ArtistTypeID
FK3	GenderID

Product
PK	ProductID
FK1	ProductTypeID
	ProductName
	Price

Region
| PK | RegionID |
| | RegionName |

Performance
PK	PerformanceID
FK1	ArtistID
FK2	RecordingID

Product_Type
| PK | ProductTypeID |
| | ProductTypeName |

Recording_Rating
PK	RecRatID
FK1	CustomerID
FK2	RecordingID
FK3	RatingID

Recording
PK	RecordingID
FK1	SongID
	DurationSeconds
	RecordingDate

Rating
| PK | RatingID |
| | Score |

Genre
| PK | GenreID |
| | GenreName |

Song
PK	SongID
FK1	GenreID
	SongName
	DatePublished

Revised ERD

DDL/Physical Database Design 1

Find customers meeting the following conditions:
1) male customers who visit Karaoke shop near bar in North America
2) customers who were born in 1990s and got 'Very Good' rating for their singings.

```sql
CREATE VIEW vw_cus_bar_NA_90s
AS

-- wrapper
(SELECT A.CustID, A.CustFName, A.CustLName, A.CustBirth, A.RegionName, B.RatingName, DATEDIFF(MONTH, A.CustBirth, GETDATE())/12 AS Age
FROM

(SELECT DISTINCT C.CustID, CustFName, CustLName, CustBirth, RG.RegionName
FROM tblCustomer C
    JOIN tblCustomer_Room CR ON C.CustID = C.CustID
    JOIN tblRoom R ON CR.RoomID = R.RoomID
    JOIN tblLocation L ON R.LocationID = L.LocationID
    JOIN tblRegion RG ON L.RegionID = RG.RegionID
    JOIN tblGender GN ON C.GenderID = GN.GenderID
WHERE GN.GenderName = 'Male'
AND L.LocationType = 'Bar'
AND RG.RegionName IN ('North America')) A,

(SELECT DISTINCT C.CustID, CustFName, CustLName, CustBirth, R.RatingName
FROM tblCustomer C
    JOIN tblCustomer_Room CR ON C.CustID = C.CustID
    JOIN tblRecording_Rating RR ON CR.CustRoomID = RR.CustRoomID
    JOIN tblRating R ON RR.RatingID = R.RatingID
WHERE R.RatingName IN ('Very Good')
AND YEAR(CustBirth) BETWEEN 1990 AND 1999) B

WHERE A.CustID = B.CustID)
```

SELECT * FROM vw_cus_bar_NA_90s

	CustID	CustFName	CustLName	CustBirth	RegionName	RatingName	Age
1	440028	Eliana	Lochner	1993-08-17	North America	Very Good	29
2	440032	Lida	Rhinebolt	1998-02-20	North America	Very Good	24
3	440048	Olevia	Frietas	1997-12-31	North America	Very Good	24
4	440051	Janiece	Grever	1992-05-16	North America	Very Good	30
5	440053	Marisa	Hibler	1997-09-24	North America	Very Good	24
6	440056	Keli	Golebiewski	1992-08-17	North America	Very Good	30
7	440059	Vesta	Zantow	1995-08-19	North America	Very Good	27
8	440073	Kirsten	Burwell	1990-01-30	North America	Very Good	32
9	440077	Kevin	Stellpflug	1992-06-05	North America	Very Good	30
10	440081	Kristin	Prabel	1991-05-15	North America	Very Good	31
11	440083	Eldora	Lumbreras	1991-12-04	North America	Very Good	30

2,769 rows

DDL/Physical Database Design 1 Cont.

```sql
SELECT Age, COUNT(CustID) AS NumCustomers
FROM vw_cus_bar_NA_90s
GROUP BY AGE
ORDER BY COUNT(CustID) DESC
```

	Age	NumCustomers
1	29	332
2	28	329
3	30	322
4	27	308
5	25	306
6	24	304
7	26	298
8	31	297
9	32	228
10	23	45

DDL/Physical Database Design 2

```sql
-- For the user that has the 3rd longest use time in our karoake, what is their average rating?

;WITH CTE_Cust_Use (CustID, CustFName, CustLName, UseTime, Ranking) AS (
SELECT C.CustID, CustFName, CustLName, SUM(UseTime),
RANK() OVER (ORDER BY SUM(UseTime) DESC)
FROM tblCustomer C
    JOIN tblCustomer_Room CR ON C.CustID = CR.CustID
    JOIN tblRecording_Rating RR ON CR.CustRoomID = RR.CustRoomID
GROUP BY C.CustID, CustFName, CustLName),
CTE_Cust_Rating (CustID, CustFName, CustLName, AvgRating)
AS
(SELECT C.CustID, CustFName, CustLName, Avg(RatingNumeric)
FROM tblCustomer C
    JOIN tblCustomer_Room CR ON C.CustID = CR.CustID
    JOIN tblRecording_Rating RR ON CR.CustRoomID = RR.CustRoomID
    JOIN tblRating R ON RR.RatingID = R.RatingID
GROUP BY C.CustID, CustFName, CustLName
    )
SELECT A.CustFName, A.CustLName, A.UseTime, A.Ranking, B.AvgRating FROM CTE_Cust_Use A
    JOIN CTE_Cust_Rating B ON A.CustID = B.CustID
WHERE Ranking = 3
```
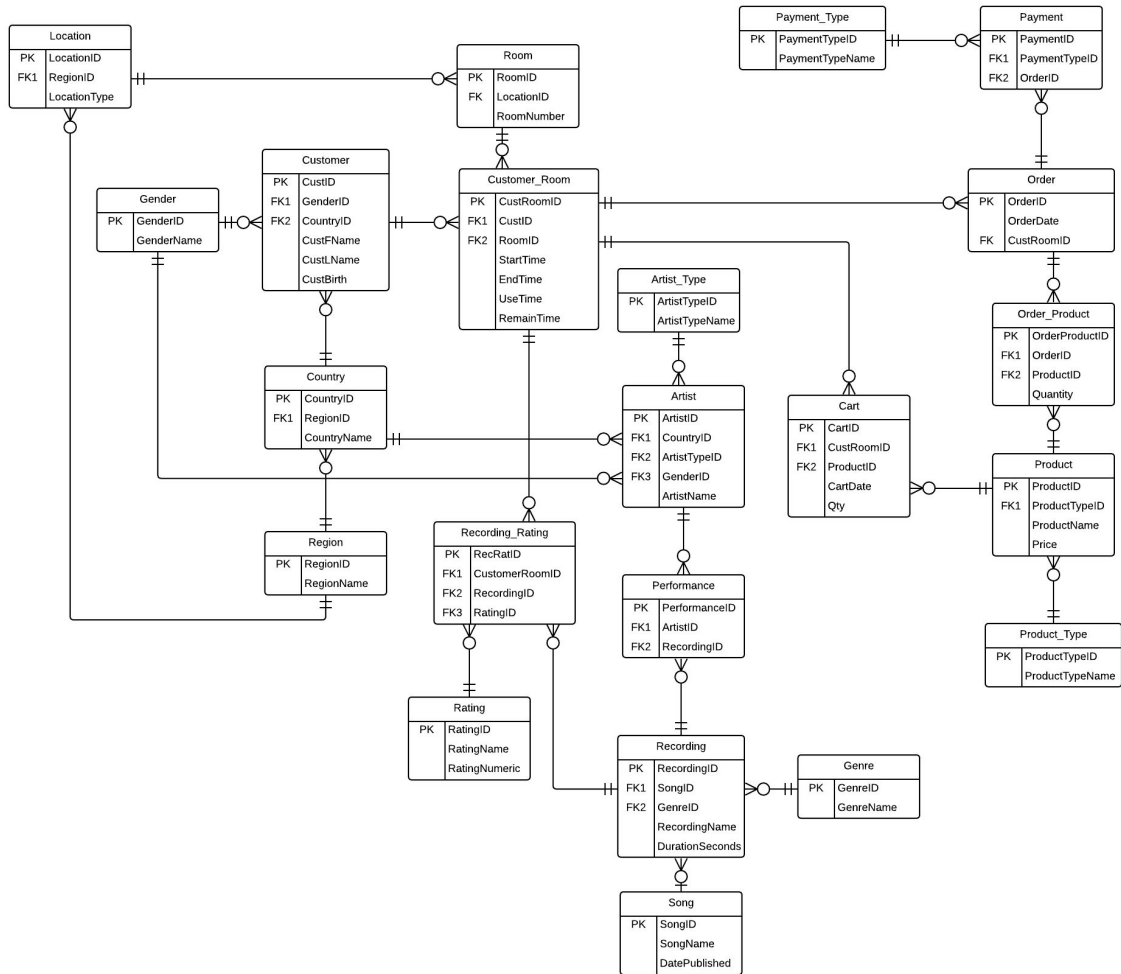
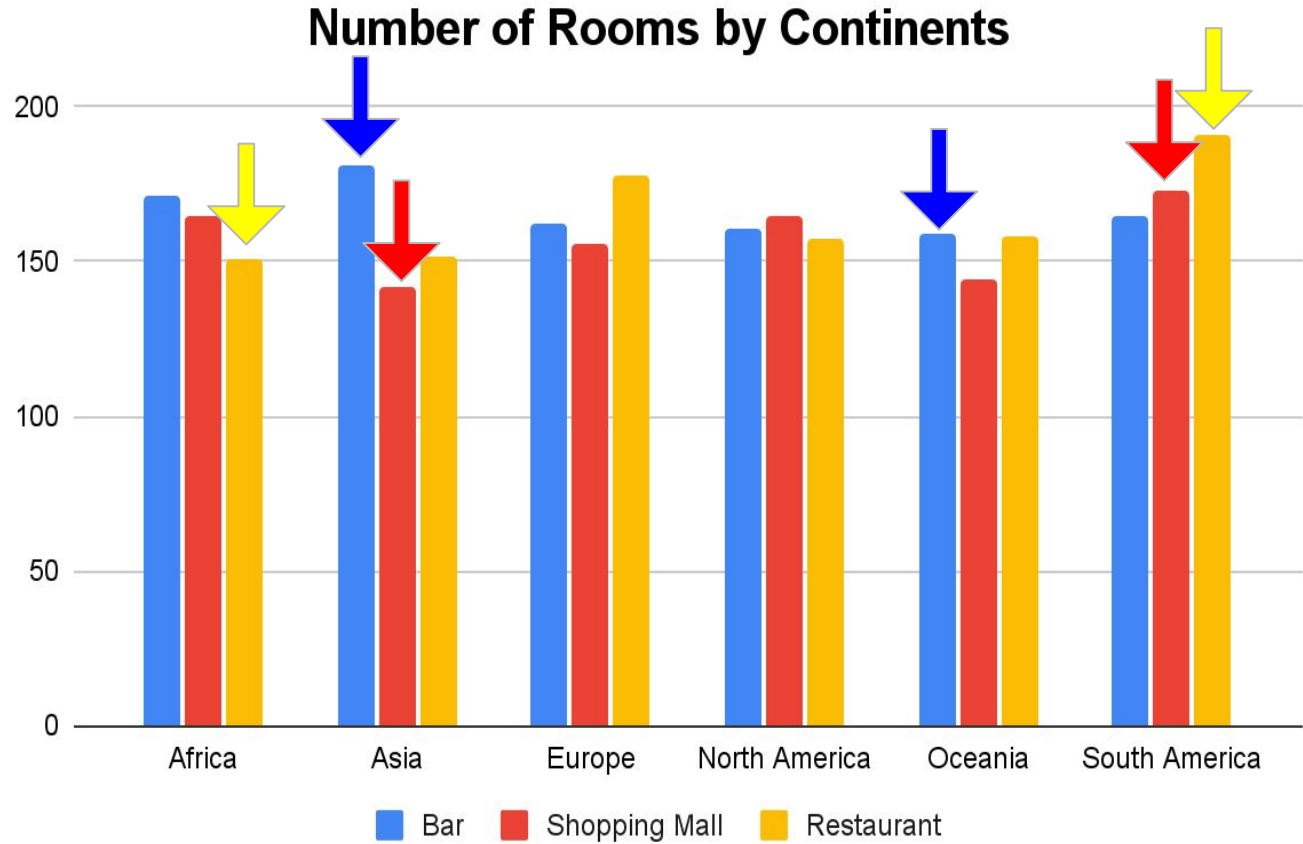|	CustFName	CustLName	UseTime	Ranking	AvgRating
1	Katherin	Grannell	171	3	2.666666

```sql
CREATE OR ALTER PROCEDURE wrapper_insert_custroom
@Run INT
AS
DECLARE @F2 varchar(30), @L2 varchar(30), @B2 DATE, @R2 varchar(4), @Start2 DATETIME, @End2 DATETIME
DECLARE @CustRowCount INT = (SELECT COUNT(*) FROM tblCustomer)
DECLARE @RoomRowCount INT = (SELECT COUNT(*) FROM tblRoom)
DECLARE @CustPK INT, @RoomPK INT
WHILE @Run > 0
BEGIN
SET @CustPK = (SELECT RAND() * @CustRowCount + 440004)
SET @F2 = (SELECT CustFName FROM tblCustomer WHERE CustID = @CustPK)
IF @F2 IS NULL
    BEGIN
        SET @F2 = 'Lashawna'
    END
SET @L2 = (SELECT CustLName FROM tblCustomer WHERE CustID = @CustPK)
IF @L2 IS NULL
    BEGIN
        SET @L2 = 'Hottle'
    END
SET @B2 = (SELECT CustBirth FROM tblCustomer WHERE CustID = @CustPK)
IF @B2 IS NULL
    BEGIN
        SET @B2 = '1967-11-06'
    END
SET @RoomPK = (SELECT RAND() * @RoomRowCount + 1)
SET @R2 = (SELECT RoomNumber FROM tblRoom WHERE RoomID = @RoomPK)
IF @R2 IS NULL
    BEGIN
        SET @R2 = 'B17E'
    END
SET @End2 = DateAdd(DAY, -rand() *900, GETDATE())
SET @Start2 = DateAdd(MINUTE, -rand() * 60, @End2)
EXEC insert_custroom
@CFName = @F2,
@CLName = @L2,
@CBirth = @B2,
@RoomNum = @R2,
@StartTime = @Start2,
@EndTime = @End2
SET @Run = @Run - 1
END

EXEC wrapper_insert_custroom @Run = 5000
```
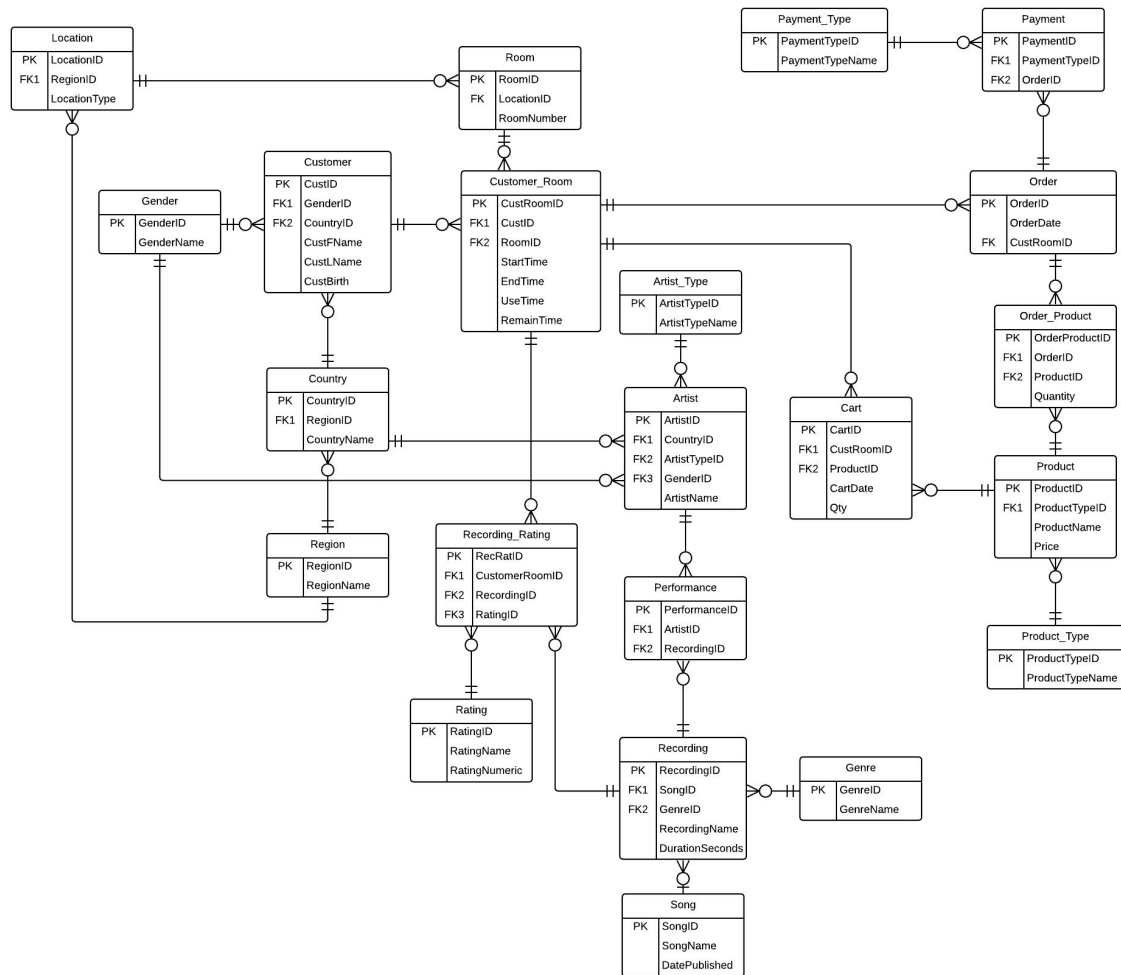
Revised ERD

Data Visualization

Number of Rooms by Continents

Challenges

Thank You!