

Exercises on Views

Natalia Carrión Giménez

Johannes Stephan

Julian Bolting

Exercise 1

A view that shows all reservations, together with the names of the reserving member, the licenseplate, make and model of the reserved car, and the home location of the vehicle

Exercise 1

```
1 CREATE OR REPLACE VIEW cash.reservation_view AS
2
3     SELECT res.resnumber reservation_number, res."interval",           --> Table Reservation
4            names.firstname, names.lastname, names.companyname,       --> Subquery names
5            v.licenseplate, v.make, v.model,                          --> Table Vehicle
6            loc.name AS location                                       --> Table Location
7 FROM
8     (SELECT id, firstname, lastname, NULL AS companyname FROM cash.personmember
9      UNION
10     SELECT id, firstname, lastname, NULL AS companyname FROM cash.coopmember
11     UNION
12     SELECT id, NULL AS firstname, NULL AS lastname, companyname FROM cash.companymember) AS names
13
14 JOIN
15
16     cash.member mem ON names.id = mem.id JOIN
17     cash.reservation res ON res.member = mem.id JOIN
18     cash.vehicle v ON res.vehicle = v.id JOIN
19     cash.location loc ON v.home = loc.id
20
21 ORDER BY res.resnumber;
```

Exercise 1

```
1 CREATE OR REPLACE VIEW
2
3 SELECT res.resnumb
4         names.firs
5         v.licensep
6         loc.name A
7 FROM
8 (SELECT id, fi
9 UNION
10 SELECT id, fir
11 UNION
12 SELECT id, NUL
13
14 JOIN
15
16 cash.member me
17 cash.reservati
18 cash.vehicle v
19 cash.location
20
21 ORDER BY res.resnu
```

Member
id
type
membernr
password
homelocation

PersonMember
id
type
membernr
password
homelocation
address
bankaccount
firstname
lastname
dateofbirth
hadaccident

CoopMember
id
type
membernr
password
homelocation
address
bankaccount
firstname
lastname
responsiblefor
shares

CompanyMember
id
type
membernr
password
homelocation
address
bankaccount
companyname

```
...ation
...nes
...le
...ion
...member) AS names
```

Exercise 1

```
SELECT * FROM cash.reservation_view
```

reservation_number	interval	firstname	lastname	companyname	licenseplate	make	model	location
0	("2023-07-07 04:00:00","2023-07-07 12:00:00")	Pig	Ben	NULL	ZH-1001	Audi	A6	Zurich-Oerlikon
1	("2023-07-12 12:00:00","2023-07-13 08:00:00")	Lucky	Luke	NULL	ZH-1001	Audi	A6	Zurich-Oerlikon
2	("2023-08-10 12:00:00","2023-08-10 20:00:00")	Lucky	Luke	NULL	ZH-1001	Audi	A6	Zurich-Oerlikon
3	("2023-08-03 12:00:00","2023-08-04 12:00:00")	Peppermint	Betty	NULL	ZH-1002	Chrysler	PT Chruiser	Uster
4	("2023-08-07 13:00:00","2023-08-07 22:00:00")	Lew	Archer	NULL	ZH-1002	Chrysler	PT Chruiser	Uster
5	("2023-08-09 12:00:00","2023-08-09 20:00:00")	Peppermint	Betty	NULL	ZH-1002	Chrysler	PT Chruiser	Uster
6	("2023-08-10 12:00:00","2023-08-10 20:00:00")	Lew	Archer	NULL	ZH-1002	Chrysler	PT Chruiser	Uster
7	("2023-08-02 04:00:00","2023-08-02 14:00:00")	NULL	NULL	Dust Busters Unlimited	ZH-1003	Chrysler	Voyager	Uster
8	("2023-08-08 08:00:00","2023-08-09 08:00:00")	Al	Capone	NULL	ZH-1003	Chrysler	Voyager	Uster
9	("2023-08-10 12:00:00","2023-08-10 20:00:00")	Al	Capone	NULL	ZH-1003	Chrysler	Voyager	Uster
10	("2023-09-06 12:00:00","2023-09-06 20:00:00")	NULL	NULL	Dust Busters Unlimited	ZH-1003	Chrysler	Voyager	Uster
11	("2023-07-27 12:00:00","2023-07-27 18:00:00")	Al	Capone	NULL	ZH-1004	Smart	Pure	Uster
12	("2023-08-10 12:00:00","2023-08-10 20:00:00")	Peppermint	Betty	NULL	ZH-1004	Smart	Pure	Uster
13	("2023-08-12 12:00:00","2023-08-12 14:00:00")	Peppermint	Betty	NULL	ZH-1004	Smart	Pure	Uster
14	("2023-08-14 16:00:00","2023-08-15 00:00:00")	Peppermint	Betty	NULL	ZH-1004	Smart	Pure	Uster
15	("2023-08-02 04:00:00","2023-08-02 12:00:00")	Lucky	Luke	NULL	ZH-1005	Smart	Pure	Zurich-Oerlikon
16	("2023-08-10 12:00:00","2023-08-10 20:00:00")	Pig	Ben	NULL	ZH-1005	Smart	Pure	Zurich-Oerlikon
17	("2023-08-11 12:00:00","2023-08-11 16:00:00")	Lucky	Luke	NULL	ZH-1005	Smart	Pure	Zurich-Oerlikon
18	("2023-08-14 16:00:00","2023-08-15 00:00:00")	Pig	Ben	NULL	ZH-1005	Smart	Pure	Zurich-Oerlikon
19	("2023-06-26 20:00:00","2023-06-27 02:00:00")	Al	Capone	NULL	ZH-1006	VW	Passat	Uster

Exercise 2

the "outer" vehicle table

--- this is a view showing all attributes of all the tables in the vehicle specialization hierarchy

Exercise 2

Vehicle hierarchy:

- **vehicle:**

- **truck** (+ loadingcapacity):

- pickup

- transporter (+ height)

- **motorcar** (+ childseat, extras):

- compactcar

- convertible (+ backseat)

- limousine

- sedan

- stationwagon (+ loadingvolume)

- van (+ numberofseats)

Exercise 2

```
CREATE OR REPLACE VIEW outer_vehicle_view AS
  SELECT v.id, v.type, v.licenseplate, v.make, v.model, v.motornumber, v.kilometers, -----> 1 level
         v.isoperational, v.lastservice, v.gasconsumption, v.insurance, v.home, v.avggas,
         mc.childseat, mc.extras, tr.loadingcapacity, -----> 2 level
         conv.backseat, sw.loadingvolume, va.numberofseats, transp.height -----> 3 level
  FROM cash.vehicle v
     LEFT JOIN cash.motorcar mc ON v.id = mc.id
     LEFT JOIN cash.truck tr ON v.id = tr.id
     LEFT JOIN cash.convertible conv ON v.id = conv.id
     LEFT JOIN cash.stationwagon sw ON v.id = sw.id
     LEFT JOIN cash.van va ON v.id = va.id
     LEFT JOIN cash.transporter transp ON v.id = transp.id
  ORDER BY v.id;
```

Data Output Messages Notifications

CREATE VIEW

Query returned successfully in 108 msec.

Exercise 2

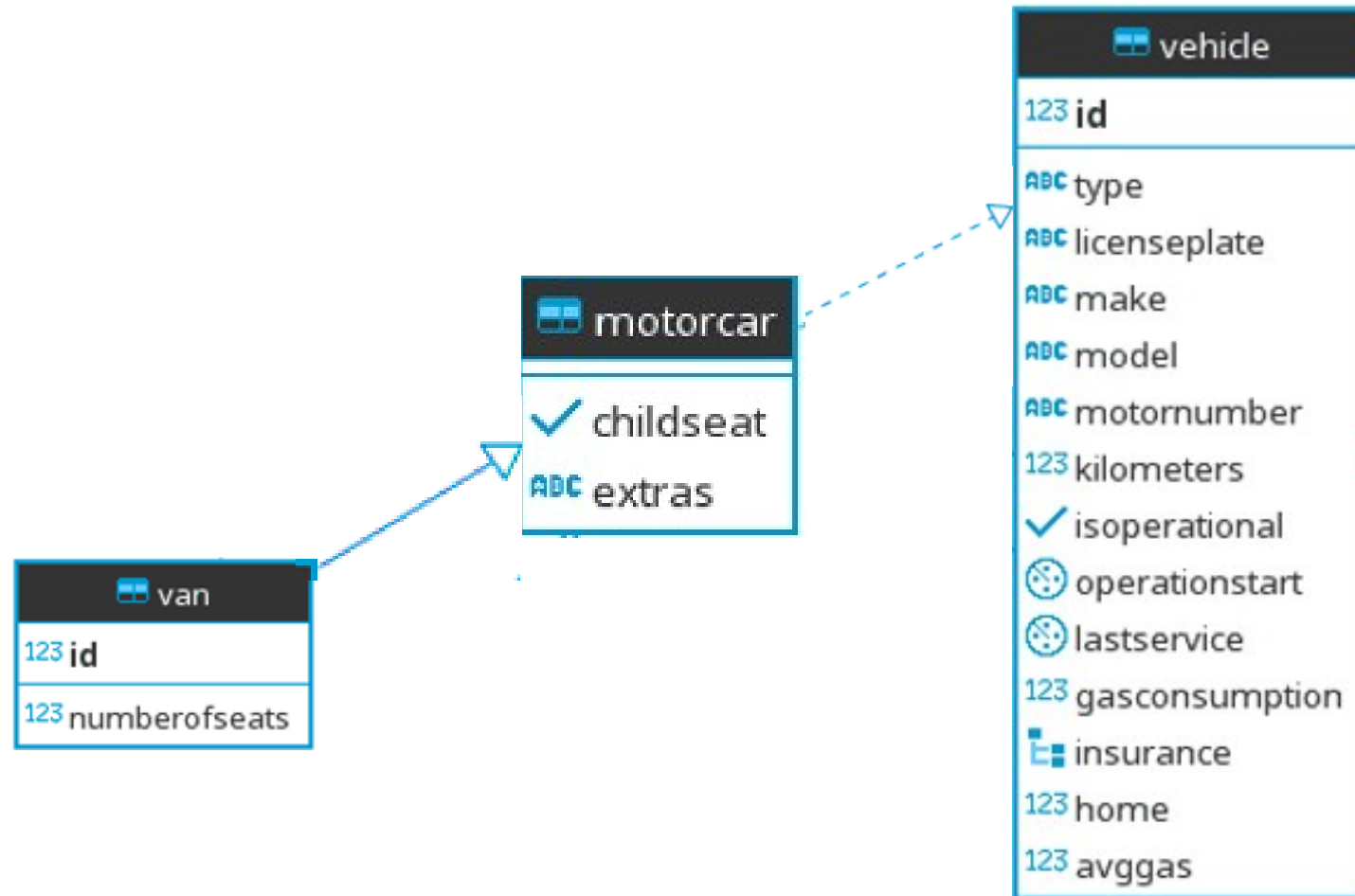
```
SELECT *
FROM outer_vehicle_view;
```

id	type	licenseplate	make	model	motornumber	kilometers	isoperational	lastservice	gasconsumpt	insurance	home	avggas	childseat	extras	lo	sn
integer	character var	character var	character var	character varyir	character var	numeric (10,3)	boolean	date	numeric (10,2)	cash.insurancepol	integer	numeric (5,2)	boolean	character varying (100)		
1000	Limousine	194 SUA	Cadillac	Eldorado	454994	135.333	true	2021-08-16	54702.32	(1001,1150.00)	1000	1.00	false	[null]		
1001	Sedan	ZH-1001	Audi	A6	345345	30888.000	true	2028-03-09	2484.73	(1001,1100.00)	1003	8.05	false	ABS, ESP, Klima-Anlage		
1002	Sedan	ZH-1002	Chrysler	PT Chruiser	45433	34033.000	true	2030-04-04	2733.72	(1001,900.00)	1006	8.03	true			
1003	Van	ZH-1003	Chrysler	Voyager	546345	15205.000	true	2028-04-04	2125.90	(1001,1300.00)	1006	14.00	true	Klima-Anlage		
1004	Compact...	ZH-1004	Smart	Pure	42323	15279.000	true	2028-06-06	796.96	(1001,600.00)	1006	5.19	false			
1005	Compact...	ZH-1005	Smart	Pure	3495345	18059.000	true	2028-06-06	942.52	(1001,600.00)	1003	5.19	false			
1006	StationW...	ZH-1006	VW	Passat	89754	60495.000	true	2028-01-01	5494.63	(1001,1100.00)	1006	9.06	false	Klima-Anlage		
1007	Limousine	ZH-1007	Audi	A8	454354	28270.000	true	2028-01-11	3335.26	(1001,1150.00)	1006	11.86	false	ABS, ESP, GUGUS, GAGA, Kl...		
1008	Limousine	ZH-1008	Audi	A8	534534	14849.000	true	2028-07-07	1759.74	(1001,1150.00)	1003	11.80	true	ABS, ESP, Klima-Anlage		
1009	Convertible	ZH-1009	Alfa Rom...	Spider	349898	17783.000	true	2028-07-08	1868.37	(1001,850.00)	1004	10.54	false	automat. Verdeck		
1010	Pickup	ZH-1010	Toyota	Tacoma	5435b3335	33945.000	true	2028-02-03	5834.32	(1001,850.00)	1006	17.06	[null]	[null]		
1011	Transport...	ZH-1011	Ford	Marathon	334783	19967.000	true	2028-04-11	2675.02	(1001,1200.00)	1006	13.10	[null]	[null]		
1012	Sedan	ZH-1012	Chrysler	PT Chruiser	345dfs423	41861.000	true	2028-08-09	3380.55	(1001,1100.00)	1008	8.08	false	ABS, ESP, GAGA, Klima-Anl...		
1013	Van	ZH-1014	Chrysler	Voyager	8099332	35969.000	true	2028-01-01	4543.93	(1001,1300.00)	1008	12.64	true	Klima-Anlage		
1014	Compact...	ZH-1015	Smart	Pulse	435432	19369.000	true	2028-06-06	953.80	(1001,600.00)	1008	4.90	false			
1015	Compact...	ZH-1016	Smart	Pure	5435434	18452.000	true	2028-06-06	979.65	(1001,600.00)	1008	5.30	false			
1016	StationW...	ZH-1017	Ford	Focus	3230019	18152.000	true	2028-02-11	1640.74	(1001,1100.00)	1008	9.00	false	Klima-Anlage		
1017	Limousine	ZH-1018	Audi	A8	89e01234	19954.000	true	2028-02-28	2441.11	(1001,1150.00)	1008	12.01	false	ABS, ESP, GUGUS, GAGA, Kl...		
1018	Limousine	ZH-1019	Audi	A8	9054212	30975.000	true	2027-12-19	3358.75	(1001,1150.00)	1008	10.91	true	ABS, ESP, GUGUS, GAGA, Kl...		
1019	Convertible	ZH-1020	Ford	Mustang	9529343	22651.000	true	2027-12-20	2382.85	(1001,850.00)	1008	10.60	false	automat. Verdeck		
1020	Pickup	ZH-1021	Dodge	Dakota	4193223	8787.000	true	2028-09-19	1512.00	(1001,850.00)	1008	17.21	[null]	[null]		

Exercise 3

look at the *_JT tables for vehicles and members, where the specialization hierarchies have been implemented with foreign keys. Define VanV views showing all the attributes for Vans, respectively (i.e., including the inherited ones).

Exercise 3



Exercise 3

Query Query History

```
1 CREATE OR REPLACE VIEW VanV AS
2     SELECT *
3     FROM vehicle_jt
4         NATURAL JOIN motorcar_jt
5         NATURAL JOIN van_jt
6     ORDER BY id;
7
```

Scratch Pad × Data Output Messages Notifications

Successfully run. Total query runtime: 86 msec.
6 rows affected.

Exercise 3

```
SELECT *  
FROM cash.VanV
```

	id integer	numberofseats smallint	extras character varying (100)	childseat boolean	make character varying (15)	licenseplate character varying (10)	motornumber character varying (20)	kilometers numeric (10,3)	isoperational boolean	operationstart date	lastservice date	gas num
1	1003	7	Klima-Anlage	true	Chrysler	ZH-1003	546345	15205.000	true	2006-02-01	2028-04-04	
2	1013	7	Klima-Anlage	true	Chrysler	ZH-1014	8099332	35969.000	true	2005-04-01	2028-01-01	
3	1022	7	Klima-Anlage	true	Chrysler	ZH-1025	3478932	20078.000	true	2005-09-01	2028-02-11	
4	1027	6	Klima-Anlage	true	Chrysler	ZH-3458	226345	29764.000	true	2005-12-01	2028-01-21	
5	1034	8	Klima-Anlage	true	Ford	ZH-8006	22635645	27303.000	true	2005-06-01	2028-01-01	
6	1040	8	Klima-Anlage	true	Ford	ZH-8206	226572645	45348.000	true	2005-03-01	2028-01-01	

6 rows: 6 of 6 Query complete 00:00:00.161 Ln 2, Col 15