

# Result Screenshots 1-27 & Answers 28-32

1. 1110 row affected.

	PersonID	FullName	PhoneNumber	FaxNumber	company_phone	company_fax	company
1	2	Kayla Woodcock	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
2	3	Hudson Onslow	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
3	4	Isabella Rupp	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
4	5	Eva Muirden	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
5	6	Sophia Hinton	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
6	7	Amy Trefl	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
7	8	Anthony Grosse	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
8	9	Alica Fatnowna	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
9	10	Stella Rosenhain	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
10	11	Ethan Onslow	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
11	12	Henry Forlonge	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
12	13	Hudson Hollinworth	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
13	14	Lily Code	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
14	15	Taj Shand	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
15	16	Archer Lamble	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
16	17	Piper Koch	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
17	18	Katie Darwin	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
18	19	Jai Shand	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
19	20	Jack Potter	(415) 555-0102	(415) 555-0103	(415) 555-0102	(415) 555-0103	wideworldimporters
20	21	Reio Kabin	(847) 555-0100	(847) 555-0101	(847) 555-0100	(847) 555-0101	A Datum Corporati...
21	22	Oliver Kivi	(847) 555-0100	(847) 555-0101	(847) 555-0100	(847) 555-0101	A Datum Corporati...
22	23	Hanna Mihhailov	(360) 555-0100	(360) 555-0101	(360) 555-0100	(360) 555-0101	Contoso, Ltd.
23	24	Paulus Lippmaa	(360) 555-0100	(360) 555-0101	(360) 555-0100	(360) 555-0101	Contoso, Ltd.
24	25	Kerstin Parn	(415) 555-0100	(415) 555-0101	(415) 555-0100	(415) 555-0101	Consolidated Mess...
25	26	Helen Ahven	(415) 555-0100	(415) 555-0101	(415) 555-0100	(415) 555-0101	Consolidated Mess...
26	27	Bill Lawson	(203) 555-0107	(203) 555-0107	(203) 555-0104	(203) 555-0108	Fabrikam, Inc.
27	28	Helen Moore	(203) 555-0104	(203) 555-0107	(203) 555-0104	(203) 555-0108	Fabrikam, Inc.
28	29	Penny Buck	(406) 555-0107	(406) 555-0109	(406) 555-0105	(406) 555-0106	Graphic Design In...
29	30	Donna Smith	(406) 555-0101	(406) 555-0109	(406) 555-0105	(406) 555-0106	Graphic Design In...
30	31	Madelaine Cartier	(423) 555-0101	(423) 555-0100	(423) 555-0105	(423) 555-0100	Humongous Insuran...
31	32	Annette Talon	(423) 555-0106	(423) 555-0100	(423) 555-0105	(423) 555-0100	Humongous Insuran...
32	33	Elias Myllari	(209) 555-0101	(209) 555-0106	(209) 555-0108	(209) 555-0104	Litware, Inc.
33	34	Vilma Niva	(209) 555-0103	(209) 555-0106	(209) 555-0108	(209) 555-0104	Litware, Inc.
34	35	Prem Prabhu	(423) 555-0102	(423) 555-0108	(423) 555-0103	(423) 555-0105	Lucerne Publishing
35	36	Sunita Jadhav	(423) 555-0101	(423) 555-0108	(423) 555-0103	(423) 555-0105	Lucerne Publishing
36	37	Marcos Costa	(252) 555-0106	(252) 555-0101	(252) 555-0100	(252) 555-0101	Nod Publishers
37	38	Matheus Oliveira	(252) 555-0107	(252) 555-0101	(252) 555-0100	(252) 555-0101	Nod Publishers
38	39	Eliza Soderberg	(201) 555-0101	(201) 555-0106	(201) 555-0105	(201) 555-0104	Northwind Electrici...

2. (663 rows affected)

	CustomerName	▼
1	Tailspin Toys (Head Office)	
2	Tailspin Toys (Sylvanite, MT)	
3	Tailspin Toys (Peeples Valley, AZ)	
4	Tailspin Toys (Medicine Lodge, KS)	
5	Tailspin Toys (Gasport, NY)	
6	Tailspin Toys (Jessie, ND)	
7	Tailspin Toys (Frankewing, TN)	
8	Tailspin Toys (Bow Mar, CO)	
9	Tailspin Toys (Netcong, NJ)	
10	Tailspin Toys (Wimbledon, ND)	
11	Tailspin Toys (Devault, PA)	
12	Tailspin Toys (Biscay, MN)	
13	Tailspin Toys (Stonefort, IL)	
14	Tailspin Toys (Long Meadow, MD)	
15	Tailspin Toys (Batson, TX)	
16	Tailspin Toys (Coney Island, MO)	
17	Tailspin Toys (East Fultonham, OH)	
18	Tailspin Toys (Goffstown, NH)	
19	Tailspin Toys (Lemeta, AK)	
20	Tailspin Toys (College Place, WA)	
21	Tailspin Toys (Tresckow, PA)	

3. (0 rows affected)

Results	Messages
CustomerID	▼

4.(219 rows affected)

Results Messages

	StockItemID	StockItemName	quantity_...
1	1	USB missile launcher (Green)	88
2	2	USB rocket launcher (Gray)	83
3	3	Office cube periscope (Black)	150
4	4	USB food flash drive - sushi roll	104
5	5	USB food flash drive - hamburger	99
6	6	USB food flash drive - hot dog	98
7	7	USB food flash drive - pizza slice	102
8	8	USB food flash drive - dim sum 10 drive variety pack	204
9	9	USB food flash drive - banana	96
10	10	USB food flash drive - chocolate bar	111
11	11	USB food flash drive - cookie	102
12	12	USB food flash drive - donut	101
13	13	USB food flash drive - shrimp cocktail	99
14	14	USB food flash drive - fortune cookie	97
15	15	USB food flash drive - dessert 10 drive variety pack	196
16	16	DBA joke mug - mind if I join you? (White)	28
17	17	DBA joke mug - mind if I join you? (Black)	33
18	18	DBA joke mug - daaaaaa-ta (White)	46
19	19	DBA joke mug - daaaaaa-ta (Black)	36
20	20	DBA joke mug - you might be a DBA if (White)	35
21	21	DBA joke mug - you might be a DBA if (Black)	36
22	22	DBA joke mug - it depends (White)	38
23	23	DBA joke mug - it depends (Black)	30
24	24	DBA joke mug - I will get you in order (White)	31

5.(227 rows affected)

	StockItemID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
1...	10
1...	11
1...	12
1...	13
1...	14
1...	15
1...	16
1...	17
1...	18
1...	19
2...	20

6. (219 rows affected)

	StockItemID ▾
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27

7. (53 rows affected)

	StateProvinceID ▾	avg_processing_days ▾
1	1	5
2	2	5
3	3	6
4	4	4
5	5	5
6	6	4
7	7	4
8	8	NULL
9	9	NULL
1...	10	4
1...	11	3
1...	12	4
1...	13	5
1...	14	4
1...	15	7
1...	16	4
1...	17	4
1...	18	3
1...	19	5
2...	20	4

8. (592 rows affected)

	StateProvinceID ▾	month ▾	avg_processing_days ▾
1	1	1	10
2	1	2	2
3	1	3	3
4	1	4	4
5	1	5	3
6	1	6	2
7	1	7	11
8	1	8	1
9	1	9	3
10	1	10	5
11	1	11	11
12	1	12	5
13	2	1	1
14	2	2	1
15	2	3	1
16	2	4	2
17	2	5	5
18	2	6	4
19	2	7	4
20	2	8	8
21	2	9	13
22	2	10	5
23	2	11	13

9.(9 rows affected)

results messages

	StockItemID ▾
1	77
2	78
3	80
4	86
5	95
6	98
7	184
8	193
9	204

10. (6 rows affected)

	CustomerID	Phon...	PrimaryContactName
1	107	(209) 5...	Karie Mercier
2	171	(201) 5...	Raymond Levesque
3	194	(239) 5...	Thomas Fischer
4	412	(406) 5...	Chati Ornlamai
5	902	(210) 5...	Kamila Michnova
6	947	(206) 5...	Svetlana Todorovic

11. (13 rows affected)

	CityID	CityName
1	164	Adrian
2	5368	Carlton
3	9908	East Smithfield
4	11095	Fairfax
5	18834	Laupahoehoe
6	21614	McWhorter
7	24452	Norborne
8	24608	North Granby
9	27500	Pondosa
10	28862	Richvale
11	32517	Springville
12	33997	Throop
13	34934	Urbancrest

12.(367 rows affected)

	StockItemName	delivery_address	delivery_country	delivery_state	delivery_city	CustomerN...	customer_contact_name	customer_phone	Quantity
1	DBA joke mug - tw...	Unit 193, 583 Aluri Road, 98726	United States	Puerto Rico (US Terr...	Rosa Sánchez	Wingtip Toys ..	Selma Seppanen	(787) 555-0100	7
2	Developer joke mu...	Suite 255, 299 Gill Boulevard, 90567	United States	Louisiana	Donner	Tailspin Toys...	Kurt Lukes	(225) 555-0100	7
3	Developer joke mu...	Unit 61, 474 Tran Lane, 90124	United States	New York	Arietta	Tailspin Toys...	Chandrakanta Raut	(212) 555-0100	7
4	DBA joke mug - SE...	Suite 14, 731 Szolosz Crescent, 98468	United States	Washington	Venersborg	Svetlana Todo...	Svetlana Todorovic	(206) 555-0100	1
5	IT joke mug - tha...	Suite 183, 796 Zwaigzne Boulevard, 98603	United States	Alaska	Haycock	Wingtip Toys ..	Bhaamini Kanaparathi	(907) 555-0100	1
6	Developer joke mu...	Unit 32, 917 Morgan Boulevard, 90782	United States	California	Glen Avon	Tailspin Toys...	Karie Mercier	(209) 555-0100	1
7	DBA joke mug - tw...	Unit 148, 1161 Chang Lane, 90540	United States	New Jersey	Absecon	Tailspin Toys...	Sang Tran	(201) 555-0100	2
8	DBA joke mug - tw...	Unit 15, 685 Pavel Road, 90012	United States	Alabama	Southside	Manca Hrastov...	Manca Hrastovsek	(205) 555-0100	2
9	DBA joke mug - yo...	Unit 13, 1331 Sen Street, 98665	United States	Kansas	Coffeyville	Dena Glissen	Dena Glissen	(316) 555-0100	2
1..	Developer joke mu...	Suite 4, 438 Desforges Road, 98686	United States	Maine	Edgecomb	Dhaatri Chavva	Dhaatri Chavva	(207) 555-0100	2
1..	IT joke mug - har...	Shop 11, 965 Horackova Lane, 98718	United States	New York	Greig	Kertu Sokk	Kertu Sokk	(212) 555-0100	9
1..	DBA joke mug - yo...	Shop 20, 1046 Saucier Road, 90032	United States	Ohio	East Fultonham	Wingtip Toys ..	Masa Buecek	(216) 555-0100	8
1..	DBA joke mug - tw...	Unit 206, 1898 Kasesalu Boulevard, 98579	United States	Maine	Wallagrass	Tailspin Toys...	Laboni Deb	(207) 555-0100	4
1..	Developer joke mu...	Suite 4, 438 Desforges Road, 98686	United States	Maine	Edgecomb	Dhaatri Chavva	Dhaatri Chavva	(207) 555-0100	4
1..	Developer joke mu...	Unit 90, 1648 Mitra Lane, 98080	United States	Texas	Oak Point	Wingtip Toys ..	Duangrat Atitarn	(210) 555-0100	4
1..	DBA joke mug - it...	Suite 243, 328 Bhat Street, 90213	United States	Puerto Rico (US Terr...	Aceitunas	Tailspin Toys...	Eekalabya Bose	(787) 555-0100	4
1..	Developer joke mu...	Unit 61, 474 Tran Lane, 90124	United States	New York	Arietta	Tailspin Toys...	Chandrakanta Raut	(212) 555-0100	3
1..	Developer joke mu...	Suite 191, 1924 Spousta Lane, 98498	United States	Puerto Rico (US Terr...	Corcovado	Wingtip Toys ..	Harri Kask	(787) 555-0100	3

13. (9 rows affected)

	StockGroupID	purchased_quantity	sold_quantity	remaining_stock_quantity
1	1	10992	1168276	-1157284
2	2	90923747	2842918	88080829
3	3	1442	244010	-242568
4	4	90920724	1800072	89120652
5	6	90923896	2181299	88742597
6	7	1580	81057	-79477
7	8	1390	395849	-394459
8	9	1313	121360	-120047
9	10	48485018	5838043	42646975

14. (2952 rows affected)

	CityID	StockitemID	deliveries
1	15	72	2
2	15	20	2
3	15	117	2
4	15	123	2
5	15	162	2
6	15	9	2
7	15	156	2
8	49	107	2
9	49	57	2
10	49	72	2
11	54	35	3
12	58	1	3
13	232	173	2
14	232	171	2
15	232	79	2
16	242	183	3
17	242	1	3
18	242	199	3
19	242	114	3
20	242	47	3
21	242	220	3
22	242	2	3
23	357	27	2
24	357	132	2
25	357	172	2
26	372	201	2
27	372	145	2
28	377	50	2

15.(0 rows affected)

OrderID
---------

16. (207 rows affected)

	StockItemID	▼
1	1	
2	2	
3	3	
4	16	
5	17	
6	18	
7	19	
8	20	
9	21	
10	22	
11	23	
12	24	
13	25	
14	26	
15	27	
16	28	

17.(2 rows affected)

	CountryOfManuf...	▼	stockitem...	▼
1	China		2850885	
2	Japan		22365	

18.(9 rows affected)

	StockGroupName	▼	2013	▼	2014	▼	2015	▼	2016	▼	2017	▼
1	Clothing		767341		831573		889178		354826		NULL	
2	Computing Novelties		588555		639315		677480		275949		NULL	
3	Furry Footwear		107839		112845		125924		49241		NULL	
4	Mugs		65713		70384		77268		30645		NULL	
5	Novelty Items		276609		306077		328677		256913		NULL	
6	Packaging Materials		1572415		1694778		1826433		744417		NULL	
7	Toys		32266		35403		38303		15388		NULL	
8	T-Shirts		486924		528096		558144		226908		NULL	
9	USB Novelties		21328		23685		26048		9996		NULL	

19. (2 rows affected)



	year_	Clothing	Computing Novelties	Furry Footwear	Mugs	Novelty Items	Packaging Materials	Toys	T-Shirts	USB Novelties
1	2013	767341	588555	107839	65713	276609	1572415	32266	486924	21328
2	2014	831573	639315	112845	70384	306077	1694778	35403	528096	23685
3	2015	889178	677480	125924	77268	328677	1826433	38303	558144	26048
4	2016	354826	275949	49241	30645	256913	744417	15388	226908	9996

20.(70510 rows affected)

CreditNot.	Comments	DeliveryL	InternalC	TotalDryL	TotalChil	DeliveryR	RunPositi	ReturnedID	Confirmed	Confirmed	LastEdit	LastEdit	OrderID	OrderTotal
NULL	NULL	Suite 24, 134.	NULL	1	0			{“Events”: [ {	2013-01-02 07.	Aakriti Byrra.	15	2013-01-02 07.	1	2380.00
NULL	NULL	Unit 7, 844 H.	NULL	2	0			{“Events”: [ {	2013-01-02 07.	Bala Dixit	15	2013-01-02 07.	2	485.00
NULL	NULL	Unit 68, 1150.	NULL	1	0			{“Events”: [ {	2013-01-02 07.	Sung-Hwan Hwa.	15	2013-01-02 07.	3	90.00
NULL	NULL	Unit 136, 133.	NULL	3	0			{“Events”: [ {	2013-01-02 07.	Aile Mae	15	2013-01-02 07.	4	445.20
NULL	NULL	Shop 30, 1476.	NULL	3	0			{“Events”: [ {	2013-01-02 07.	Sara Hulting	15	2013-01-02 07.	5	784.00
NULL	NULL	Suite 6, 244 .	NULL	3	0			{“Events”: [ {	2013-01-02 07.	Aline Mates	15	2013-01-02 07.	6	430.00
NULL	NULL	Shop 227, 178.	NULL	4	0			{“Events”: [ {	2013-01-02 07.	Dattaatraeya .	15	2013-01-02 07.	7	603.50
NULL	NULL	Suite 24, 130.	NULL	3	0			{“Events”: [ {	2013-01-02 07.	Ingrida Zelti.	15	2013-01-02 07.	8	250.00
NULL	NULL	Unit 176, 167.	NULL	2	0			{“Events”: [ {	2013-01-02 07.	Airi Vassiljev	15	2013-01-02 07.	9	178.00
NULL	NULL	Suite 169, 94.	NULL	2	0			{“Events”: [ {	2013-01-02 07.	Ester Ahmadian	15	2013-01-02 07.	10	104.00
NULL	NULL	Shop 204, 167.	NULL	1	0			{“Events”: [ {	2013-01-02 07.	Anete Kundzina	15	2013-01-02 07.	11	13.00
NULL	NULL	Suite 270, 12.	NULL	2	0			{“Events”: [ {	2013-01-02 08.	Seo-yeon Rim	15	2013-01-02 07.	12	229.00
NULL	NULL	Suite 203, 22.	NULL	2	0			{“Events”: [ {	2013-01-02 08.	Doru Munteanu	15	2013-01-02 07.	13	2430.00
NULL	NULL	Shop 10, 353 .	NULL	3	0			{“Events”: [ {	2013-01-02 08.	In-Su Bae	15	2013-01-02 07.	14	650.00
NULL	NULL	Suite 10, 129.	NULL	2	0			{“Events”: [ {	2013-01-02 08.	Valter Viiding	15	2013-01-02 07.	15	174.00
NULL	NULL	Unit 212, 183.	NULL	1	0			{“Events”: [ {	2013-01-02 08.	Lan Chu	15	2013-01-02 07.	16	68.00
NULL	NULL	Unit 18, 469 .	NULL	2	0			{“Events”: [ {	2013-01-02 08.	Elena Kaleja	15	2013-01-02 07.	17	424.00
NULL	NULL	Suite 7, 493 .	NULL	1	0			{“Events”: [ {	2013-01-02 08.	Seo-yun Paik	15	2013-01-02 07.	19	91.00
NULL	NULL	Suite 25, 174.	NULL	3	0			{“Events”: [ {	2013-01-02 08.	Kumar Kamei	15	2013-01-02 07.	20	3185.00
NULL	NULL	Unit 17, 1957.	NULL	1	0			{“Events”: [ {	2013-01-02 08.	Anindya Ghatak	15	2013-01-02 07.	22	240.00
NULL	NULL	Unit 235, 822.	NULL	3	0			{“Events”: [ {	2013-01-02 08.	Raju Atluri	15	2013-01-02 07.	23	535.00

21. (394 rows affected)

	OrderID	OrderDate	OrderTotal	CustomerID
1	18	2013-01-01	2534.00	423
2	68	2013-01-01	864.00	972
3	43	2013-01-01	648.00	1000
4	33	2013-01-01	100.00	567
5	19	2013-01-01	91.00	949
6	53	2013-01-01	11988.00	586
7	73	2013-01-01	1420.00	431
8	36	2013-01-01	32.40	10
9	66	2013-01-01	1850.00	89
10	65	2013-01-01	1908.00	484
11	38	2013-01-01	200.00	431
12	72	2013-01-01	463.20	10
13	13	2013-01-01	2430.00	473
14	32	2013-01-01	373.00	972
15	15	2013-01-01	174.00	991
16	47	2013-01-01	11020.00	105
17	79	2013-01-01	420.00	415
18	45	2013-01-01	5600.00	832
19	51	2013-01-01	432.00	77
20	24	2013-01-01	3182.00	890
21	44	2013-01-01	270.00	415
...	76	2013-01-01	6420.00	910

[illegible]

23.

24.

	JSON_F52E2B61-18A1-11d1-B105-00805F49916B	
1	{ "Year StockGroup JSON": { "year": 2013, "Clothing": 767341, "Computing Novelties": 588555, "Furry Footwear": 107839, "Mugs": 65713, "Novelty Items": 276609, "Packagin...	

```

"Year_StockGroup_JSON": [
  {
    "year_": 2013,
    "Clothing": 767341,
    "Computing Novelties": 588555,
    "Furry Footwear": 107839,
    "Mugs": 65713,
    "Novelty Items": 276609,
    "Packaging Materials": 1572415,
    "Toys": 32266,
    "T-Shirts": 486924,
    "USB Novelties": 21328
  },
  {
    "year_": 2014,
    "Clothing": 831573,
    "Computing Novelties": 639315,
    "Furry Footwear": 112845,
    "Mugs": 70384,
    "Novelty Items": 306077,
    "Packaging Materials": 1694778,
    "Toys": 35403,
    "T-Shirts": 528096,
    "USB Novelties": 23685
  },
  {
    "year_": 2015,
    "Clothing": 889178,
    "Computing Novelties": 677480,
    "Furry Footwear": 125924,
    "Mugs": 77268,
    "Novelty Items": 328677,
    "Packaging Materials": 1826433,
    "Toys": 38303,
    "T-Shirts": 558144,
    "USB Novelties": 26048
  },
  {
    "year_": 2016,
    "Clothing": 354826,
    "Computing Novelties": 275949,
    "Furry Footwear": 49241,
    "Mugs": 30645,
    "Novelty Items": 256913,
    "Packaging Materials": 744417,
    "Toys": 15388,
    "T-Shirts": 226908,
    "USB Novelties": 9996
  }
]

```

26.

XML_F52E2B61-18A1-11d1-B105-00805F49916B	
1	<Year_StockGroup_XML><row><Clothing>767341</Clothing><Computing Novelties>588555</Computing Novelties><Furry Footwear>107839...

```

<Year_StockGroup_XML>
  <row>
    <Clothing>
      767341
    </Clothing>
    <Computing_Novelties>
      588555
    </Computing_Novelties>
    <Furry_Footwear>
      107839
    </Furry_Footwear>
    <Mugs>
      65713
    </Mugs>
    <Novelty_Items>
      276609
    </Novelty_Items>
    <Packaging_Materials>
      1572415
    </Packaging_Materials>
    <Toys>
      32266
    </Toys>
    <T-Shirts>
      486924
    </T-Shirts>
    <USB_Novelties>
      21328
    </USB_Novelties>
  </row>
  <row>
    <Clothing>
      831573
    </Clothing>
    <Computing_Novelties>
      639315
    </Computing_Novelties>
    <Furry_Footwear>
      112845
    </Furry_Footwear>
    <Mugs>
      70384
    </Mugs>
    <Novelty_Items>
      306077
    </Novelty_Items>
    <Packaging_Materials>
      1694778
    </Packaging_Materials>
    <Toys>
      35403
    </Toys>
    <T-Shirts>
      528096
    </T-Shirts>
    <USB_Novelties>
      23685
  </row>

```

27.

28. Write a short essay talking about your understanding of transactions, locks and isolation levels.

A transaction is the logical work unit that performs a single activity or multiple activities in a database to read, write, update or delete data. Most Transactions happen in OLTP database and are normally not the responsibilities or in the workload for Data Engineers unless you want to use some DML to change the data, but it's better to know how it works.

Transactions have two outcomes, either all statements made in the transaction get committed or all rolled back. Transactions must obey ACID principles to successfully commit, which are atomicity, consistency, isolation and durability. **Atomicity** means all or nothing. If your request or command wrapped inside of the transaction to be executed by the relational database engine, the execution would be either all or nothing. If two select statements wrapped in a single transaction, either they all go through or none of them go through. Atomicity prevent data loss or corruption from occurring. **Consistency** means transactions do not violate data integrity and constraints. Transactions only make changes to tables in predefined, predictable ways. Primary key/foreign key, not null, unique constraints, etc must be kept in a consistent state during and at the end of the transactions. **Isolation** means different transactions are isolated, independent of each other. Even though they may be occurring simultaneously, concurrent transactions

must not interfere with or affect one another. **Durability** means any changes made by transactions should be permanently saved in some physical hard drive, not matter what happens. Either it's system failure, power shortage, network issue or else, the results should be permanently saved.

It's usually the case that transactional database system need to run different transactions at the same time, and this is where concurrency issues and concurrency controls come into play. Concurrency issues are potential problems that may occur from multiple transactions running simultaneously in an uncontrolled manner. To prevent concurrency issue from occurring, we have concurrency controls, including pessimistic concurrency control and optimistic concurrency control. Optimistic concurrency control tries to avoid locks and pessimistic concurrency control uses locks. Locks prevent concurrency issues though locking certain sources. Simply put, I can lock the table when using it so that no one else can access/read/edit the table until I finished. Locks allows low risks of rolling back transactions or incorrect data. There's usually waiting time associated with it so it may slow down the process. Locks are systematic. Isolation levels act like the rules/settings for locks to get acquired and released, and how intense that process is.

29. Write a short essay, plus screenshots talking about performance tuning in SQL Server. Must include Tuning Advisor, Extended Events, DMV, Logs and Execution Plan.

Sorry I don't have a windows computer right now and due to Mac M1 chip limitation. I can only be using Docker image along with Azure Data Studio to work with the sql server which is limited in some functionalities, but I'm considering getting a windows laptop soon.

30. Write a short essay talking about a scenario: Good news everyone! We (Wide World Importers) just brought out a small company called "Adventure works"! Now that bike shop is our sub-company. The first thing of all works pending would be to merge the user logon information, person information (including emails, phone numbers) and products (of course, add category, colors) to WWI database. Include screenshot, mapping and query.

```
IF OBJECT_ID(N'AdventureWorks2019.dbo.person', N'U') IS NOT NULL
    DROP TABLE AdventureWorks2019.dbo.person;
GO
CREATE TABLE AdventureWorks2019.dbo.person(
    BusinessEntityID int not null,
    FullName nvarchar (50) Not null,
    PreferredName nvarchar (50) NOT NULL DEFAULT 'None',
    SearchName nvarchar (101) NOT NULL DEFAULT 'None',
    IsPermittedToLogon bit not null DEFAULT 0,
    LogonName nvarchar (50),
    IsExternalLogonProvider bit not null DEFAULT 0,
    Hashedassword varbinary(max),
    IsSystemUser bit not null DEFAULT 0,
    IsEmployee bit not null DEFAULT 0,
    IsSalesperson bit not null DEFAULT 0,
    UserPreferences nvarchar(max),
    PhoneNumber nvarchar (20),
    FaxNumber nvarchar(20),
    EmailAddress nvarchar(256),
    Photo varbinary(max),
    CustomFields nvarchar(max),
    OtherLanguages nvarchar (max),
    LastEditedby INT NOT NULL DEFAULT 0,
    ValidFrom datetime2(7) NOT NULL DEFAULT GETDATE(),
    ValidTo datetime2(7) NOT NULL DEFAULT '9999-12-31 23:59:59.9999999'
)
GO
--check table
select * from AdventureWorks2019.dbo.person
GO
--insert value
INSERT INTO AdventureWorks2019.dbo.person (BusinessEntityID,FullName,EmailAddress,PhoneNumber)
SELECT p1.BusinessEntityID, CONCAT(p1.FirstName,' ',p1.LastName) as FullName, p2.EmailAddress,p3.PhoneNumber
FROM Person.Person p1 JOIN Person.EmailAddress p2 ON p1.BusinessEntityID = p2.BusinessEntityID
JOIN Person.PersonPhone p3 ON p1.BusinessEntityID = p3. BusinessEntityID
order by p1.BusinessEntityID
GO
--check table
select * from AdventureWorks2019.dbo.person
```

```

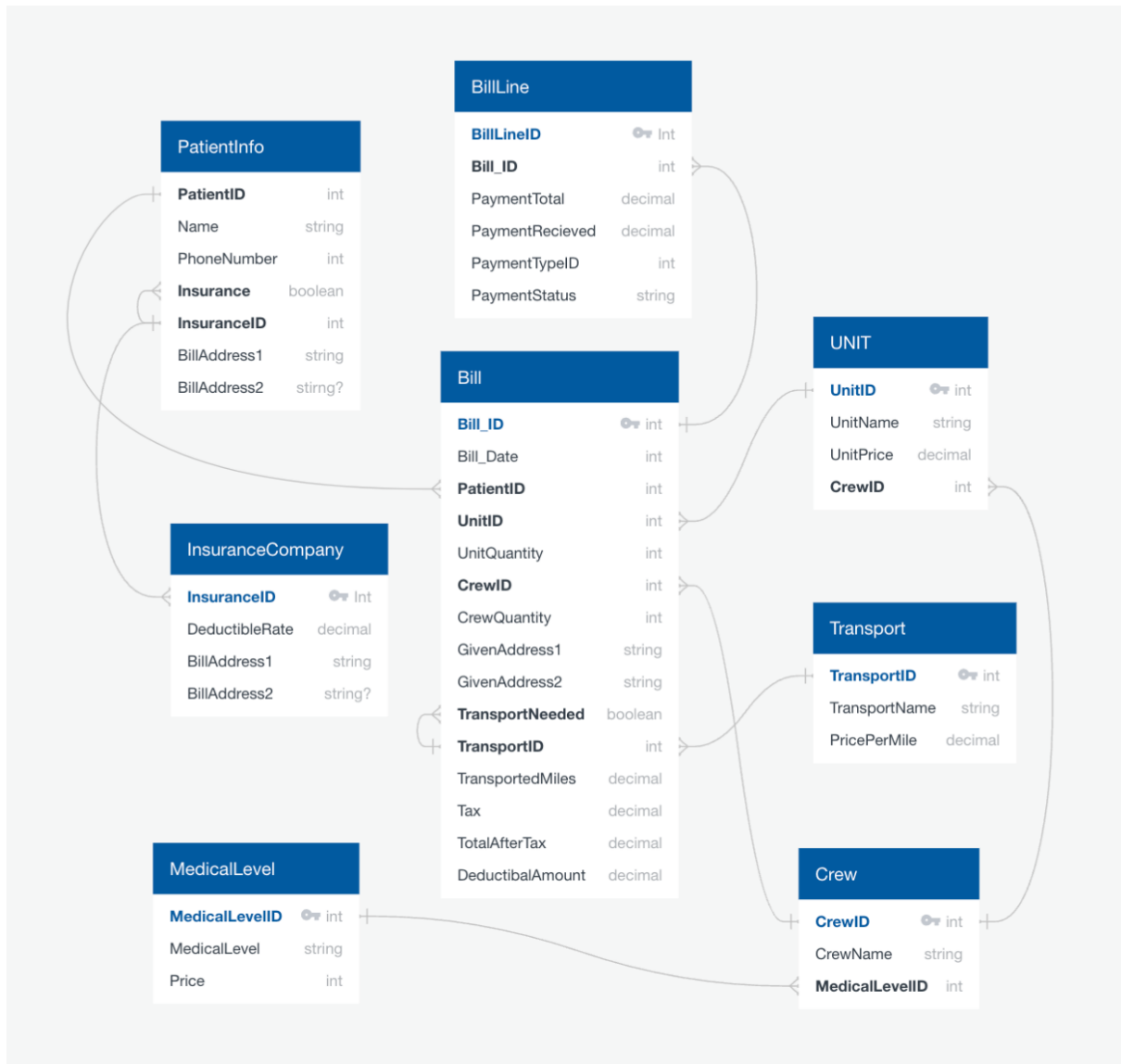
GO
--add personID to match with WWI
ALTER TABLE AdventureWorks2019.dbo.person
ADD PersonID int IDENTITY(3262,1)
GO
select * from AdventureWorks2019.dbo.person
GO
--alter personID datatype to match with WWI
ALTER TABLE AdventureWorks2019.dbo.person
ALTER COLUMN PersonID PRIMARY KEY      --this is where we stuck
GO
--
INSERT INTO WideworldImporters.Application.People
select PersonID,FullName,PreferredName,SearchName,IsPermittedToLogon,LogonName,IsExternalLogonProvider, Hashedassword, IsSystemUser, IsEmpl
UserPreferences,PhoneNumber, FaxNumber, EmailAddress,Photo,CustomFields, OtherLanguages, LastEditedby, ValidFrom, ValidTo
from AdventureWorks2019.dbo.person

```

Our strategy is create a table in AdventureWorks that have exact same number of columns, same datatype so that we can insert it into the Application.People table in WWI database.

We have three fields in AdventureWorks data that can match to the fields in WWI data, which are `FullName` (need some concatenation), `EmailAddress`, and `PhoneNumber`. For all the other missing fields, we create the corresponding columns in AdventureWorks. In order to match the data type, and especially to meet the NOT NULL constraints, we manually set some default values based on our business sense. We then created `PersonID` with identity property starting from 3262 to avoid conflicts with the corresponding column in WWI. We wanted to change the datatype of `PersonID` from identity to primary key so that we can match it to the corresponding PersonID in WWI and be able to insert data, and this is where we stuck.

31. Database Design: OLTP db design request for EMS business: when people call 911 for medical emergency, 911 will dispatch UNITS to the given address. A UNIT means a crew on an apparatus (Fire Engine, Ambulance, Medic Ambulance, Helicopter, EMS supervisor). A crew member would have a medical level (EMR, EMT, A-EMT, Medic). All the treatments provided on scene are free. If the patient needs to be transported, that's where the bill comes in. A bill consists of Units dispatched (Fire Engine and EMS Supervisor are free), crew members provided care (EMRs and EMTs are free), Transported miles from the scene to the hospital (Helicopters have a much higher rate, as you can image) and tax (Tax rate is 6%). Bill should be sent to the patient insurance company first. If there is a deductible, we send the unpaid bill to the patient only. Don't forget about patient information, medical nature and bill paying status.



32. Remember the discussion about those two databases from the class, also remember, those data models are not perfect. You can always add new columns (but not alter or drop columns) to any tables. Suggesting adding Ingested DateTime and Surrogate Key columns. Study the Wide World Importers DW. Think the integration schema is the ODS. Come up with a TSQL Stored Procedure driven solution to move the data from WWI database to ODS, and then from the ODS to the fact tables and dimension tables. By the way, WWI DW is a galaxy schema db. Requirements:
- Luckily, we only start with 1 fact: Purchase. Other facts can be ignored for now.
  - Add a new dimension: Country of Manufacture. It should be given on top of Stock Items.
  - Write script(s) and stored procedure(s) for the entire ETL from WWI db to DW.

