

# MAX'S SHAREBACK DESIGN (Behind the Scenes)

**\* There is a video immediately following this lab that walks you through this design section, including the code files.**

**If you read this section and it makes sense, skip the video.  
If you find this section confusing, watch the video.**

# ACME-ADU Exchange Design



Max's Share ADU\_VINHANCED Share

## Object Definition Code

```
CREATE TABLE VIN.DECODE.MODELYEAR
(
    MODYEARCODE    VARCHAR(1)
    ,MODYEARNAME    NUMBER(4)
);
```

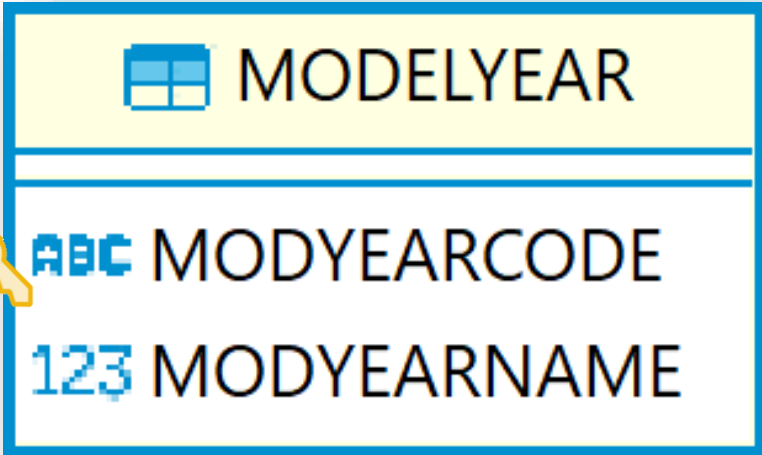
The Model Year Code is distinct in our table because our table only covers VINs from 2001 to 2025

Code	Year	Code	Year	Code	Year	Code	Year	Code	Year
A =	1980	L =	1990	Y =	2000	A =	2010	L =	2020
B =	1981	M =	1991	1 =	2001	B =	2011	M =	2021
C =	1982	N =	1992	2 =	2002	C =	2012	N =	2022
D =	1983	P =	1993	3 =	2003	D =	2013	P =	2023
E =	1984	R =	1994	4 =	2004	E =	2014	R =	2024
F =	1985	S =	1995	5 =	2005	F =	2015	S =	2025
G =	1986	T =	1996	6 =	2006	G =	2016	T =	2026
H =	1987	V =	1997	7 =	2007	H =	2017	V =	2027
J =	1988	W =	1998	8 =	2008	J =	2018	W =	2028
K =	1989	X =	1999	9 =	2009	K =	2019	X =	2029

## Object Data Preview

MODYEARCODE	MODYEARNAME
A	2010
B	2011
C	2012
D	2013
E	2014
F	2015
G	2016
H	2017
J	2018
K	2019
L	2020
M	2021

## ERD Entity View



There are many free VIN Decoders online and some require that you include the year when you submit the VIN because the use of each year code does repeat every 30 years.

If we wanted to decode VINs from years earlier than 2000, this table would need a composite key.

# ACME-ADU Exchange Design



Max's Share ADU\_VINHANCED Share

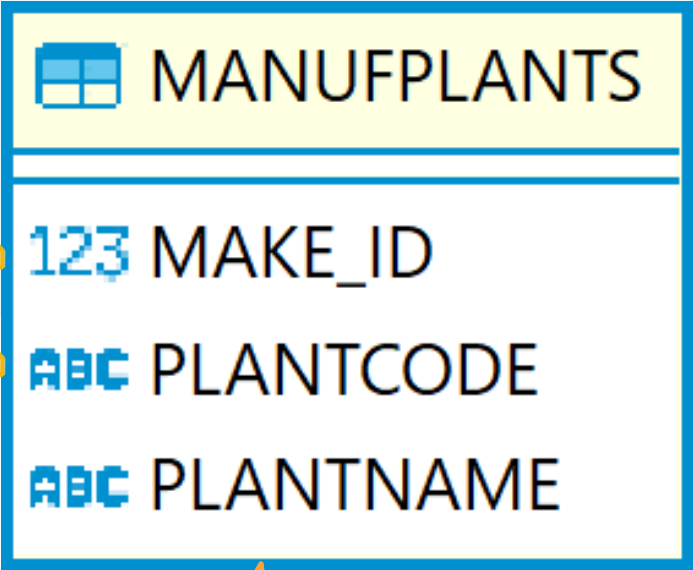
## Object Definition Code

## Object Data Preview

## ERD Entity View

```
CREATE TABLE VIN.DECODE.MANUFPLANTS
(
  MAKE_ID      NUMBER(5)
  ,PLANTCODE    VARCHAR(1)
  ,PLANTNAME    VARCHAR(75)
);
```

MAKE_ID	PLANTCODE	PLANTNAME
442	A	Solihull, United Kingdom (Uk)
475	A	Marysville, Ohio, United States (USA)
452	B	Dingolfing, Germany
460	B	Oakville, Oakville, Ontario, Canada
452	C	Dingolfing, Germany
460	C	Chennai, India
442	C	Castle Bromwich, United Kingdom, England
475	C	Sayama, Saitama, Japan



The single-digit PLANTCODE must be combined with the MAKE\_ID to get a distinct value.

For example, if the Plant Code is “C”, you will not know where the plant is located unless you also know the Make.

Make 442 = Jaguar  
Make 475 = Acura  
Make 452 = BMW  
Make 460 = Ford

The MANUFPLANTS table has a composite key of MAKE\_ID + PLANTCODE.

# ACME-ADU Exchange Design



Max's Share ADU\_VINHANCED Share

Object Definition Code

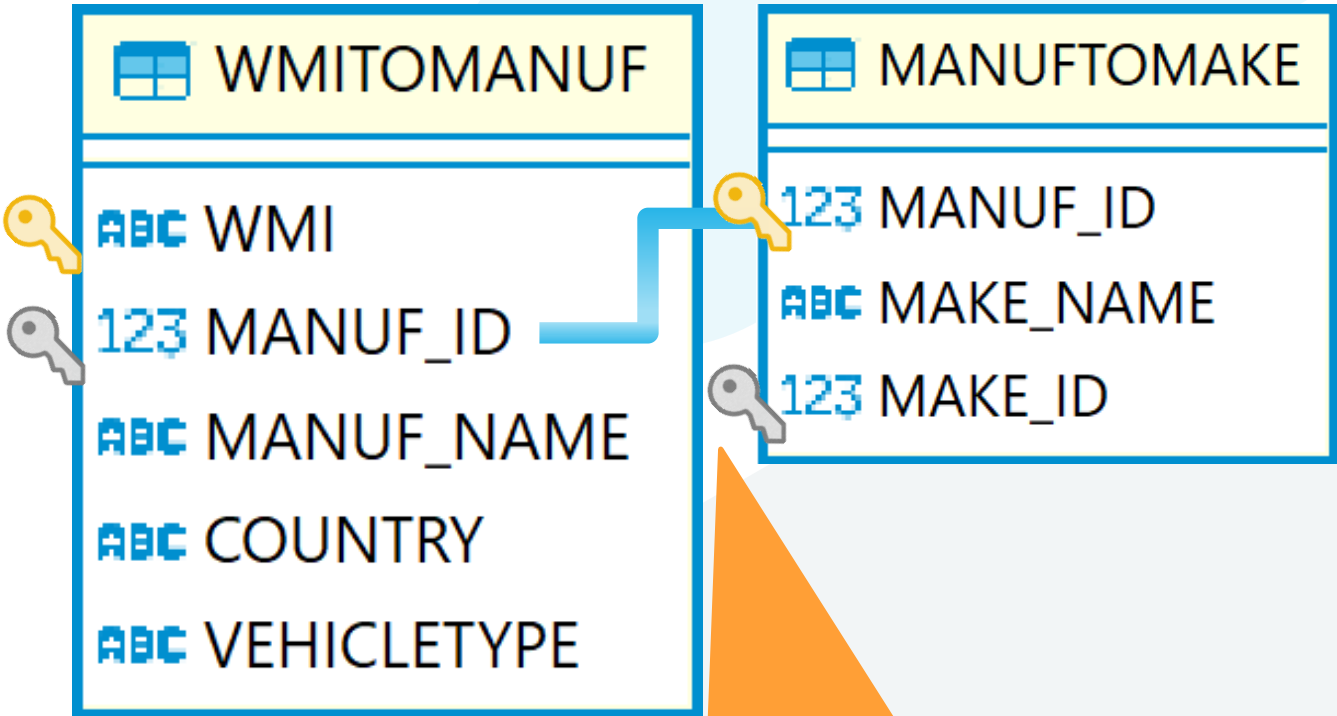
Object Data Preview

ERD Entity View

```
CREATE TABLE VIN.DECODE.WMITOMANUF
(
    WMI                VARCHAR(6)
    ,MANUF_ID          NUMBER(6)
    ,MANUF_NAME        VARCHAR(50)
    ,COUNTRY           VARCHAR(50)
    ,VEHICLETYPE       VARCHAR(50)
);
```

```
CREATE TABLE VIN.DECODE.MANUFTOMAKE
(
    MANUF_ID          NUMBER(6)
    ,MAKE_NAME        VARCHAR(50)
    ,MAKE_ID          NUMBER(5)
);
```

MANUF_ID	MAKE_NAME	MAKE_ID
966	BMW	452
972	BMW	452
967	BMW	452
968	BMW	452
957	BMW	452
1098	BMW	452
1171	BMW	452



The tables shown here are not 3NF. In a 3NF Database, these two tables would be four tables.

WMI	MANUF_ID..	MANUF_NAME ↓	COUNTRY	VEHICLETYPE
WAP	957	BMW OF NORTH AMERICA, LLC	GERMANY	Passenger Car
WZ1	957	BMW OF NORTH AMERICA, LLC	GERMANY	Passenger Car
SUX	968	BMW MANUFACTURER CORPOR...	UNITED STATES (USA)	Multipurpose Passenger Veh
WBS	967	BMW M GMBH	GERMANY	Passenger Car
5UM	966	BMW AG	GERMANY	Passenger Car
WMZ	966	BMW AG	GERMANY	Multipurpose Passenger Veh

A WMI code might refer to BMW of Germany or BMW North America.

Those two BMW manufacturers would roll up into the “BMW” make.



# ACME-ADU Exchange Design



Max's Share ADU\_VINHANCED Share

## Object Data Preview

## ERD Entity View

MAKE_ID	MODEL_ID	MODEL_NAME	VDS	DESC1	DESC2	DESC3	DESC4	DESC5	BODYSTYLE	ENGINE	DRIVETYPE	TRANS	MPG
460	1781	Mustang	6P8SJ		Shelby	GT500			2D Coupe	8 Cyl - 5 L	RWD	7-Speed A/T	12 City / 18 H...
452	1714	X6	CY0C0	M		Competition Sports Activity...			SAV	8 Cyl - 4.4 L	AWD	A/T	13 City / 18 H...
452	1719	X3	TS0C0	M		Sports Activity Vehicle			SAV	6 Cyl - 3.0 L	AWD	A/T	14 City / 19 H...
452	26485	M8	AE0C0			Coupe			2D Car	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 H...
452	2024	M5	JF0C0			Sedan			4D Car	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 H...
452	26485	M8	DZ0C0			Convertible			Convertible	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 H...
452	25884	X7	CX6C0	M50i		Sports Activity Vehicle			SAV	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 H...
460	1781	Mustang	TP8FF		GT	Premium			2D Convertible	5.0L Ti-VCT V...	RWD	10 Speed A/T	15 City / 24 H...
460	1799	Expedition	JK1JT			XLT	MAX		4D Sport Utility	3.5L EcoBoos...	4X4	10-Speed A/T...	16 City / 21 H...
460	1799	Expedition	JK1PT			King Ranch®	MAX		4D Sport Utility	3.5L EcoBoos...	4X4	10-Speed A/T...	16 City / 21 H...
452	1714	X6	CY8C0	M50i		Sports Activity Coupe			SAV	8 Cyl - 4.4 L	AWD	A/T	16 City / 22 H...
452	1717	X5	JU4C0	M50i		Sports Activity Vehicle			SAV	8 Cyl - 4.4 L	AWD	A/T	16 City / 22 H...
460	1781	Mustang	6P8CF		GT	Premium			2D Coupe	5.0L Ti-VCT V...	RWD	10 Speed A/T	16 City / 25 H...
460	1799	Expedition	JU2AT			Limited			4D Sport Utility	3.5L EcoBoos...	4X4	10-Speed A/T...	17 City / 22 H...
460	1799	Expedition	JU1JT			XLT			4D Sport Utility	3.5L EcoBoos...	4X4	10-Speed A/T...	17 City / 22 H...
460	1799	Expedition	JU1PT			King Ranch®			4D Sport Utility	3.5L EcoBoos...	4X4	10-Speed A/T...	17 City / 22 H...
452	26484	M850i	GV8C0	8 Series	xDrive	Gran Coupe			4D Car	8 Cyl - 4.4 L	AWD	A/T	17 City / 25 H...
460	1800	Explorer	5K8GC			ST			4D Sport Utility	3.0L EcoBoos...	Intelligent 4WD	10-Speed A/T...	18 City / 24 H...
460	1800	Explorer	5K8HC			Platinum			4D Sport Utility	3.0L EcoBoos...	Intelligent 4WD	10-Speed A/T...	18 City / 24 H...
452	26484	M850i	JS7C0	5 Series	xDrive	Sedan			4D Car	8 Cyl - 4.4 L	AWD	A/T	18 City / 25 H...
452	9570	M4	4Y9C0			Coupe			2D Car	6 Cyl - 3.0 L	RWD	Manual or A/T	18 City / 25 H...

MMVDS

123

MAKE\_ID

123

MODEL\_ID

ABC

MODEL\_NAME

ABC

VDS

ABC

DESC1

ABC

DESC2

ABC

DESC3

ABC

DESC4

ABC

DESC5

ABC

BODYSTYLE

ABC

ENGINE

ABC

DRIVETYPE

ABC

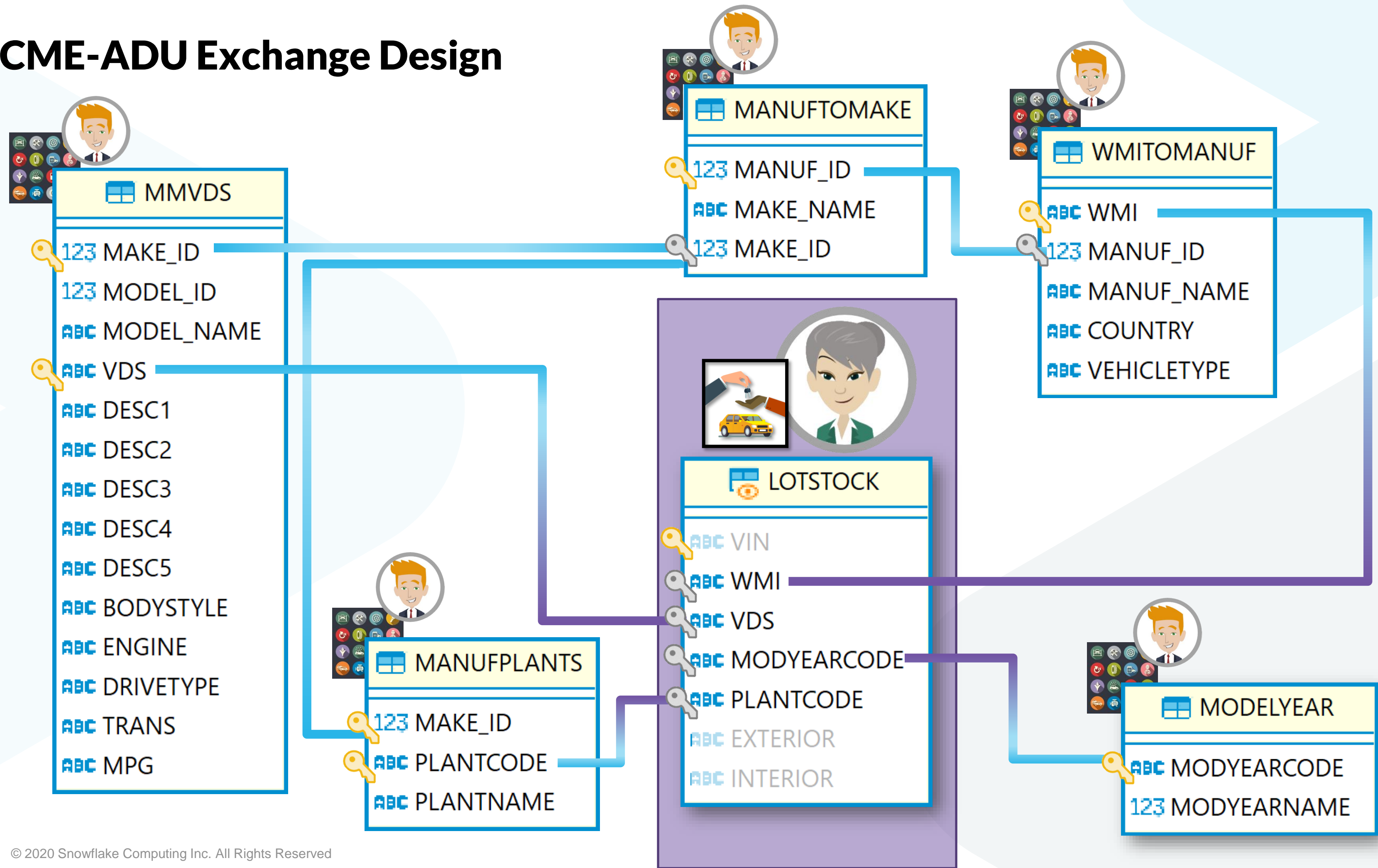
TRANS

ABC

MPG

This table is the most egregiously NOT 3NF. This is because each manufacturer uses the digits in the VDS differently, so it was just easier to keep the table denormalized.

# ACME-ADU Exchange Design



# ACME-ADU Exchange Design

Max's Share ADU\_VINHANCED Share

## Object Definition Code

## Object Data Preview



```
SELECT
1.VIN
,y.MODYEARNAME
,m.MAKE_NAME
,v.DESC1
,v.DESC2
,v.DESC3
,BODYSTYLE
,ENGINE
,DRIVETYPE
,TRANS
,MPG
,MANUF_NAME
,COUNTRY
,VEHICLETYPE
,PLANTNAME
FROM "ACME_DETROIT"."ADU"."LOTSTOCK" l
JOIN "VIN"."DECODE"."WMITOMANUF" w
ON l.WMI=w.WMI
JOIN "VIN"."DECODE"."MANUFTOMAKE" m
ON w.manuf_id=m.manuf_id
JOIN "VIN"."DECODE"."MANUFPLANTS" p
ON l.plantcode=p.plantcode
AND m.make_id=p.make_id
JOIN "VIN"."DECODE"."MMVDS" v
ON v.vds=l.vds
and v.make_id = m.make_id
JOIN "VIN"."DECODE"."MODELYEAR" y
ON l.modyearcode=y.modyearcode
```

VIN	MODYEARNAME	MAKE_NAME	DESC1	DESC2	DESC3	BODYSTYLE	ENGINE	DRIVETYPE	TRANS	MPG	MANUF_NAME	COUNTRY	VEHICLETYPE	PLANTNAME
WBXJG9C04L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXJG9C04L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXJG9C05L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXJG9C03L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXJG9C09L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXJG9C07L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXJG9C03L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXJG9C0XL...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	23 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXYJ1C04L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	24 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXYJ1C00L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	24 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXYJ1C04L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	24 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXYJ1C08L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	24 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXYJ1C0XL...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	24 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBXYJ1C00L...	2020	BMW	NULL	xDrive28i	Sports Activit...	SAV	4 Cyl - 2.0 L	AWD	A/T	24 City / 31 H...	BMW AG	GERMANY	Multipurpose ...	Regensburg, G...
WBSAE0C09L...	2020	BMW	NULL	NULL	Coupe	2D Car	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 Hwy	BMW M GMBH	GERMANY	Passenger Car	Dingolfing, Ger...
WBSDZ0C02L...	2020	BMW	NULL	NULL	Convertible	Convertible	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 Hwy	BMW M GMBH	GERMANY	Passenger Car	Dingolfing, Ger...
WBAGV8C08L...	2020	BMW	8 Series	xDrive	Gran Coupe	4D Car	8 Cyl - 4.4 L	AWD	A/T	17 City / 25 Hwy	BMW AG	GERMANY	Passenger Car	Dingolfing, Ger...
WBSAE0C06L...	2020	BMW	NULL	NULL	Coupe	2D Car	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 Hwy	BMW M GMBH	GERMANY	Passenger Car	Dingolfing, Ger...
WBSAE0C06L...	2020	BMW	NULL	NULL	Coupe	2D Car	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 Hwy	BMW M GMBH	GERMANY	Passenger Car	Dingolfing, Ger...
WBSJF0C09L...	2020	BMW	NULL	NULL	Sedan	4D Car	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 Hwy	BMW M GMBH	GERMANY	Passenger Car	Dingolfing, Ger...
WBSDZ0C0XL...	2020	BMW	NULL	NULL	Convertible	Convertible	8 Cyl - 4.4 L	AWD	A/T	15 City / 21 Hwy	BMW M GMBH	GERMANY	Passenger Car	Dingolfing, Ger...

This is the view Max ends up with when he joins his 5 tables with Lottie's shared view. He creates a view based on this select statement. But he can't share a view that includes Lottie's Shared View. So he'll have to make a copy of her data in order share it back.

# ACME-ADU Exchange Design

Max's Share ADU\_VINHANCED Share

## Object Definition Code

```
-----STORED PROCEDURE-----
--Create a stored proc that will dump and reload the vinenhanced table using the view that
--combines Lottie's data with Max's. You don't actually need two sets of variables but using two might help
--make it clearer for some people. You should not use a "Select *" in a "real" proc, we only use it here
--so that the code is super-easy to read and understand. Replace the * with a list of columns.
USE ROLE SYSADMIN;

create or replace procedure lotstockupdate_sp()
returns string not null
language javascript
as
$$
    var my_sql_command1 = "truncate table outgoing.acme_detroit.lotstockreturn;";
    var statement1 = snowflake.createStatement( {sqlText: my_sql_command} );
    var result_set1 = statement1.execute();

    var my_sql_command2 ="insert into outgoing.acme_detroit.lotstockreturn select * from outgoing.acme_detroit.lotstockenhanced;";
    var statement2 = snowflake.createStatement( {sqlText: my_sql_command} );
    var result_set2 = statement2.execute();

    return my_sql_command;
$$;

--View your Stored Procedure
show procedures;
desc procedure lotstockupdate_sp();
```

First section wipes out all the rows in the table.

Second section gets rows from the view and loads them into the table.





# ACME-ADU Exchange Design

Max's Share ADU\_VINHANCED Share

## Object Definition Code

```
=====SCHEDULED TASK=====
-- Create a task that calls the stored procedure every hour so that Lottie sees updates at least every hour
USE ROLE ACCOUNTADMIN;
grant execute task on account to role sysadmin;

USE ROLE SYSADMIN;
create or replace task acme_return_update
  warehouse = compute_wh
  schedule = '1 minute'
as
  call lotstockupdate_sp();

--if you need to see who owns the task
show grants on task acme_return_update;

--Look at the task you just created to make sure it turned out okay
show tasks;
desc task acme_return_update;

--if your task has a state of "suspended" run this to get it going
alter task acme_return_update resume;

--Check back 5 mins later to make sure your task has been running
--You will not be able to see your task on the Query History Tab
select *
  from table(information_schema.task_history())
  order by scheduled_time;

--***** SUSPEND THE TASK ONCE YOU'VE SEEN THAT THIS EXAMPLE WORKS*****
--Turn your task off after you've confirmed it works
--otherwise you'll use up all your free credits running this task
alter task acme_return_update suspend;
```

Run this query to see how the task is doing. This will show you how often it has been running and whether it is running successfully.

Once you're certain the task works, suspend it in this example or it will eat up all your free credits.



# ACME-ADU Exchange Design

Max's Share ADU\_VINHANCED Share

## Object Definition Code

```
-----OUTBOUND SHARE-----  
--Create the share that will be share back to Lottie  
USE ROLE ACCOUNTADMIN;  
USE SCHEMA OUTGOING.ACME_DETROIT;  
  
CREATE SHARE ADU_VINHANCED  
COMMENT='Sharing enhanced VIN data back to partners like ACME/Lottie';  
  
GRANT USAGE ON DATABASE OUTGOING  
TO SHARE ADU_VINHANCED;  
  
GRANT USAGE ON SCHEMA OUTGOING.ACME_DETROIT  
TO SHARE ADU_VINHANCED;  
  
GRANT SELECT ON TABLE LOTSTOCKRETURN  
TO SHARE ADU_VINHANCED  
-----
```



# ACME-ADU Exchange Design

Max's Share ADU\_VINHANCED Share

## Code and Data Files

\*\*\*OPTIONAL\*\*\*



### OPTIONAL

Download and run the code to create the schemas, table, view, and share for Max's share.

Do this only if you think it will help you understand the design better.



CODE-8B-BehindScenesMax.txt



Maxs\_ManufPlants\_Data.csv



Maxs\_ManufToMake\_Data.csv



Maxs\_MMVDS\_Data.csv



Maxs\_ModelYear\_Data.csv



Maxs\_WMIToManuf\_data.csv

