



**Department of Electrical,  
Computer, & Biomedical Engineering**  
Faculty of Engineering & Architectural Science

<b>Course Title:</b>	Fundamentals of Data Engineering
<b>Course Number:</b>	COE 848
<b>Semester/Year (e.g.F2016)</b>	W2021

<b>Instructor:</b>	Dr. Faezeh Ensan
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<i>Assignment/Lab Number:</i>	6
<i>Assignment/Lab Title:</i>	Semi Structured Data

<i>Submission Date:</i>	April 13, 2021
<i>Due Date:</i>	April 13, 2021

<b>Student LAST Name</b>	<b>Student FIRST Name</b>	<b>Student Number</b>	<b>Section</b>	<b>Signature*</b>
Shreekant	Vatsal	500771363	01	VS

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<http://www.ryerson.ca/senate/current/pol60.pdf>

The figures included below are the tables, relationships and queries implemented in XML as representations of the Amazon.db. The XSLT files were created for arranging different parts of the XML file as well as a substitute for the conventional CSS file in an HTML project. In order to maintain the correlation between the “dump” tables in Sqlite and the XML files, the headers, rows and columns order was maintained in the figures below.

### ER Diagram:

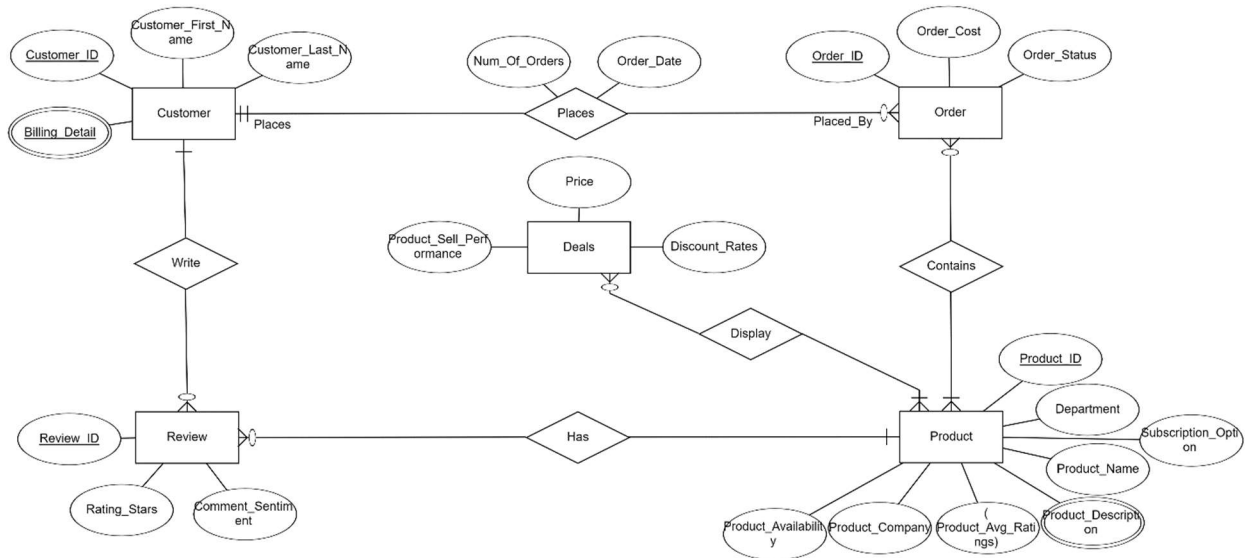


Figure 1: Entity-Relationship Diagram (ERD) of an e-commerce platform such as Amazon

**Tables:**

**Customer**

Customer_ID	Customer_First_Name	Customer_Last_Name	Num_Of_Orders
1	Elizabeth A.	Andersen	2.0
2	Bryn Paul	Dunton	4.0
3	Stuart	Glasson	6.0
4	Satomi	Hayakawa	8.0
5	Amaya	Hernandez-Echevarria	10.0
6	Madeleine	Kelley	12.0
7	Mikael	Sandberg	14.0
8	Naoki	Sato	16.0
9	Luis	Sousa	18.0
10	Cornelia	Weiler	20.0

Figure 2: Table of Customers

**Order\_Des**

Order_ID	Customer_ID	Order_Cost	Order_Status	Order_Date
1	1	100.0	Shipped	2020-12-07
2	2	200.0	Delivered	2020-11-02
3	3	300.0	In-Progress	2020-07-28
4	4	400.0	Delivered	2021-03-08
5	5	500.0	Shipped	2021-02-14
6	6	600.0	Shipped	2021-01-19
7	7	700.0	Delivered	2020-10-13
8	8	800.0	In-Progress	2020-09-11
9	9	900.0	Shipped	2021-03-11
10	10	1000.0	Shipped	2021-03-01

Figure 3: Table of Order Description

Product

Product_ID	Order_ID	Department	Subscription_Option	Product_Name	Product_Description	Product_Avg_Ratings	Product_Company	Product_Availability	Warehouse_Offering	Listing_Date
1	1	Books	Yes	Greenlights	From the Academy Award-winning actor, an unconventional memoir filled with raucous stories, outlaw wisdom, and lessons learned the hard way about living with greater satisfaction.	4.0	Matthew McConaughey	No	Yes	2020-06-06
2	2	Video Games	No	Grand Theft Auto V	Grand Theft Auto V Premium Online Edition - PlayStation 4 Standard Edition	4.0	Rockstar Games	Yes	No	2020-12-24
3	3	Music	Yes	After Hours	The Weeknds latest chapter After Hours which features the global hit Blinding Lights.	5.0	The Weeknd	No	No	2020-06-30
4	4	Electronics	No	SAMSUNG 27-inch M5 Smart Monitor	Monitor with Mobile Connectivity, FHD, Remote Access, Office 365 (LS27AM500NNXZA), Black	5.0	Samsung	No	Yes	2020-08-04
5	5	Health & Beauty	Yes	CALVIN KLEIN CKIN2U	Eau De Toilette For Him 50Ml	4.0	Calvin Klein	Yes	No	2020-08-05
6	6	Grocery	Yes	McCafe K-Cup pod	McCafe Premium Roast Medium Dark Single Serve Keurig Certified Recyclable K-Cup pods for Keurig Brewers, 48 Count	5.0	McDonalds	No	No	2020-08-08
7	7	Men's Clothing	No	Flannel Shirt	Amazon Essentials Men's Slim-Fit Long-Sleeve Plaid Flannel Shirt	3.0	Amazon Essentials	Yes	Yes	2020-08-09
8	8	Sports	No	Golf Balls	PrideSports Practice Golf Balls, Foam, 12-Count, Yellow	3.0	PrideSports	Yes	Yes	2020-08-10
9	9	Automotive	No	Michelin Tires	Michelin Anakee III Radial Tire - 120/70R19 60V	5.0	Michelin	No	No	2020-08-01
10	10	Electronics	No	Samsung Ear Buds	Samsung Galaxy Buds Live - Black, SM-R180NZKAXAC	5.0	Samsung	Yes	No	2020-08-06

Figure 4: Table of Products

Deals

Deal_ID	Product_ID	Product_Sell_Performance	Price
1	1	Best-Seller	90.0
2	2	Best-Seller	180.0
3	3	Avg-Seller	240.0
4	4	Best-Seller	360.0
5	5	Worse-Seller	300.0
6	6	Best-Seller	560.0
7	7	Avg-Seller	560.0
8	8	Best-Seller	720.0
9	9	Avg-Seller	720.0
10	10	Best-Seller	700.0

Figure 5: Table of Deals

## Review

Review_ID	Customer_ID	Product_ID	Rating_Stars	Comment_Sentiment
1	1	1	4.0	Good
2	2	2	4.0	Moderate
3	3	3	5.0	Good
4	4	4	5.0	Good
5	5	5	4.0	Moderate
6	6	6	5.0	Good
7	7	7	3.0	Moderate
8	8	8	3.0	Bad
9	9	9	5.0	Good
10	10	10	3.0	Moderate

Figure 6: Table of Reviews

## Billing\_Detail

Billing_ID	Customer_ID	Street_Num	Street_Name	Postal_Code	City	Province	Country
1	1	123	1st Street	99999	Seattle	WA	USA
2	2	123	2nd Street	99999	Boston	MA	USA
3	3	123	3rd Street	99999	Los Angelas	CA	USA
4	4	123	4th Street	99999	New York	NY	USA
5	5	123	5th Street	99999	Minneapolis	MN	USA
6	6	123	6th Street	99999	Milwaukee	WI	USA
7	7	123	7th Street	99999	Boise	ID	USA
8	8	123	8th Street	99999	Portland	OR	USA
9	9	123	9th Street	99999	Salt Lake City	UT	USA
10	10	123	10th Street	99999	Chicago	IL	USA

Figure 7: Table of Billing Detail

**Relationships:**

**Places**

Customer_ID	Order_ID	Num_Of_Orders	Order_Date
1	1	2	2020-12-07
2	2	4	2020-11-02
3	3	6	2020-07-28
4	4	8	2021-03-08
5	5	10	2021-02-14
6	6	12	2021-01-19
7	7	14	2020-10-13
8	8	16	2020-09-11
9	9	18	2021-03-11
10	10	20	2021-03-01

Figure 8: Table of 'Places' Relationship

**Contains**

Order_ID	Product_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Figure 9: Table of 'Contains' Relationship

## Display

Deal_ID	Product_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Figure 10: Table of 'Display' Relationship

## Has

Product_ID	Review_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Figure 11: Table of 'Has' Relationship

## Write

Review_ID	Customer_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Figure 12: Table of ‘Write’ Relationship

## Queries:

qry\_1

Product_ID	Product_Name	Product_Description	Department	Product_Company
1	Greenlights	From the Academy Award®-winning actor, an unconventional memoir filled with raucous stories, outlaw wisdom, and lessons learned the hard way about living with greater satisfaction.	Books	Matthew McConaughey
2	Grand Theft Auto V	Grand Theft Auto V Premium Online Edition - PlayStation 4 Standard Edition	Video Games	Rockstar Games
3	After Hours	The Weeknd's latest chapter, After Hours which features the global hits "Heartless" and "Blinding Lights".	Music	The Weeknd
4	SAMSUNG 27-inch M5 Smart Monitor	Monitor with Mobile Connectivity, FHD, Remote Access, Office 365 (LS27AM500NNXZA), Black	Electronics	Samsung
5	CALVIN KLEIN CKIN2U	Eau De Toilette For Him 50ml	Health & Beauty	Calvin Klein
6	McCafe K-Cup pod	McCafe Premium Roast Medium Dark Single Serve Keurig Certified Recyclable K-Cup pods for Keurig Brewers, 48 Count	Grocery	McDonalds
7	Flannel Shirt	Amazon Essentials Men's Slim-Fit Long-Sleeve Plaid Flannel Shirt	Men's Clothing	Amazon Essentials
8	Golf Balls	PrideSports Practice Golf Balls, Foam, 12-Count, Yellow	Sports	PrideSports
9	Michelin Tires	Michelin Anakee III Radial Tire - 120/70R19 60V	Automotive	Michelin
10	Samsung Ear Buds	Samsung Galaxy Buds Live - Black, SM-R180NZKAXAC	Electronics	Samsung

Figure 13: Query #1: Products offered on the company website, their description, their category and their manufacturer.



## qry\_2

Product_ID	Product_Name	Product_Avg_Ratings
3	After Hours	5
4	SAMSUNG 27-inch M5 Smart Monitor	5
6	McCafe K-Cup pod	5
9	Michelin Tires	5
10	Samsung Ear Buds	5
1	Greenlights	4
2	Grand Theft Auto V	4
5	CALVIN KLEIN CKIN2U	4
7	Flannel Shirt	3
8	Golf Balls	3

Figure 14: Query #2: Products listed by their ratings.

## qry\_3

Product_ID	Product_Name	Product_Company	Product_Avg_Ratings
3	After Hours	The Weeknd	5
4	SAMSUNG 27-inch M5 Smart Monitor	Samsung	5
6	McCafe K-Cup pod	McDonalds	5
9	Michelin Tires	Michelin	5
10	Samsung Ear Buds	Samsung	5
1	Greenlights	Matthew McConaughey	4
2	Grand Theft Auto V	Rockstar Games	4
5	CALVIN KLEIN CKIN2U	Calvin Klein	4
7	Flannel Shirt	Amazon Essentials	3
8	Golf Balls	PrideSports	3

Figure 15: Query #3: Are highly rated products built by the same manufacturer?

## qry\_4

Product_ID	Product_Name	Subscription_Option
1	Greenlights	Yes
3	After Hours	Yes
5	CALVIN KLEIN CKIN2U	Yes
6	McCafe K-Cup pod	Yes

Figure 16: Query #4: The products that are bought by the customers on a daily basis.

## qry\_5

Product_ID	Product_Name	Product_Sell_Performance
5	CALVIN KLEIN CKIN2U	Worse-Seller

Figure 17: Query #5: In the event of a sale/discount day, which products are the least bought?

## qry\_6

Product_ID	Product_Name	Warehouse_Offering
1	Greenlights	Yes
4	SAMSUNG 27-inch M5 Smart Monitor	Yes
7	Flannel Shirt	Yes
8	Golf Balls	Yes

Figure 18: Query #6: What products are offered through the company warehouse and not from the manufacturer?

## qry\_7

Product_ID	Product_Name	Product_Availability	Rating_Stars	Comment_Sentiment
1	Greenlights	No	4	Good
3	After Hours	No	5	Good
4	SAMSUNG 27-inch M5 Smart Monitor	No	5	Good
6	McCafe K-Cup pod	No	5	Good
9	Michelin Tires	No	5	Good

Figure 19: Query #7: What products are out of stock and in customer demand?

## qry\_8

Product_ID	Product_Name	Subscription_Option
1	Greenlights	Yes
2	Grand Theft Auto V	No
3	After Hours	Yes
4	SAMSUNG 27-inch M5 Smart Monitor	No
5	CALVIN KLEIN CKIN2U	Yes
6	McCafe K-Cup pod	Yes
7	Flannel Shirt	No
8	Golf Balls	No
9	Michelin Tires	No
10	Samsung Ear Buds	No

Figure 20: Query #8: Products that offer a subscription service in lieu of a one-time purchase.

## qry\_9

Product_ID	Product_Name	Listing_Date
2	Grand Theft Auto V	2020-12-24

Figure 21: Query #9: Products that are released 1 day before the stat holidays.

## qry\_10

Product_ID	Product_Name	Rating_Stars	Comment_Sentiment
1	Greenlights	4	Good
2	Grand Theft Auto V	4	Moderate
3	After Hours	5	Good
4	SAMSUNG 27-inch M5 Smart Monitor	5	Good
5	CALVIN KLEIN CKIN2U	4	Moderate
6	McCafe K-Cup pod	5	Good
7	Flannel Shirt	3	Moderate
8	Golf Balls	3	Bad
9	Michelin Tires	5	Good
10	Samsung Ear Buds	3	Moderate

Figure 22: Query #10: The products associated with concerning reviews and high rating.

### Amazondatabase.xml Schema:

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