Manufacturer Recall System

By
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Description of the application:

The Manufacture Recall System is an application that will allow individuals to discover, create and manage recalls for products they are using. This application would be used as a central hub for most vehicle manufacturers and can be tailored into other industries. This would allow administrators to do research on certain products, discover what recalls have occurred with that product as well as implementing a new recall. It also gives administrators the ability to add new product lines to the database. The application would also allow sales personnel to fill out invoices about the product a consumer has purchased and to acquire contact information in the event of a recall. This would allow them to keep track of which products have recalls and information to notify the consumer in the event of a recall.

Information needed for the application:

1. Add a new product
    a. Product Name
    b. Product Description
2. New invoice
    a. Full name
    b. Address
    c. Phone Number
    d. Email
    e. Serial Number
    f. Product Type
    g. Manufacture Date
3. Create new recall
    a. Product ID
    b. Start date of the problem
    c. End date of the problem
    d. Description of the problem

The users and user interactions:

The users would be required to fill out certain information before they can proceed with submitting anything in the application. This ensures that there will be no errors when the user is navigating and activating the system. Users are able to add new products, create invoices and provide new recall updates.

Picture of the database:

Customer Info

```
1 • SELECT * FROM mrs_project1.customer_info;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

customer_id	first_name	last_name	address	city	state	zip	phone_number	email
1	Fenelia	Harm	6430 Barnett Avenue	Charlotte	North Carolina	32309	510-520-5925	fharm0@cbsnews.com
2	Bethena	Lye	5 Jay Center	Fort Lauderdale	Florida	13224	513-802-1444	blye1@marketwatch.com
3	Killy	Rotge	63298 Loomis Terrace	Richmond	Virginia	67210	321-384-5948	krotge2@chicagotribune.com
4	Iosep	Hinchon	39444 Tony Crossing	Saint Louis	Missouri	46015	504-631-3408	ihinchon3@google.de
5	Reinwald	Canner	89 Walton Hill	Roanoke	Virginia	55598	360-413-5823	rcanner4@gov.uk
6	Elwyn	Mingaye	8473 Birchwood Court	Springfield	Illinois	19104	304-521-7079	emingaye5@fema.gov
7	Gale	Lehrmann	0346 Continental Park	San Jose	California	90605	512-487-7768	glehrmann6@harvard.edu
8	Tulley	Tattersdill	7 Glacier Hill Trail	Santa Fe	New Mexico	27610	626-140-6841	ttattersdill7@hexun.com
9	Annmaria	Bettley	3765 Stephen Way	Glendale	Arizona	80255	202-620-8271	abettley8@aboutads.info
10	Crawford	Pourveer	997 Lukken Park	Everett	Washington	20016	804-305-3261	cpourveer9@webmd.com
11	Helenka	Bissex	88 Porter Trail	Chattanooga	Tennessee	64136	203-784-4939	hbissexa@live.com
12	Janice	Chastelain	31699 Westerfield Point	San Luis Obispo	California	98516	214-873-9689	jchastelainb@wikimedia.org
13	Vinnie	Woodburn	04060 Nancy Terrace	Brooklyn	New York	78759	302-749-1198	vwoodburnc@networkadver…
14	Midge	Morson	2 Clyde Gallagher Ter…	Monticello	Minnesota	85045	714-403-1513	mmorsond@ibm.com
15	Geno	Whetton	56 Longview Junction	Baltimore	Maryland	28289	504-820-9530	gwhettone@livejournal.com
16	Adrianna	Nelthropp	4771 Randy Road	Cincinnati	Ohio	78225	816-388-7968	anelthroppf@oracle.com
17	Janot	Lockhead	5 Raven Alley	Kansas City	Missouri	50369	805-720-8032	jlockheadg@bloomberg.com
18	Bea	Caville	8 Johnson Trail	Colorado Springs	Colorado	85720	601-691-7084	bcavilleh@w3.org
19	Nil	Robelin	197 Autumn Leaf Ce…	San Jose	California	85754	915-793-2810	nrobelini@kickstarter.com
20	Tallie	Itzhak	1392 Morning Place	Salt Lake City	Utah	14646	339-124-7836	titzhakj@qq.com
21	Filmer	Bird	2316 Lunder Center	Shawnee Mission	Kansas	85743	616-497-8131	fbirdk@homestead.com
22	Kyrstin	Bisiker	7174 Northport Trail	Carson City	Nevada	10557	415-612-0125	kbisikerl@epa.gov
23	Bernete	Cathro	59085 Katie Street	Baton Rouge	Louisiana	33462	614-895-0374	bcathrom@geocities.jp
24	Ephrayim	Moutray …	662 Anzinger Crossing	Fort Wayne	Indiana	2124	917-178-0650	emoutrayreadn@bizjournals…
25	Leonore	Idale	0967 Westend Pass	Richmond	Virginia	7522	254-601-0633	lidaleo@csmonitor.com
26	Broddie	Tuddall	9 Continental Trail	Arlington	Texas	62723	336-512-0114	btuddallp@biblegateway.com

Customer Purchases

Limit to 1000 rows

```
1 • SELECT * FROM mrs_project1.customer_purchases
```

Result Grid | Filter Rows: | Edit:

invoice_number	sale_date	customer_id	serial_number
1	2019-01-04	57	1
2	2017-01-03	84	2
3	2016-01-08	79	3
4	2014-01-05	92	4
5	2010-08-21	87	5
6	2009-03-01	96	6
7	2012-02-18	3	7
8	2003-07-11	35	8
9	2006-11-27	83	9
10	2018-08-25	21	10
11	2015-08-23	24	11
12	2011-02-22	59	12
13	2009-07-23	5	13
14	2014-06-26	87	14
15	2013-12-13	22	15
16	2005-05-07	64	16
17	2016-05-20	32	17
18	2011-02-22	29	18
19	2015-03-15	54	19
20	2017-05-13	93	20
21	2012-05-19	80	21
22	2001-06-06	19	22
23	1985-11-08	96	23
24	2012-06-13	32	24
25	2010-04-18	24	25
26	2010-11-09	80	26

er_purchases 1 ×

Output

Product Type

Result Grid | Filter Rows: | Edit

product_id	product_name	product_description
1	Gran Torino	Mid-size Car
2	Galaxie	Full-size Car
3	Maverick	Compact Car
4	F250	Super Duty Truck
5	Country	Sedan
6	Mustang	Muscle Car
7	Pinto	Subcompact Car
8	LTD	Full-size Car
9	Granada	Compact Car
10	Thunderbird	luxury Car
11	Fiesta	Subcompact Car
12	Fairmont	Compact Car
13	Escort	Compact Car
14	Ranger	Light Duty Truck
NULL	NULL	NULL

Products

serial_number	product_id	manufactured_date
1	5	2008-08-14
2	10	1999-02-11
3	11	2000-09-10
4	8	2006-08-05
5	13	2003-11-23
6	7	1989-07-21
7	9	1996-01-31
8	4	2000-11-26
9	1	1985-06-01
10	8	2016-01-31
11	2	2015-08-17
12	2	1988-02-13
13	1	1995-05-15
14	11	2012-05-22
15	4	2009-12-05
16	7	1999-12-14
17	3	1996-10-30
18	14	1999-06-13
19	1	2013-03-31
20	10	2013-03-16
21	7	1988-03-17
22	6	1997-04-20
23	14	1980-03-21
24	1	2007-10-29
25	12	2005-05-06
26	3	2005-09-29

Recall Notices

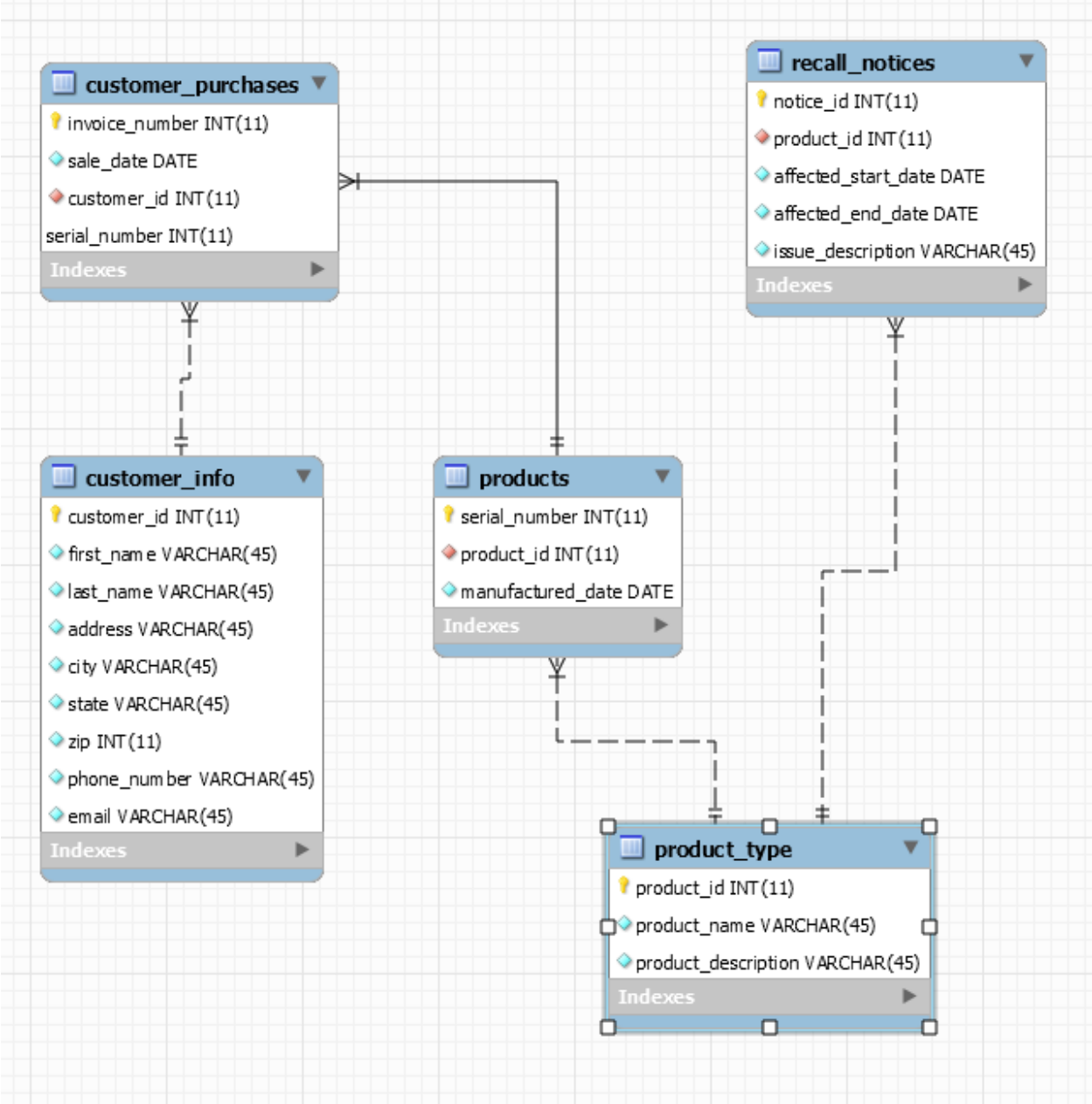
Limit to 1000 rows

```
1  SELECT * FROM mrs_project1.recall_notices;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

notice_id	product_id	affected_start_date	affected_end_date	issue_description
1	1	2018-10-19	2018-12-03	Breaks catch fire
2	5	2000-02-16	2000-06-15	Air bags explode
3	10	2014-09-10	2016-08-30	Bumper falls off
4	6	2004-12-28	2005-03-28	Tires fall off
5	2	2002-07-13	2003-08-17	Radio catches fire
6	13	2010-09-15	2011-09-10	Seatbelt comes loose
7	8	2016-05-25	2018-10-16	Exhaust explodes
8	3	2010-10-03	2011-01-10	Steer wheel comes loose
9	2	2016-03-27	2016-09-23	Break pedal snaps
10	5	2018-09-03	2019-01-22	Hood open while driving
11	7	2016-12-01	2017-08-08	Transmission failure
12	9	2012-04-08	2012-06-22	Exhaust vented to cab
NULL	NULL	NULL	NULL	NULL

Picture of the EER diagram:



How is the design is normalized(Or denormalized):
Our design is normalized due to the fact that each table relies on a primary key to keep information scalar throughout each of the tables and information is broken down into smaller tables to reduce any duplicate entries. With that, every non-key column is dependent only on the primary key.

OLAP Database

The OLAP database pulls information from the OLTP database through multiple quires to populate four tables with select data that would be required to help a company make executive decisions based on recall information. The OLAP database consists of three dimension tables and one fact table in a star schema.

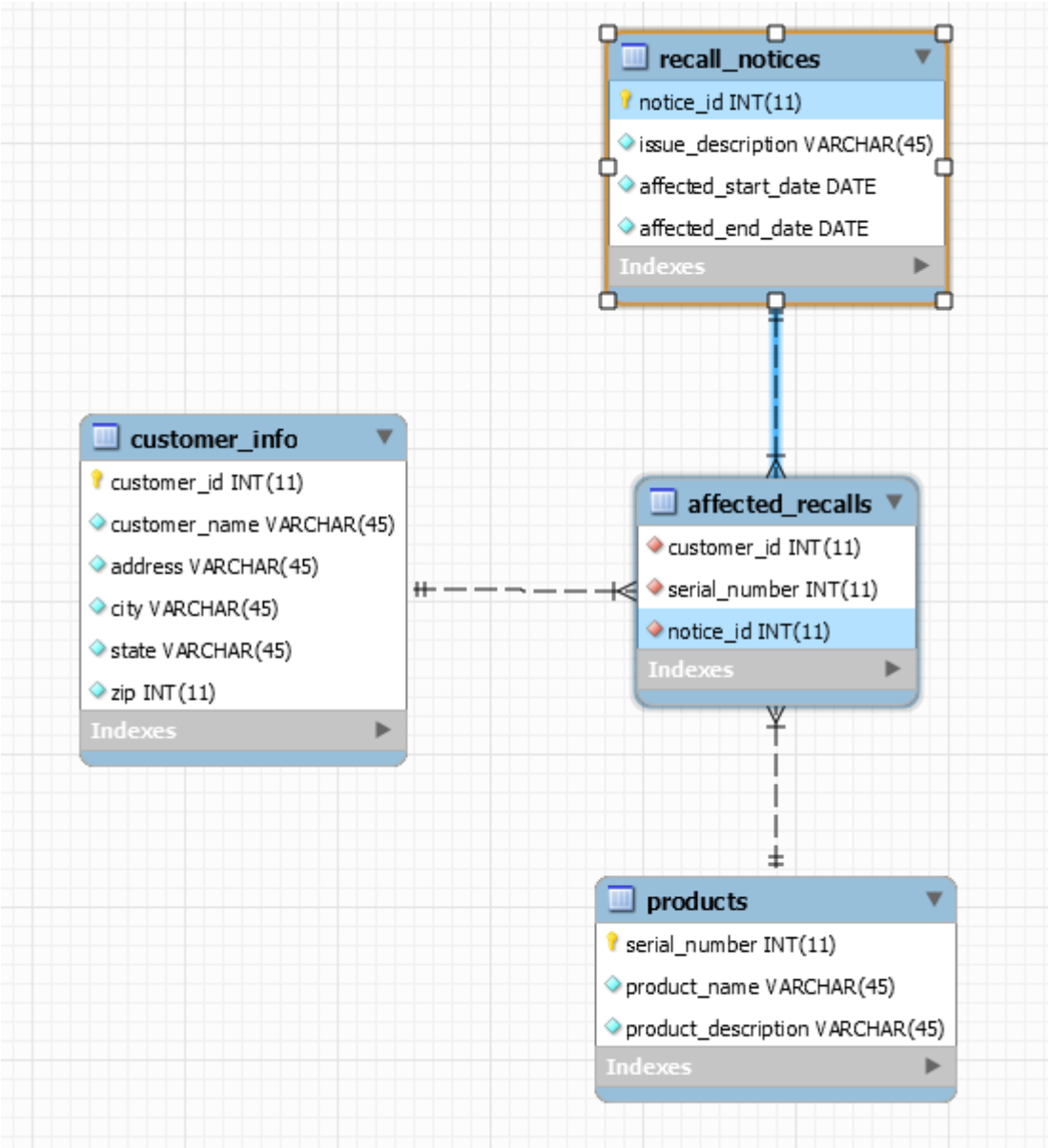
The dimension tables are:

recall_notices	**products**	**customer_info**
notice_id	serial_number	customer_id
issue_description	product_name	customer_name
affected_start_date	product_description	address
affected_end_date		city
		state
		zip

The fact table is:

affected_recalls
customer_id
serial_number
notice_id

Picture of the EER diagram for OLAP database:



The five SQL that would be used by an OLAP user are:

This SQL script allows the user to see what products are having the most recalls to decided if they want to discontinue the product.

product_name	total_recalls
Galaxie	6
LTD	4
Fiesta	3
Granada	2
Pinto	2
Gran Torino	2
F250	2
Maverick	1
Fairmont	1

This SQL script allows the user to see what states are having the most recalls. See if there is an issue in a manufacturing plant.

state	total_recalls
Florida	3
Alabama	3
North Carolina	3
Illinois	2
Michigan	2
District of Columbia	2
Indiana	1
Louisiana	1
California	1
Maryland	1
Colorado	1
Texas	1
Kansas	1
Minnesota	1

This SQL script allows the user to see which customers have been most affected by recalls. Allows for the company to reach out to them.

customer_name	address	city	state	zip	total_recalls
Bolstridge, Sibby	6784 Morning Park	Birmingham	Alabama	60604	2
Clancy, Cyrillus	311 Luster Parkway	Fayetteville	North Carolina	37131	2
Huton, Kris	0 Gerald Court	Chicago	Illinois	93715	2
Ackeroyd, Ophelia	72 Talmadge Circle	Miami	Florida	20226	2
Elcock, Zaria	1 Sullivan Center	Kalamazoo	Michigan	33731	2
Aronowicz, Genna	9 Manitowish Trail	Corpus Christi	Texas	14225	1
Sansom, Elston	615 Mcguire Parkway	Washington	District of Columbia	20918	1
Bird, Filmer	2316 Lunder Center	Shawnee Mission	Kansas	85743	1
Jolin, Augustine	2676 Troy Terrace	Minneapolis	Minnesota	85383	1
Whetton, Geno	56 Longview Junction	Baltimore	Maryland	28289	1
Moutray Read, E...	662 Anzinger Crossing	Fort Wayne	Indiana	2124	1
Gooder, Guendolen	41 Northwestern Cr...	Shreveport	Louisiana	93005	1
Harradine, Lotti	895 Lakewood Gard...	Jacksonville	Florida	92662	1
Najera, Francklin	6 Manufacturers Alley	Pasadena	California	31416	1
Januszewicz, Shirl	3597 Sunnyside Place	Huntsville	Alabama	77095	1
Hambric, Peadar	13730 Ridge Oak Alley	Charlotte	North Carolina	2216	1
Stede, Ashlee	1 Shoshone Circle	Washington	District of Columbia	66105	1
Caville, Bea	8 Johnson Trail	Colorado Springs	Colorado	85720	1

This SQL script allows the user to see which area of their product is having the most issues. Allows the company to focus on an area they are having a problem or find new parts that might be better suited.

issue_description	total_recalls
Exhaust explodes	7
Bumper falls off	4
Radio catches fire	4
Transmission failure	3
Air bags explode	1
Seatbelt comes loose	1
Hood open while driving	1
Breaks catch fire	1
Exhaust vented to cab	1

This SQL script allows the user to see what product class is having the most issues. Could help to find a correlation to fix future products.

product_description	total_recalls
Full-size Car	10
Subcompact Car	5
Compact Car	4
Mid-size Car	2
Super Duty Truck	2

Feedback from Part 1:

We corrected and added the “state” field into the HTML file and tested for functionality. To address the issue of serial numbers already being taken, we populated the initial tables with serial numbers 1 through 100. To make it more obvious to the user we added a script into the py file that prints a statement the displays the current requested serial number, the first and last name of the person it is registered to, and the product name if the serial number has already been used.