Ausarbeitung 05

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Abfragen

```sql
 1  -- 1.1
 2  SELECT release_year, title,
 3         LISTAGG(SUBSTR(first_name, 0, 1) || '. ' || last_name, ', ')
 4             WITHIN GROUP (ORDER BY last_name) AS actors
 5  FROM film
 6         INNER JOIN film_actor USING (film_id)
 7         INNER JOIN actor USING (actor_id)
 8  GROUP BY film_id, title, release_year
 9  ORDER BY release_year ASC, title ASC;
10
11  -- 1.2
12  SELECT first_name || ' ' || last_name AS customer,
13         LISTAGG(title || ' (' || to_char(release_year) || ')', ',')
14             WITHIN GROUP (ORDER BY release_year DESC) AS films
15  FROM rental
16         INNER JOIN customer USING (customer_id)
17         INNER JOIN inventory USING (inventory_id)
18         INNER JOIN film USING (film_id)
19  WHERE (
20             (SELECT sysdate
21              FROM dual) - rental_date) / 365 <= 4
22  GROUP BY customer_id, first_name, last_name
23  ORDER BY last_name ASC;
24
25  -- 1.3
26  WITH at_least_three AS
27      (SELECT customer_id,
28              category_id,
29              COUNT(film_id) AS films_of_category
30       FROM customer c
31              INNER JOIN store s ON c.store_id = s.store_id
32              INNER JOIN address a ON s.address_id = a.address_id
33              INNER JOIN city USING (city_id)
34              INNER JOIN rental USING (customer_id)
35              INNER JOIN inventory USING (inventory_id)
36              INNER JOIN film USING (film_id)
37              INNER JOIN film_category USING (film_id)
38       WHERE city = 'Linz'
39       GROUP BY customer_id, category_id
40       HAVING COUNT(film_id) >= 3)
```

```
41 SELECT first_name || ' ' || last_name AS customer,
42        LISTAGG(name, ', ')
43            WITHIN GROUP (ORDER BY name ASC) AS interests
44 FROM at_least_three
45        INNER JOIN customer USING (customer_id)
46        INNER JOIN category USING (category_id)
47 GROUP BY customer_id, first_name, last_name
48 ORDER BY last_name ASC;
49
50 -- 2.1
51 CREATE OR REPLACE VIEW ue5_02a AS
52   WITH revenues AS
53   (SELECT store_id,
54           category_id,
55           SUM(amount) AS revenue
56    FROM payment
57        INNER JOIN rental USING (rental_id)
58        INNER JOIN inventory USING (inventory_id)
59        INNER JOIN store USING (store_id)
60        INNER JOIN film_category USING (film_id)
61    WHERE store_id IN (1, 2)
62    GROUP BY store_id, category_id
63    ORDER BY category_id ASC)
64   SELECT category_id,
65          store1_revenue,
66          store2_revenue,
67          ROUND(store1_revenue / store2_revenue, 2) AS s1_relative_to_s2
68   FROM
69        (SELECT *
70         FROM revenues
71             PIVOT
72             -- it's only one row anyway
73             -- so AVG should be fine
74             (AVG(revenue) AS revenue
75             FOR store_id
76             IN (1 AS store1,
77               2 AS store2)));
78
79 SELECT * FROM ue5_02a;
80
81 -- 2.2
82 CREATE MATERIALIZED VIEW ue05_02b
83 BUILD IMMEDIATE
84 REFRESH COMPLETE
85 ON DEMAND
86   AS
87     (SELECT *
88      FROM ue5_02a);
89
90 SELECT * FROM ue05_02b;
91
92 DROP MATERIALIZED VIEW ue05_02b;
93 -- 2.3
94 CREATE MATERIALIZED VIEW ue05_02c
95 REFRESH COMPLETE
96 START WITH TRUNC(SYSDATE) + ((1/24/60) * (23 * 60 + 30))
97 NEXT TRUNC(SYSDATE) + 1 + ((1/24/60) * (23 * 60 + 30))
```

```
 98    AS
 99      (SELECT *
100       FROM ue05_02b);
101
102 DROP MATERIALIZED VIEW ue05_02c;
103
104 -- 3.1
105 SELECT  column_name,
106         data_type,
107         data_length,
108         nullable
109 FROM user_tab_columns
110 WHERE table_name = &tab_name;
111
112 -- 3.2
113 COMMENT ON TABLE store IS 'This is one hell of a store collection.';
114 SELECT table_name,
115        comments
116 FROM user_tab_comments
117 WHERE table_name = 'STORE';
118
119 -- 3.3
120 SELECT cols.column_name,
121        cols.constraint_name,
122        cons.constraint_type,
123        cons.search_condition,
124        cons.status
125 FROM user_constraints cons INNER JOIN user_cons_columns cols
126           ON cons.constraint_name = cols.constraint_name
127 WHERE cons.table_name = &tab_name;
128
129 -- 4.1
130 CREATE SEQUENCE probe_seq;
131
132 CREATE TABLE probe (
133   id VARCHAR2(50),
134   timestamp DATE NOT NULL,
135   type VARCHAR2(50) NOT NULL,
136   "comment" VARCHAR2(255),
137   CONSTRAINT probe_pk PRIMARY KEY (id)
138 );
139
140 -- There must be some sort of information about
141 -- who is doing the insert because otherwise the
142 -- DB could not distinguish the teams since I assume
143 -- there is only one DB user for all teams (as the
144 -- task description suggests). Hence I decided to
145 -- concatenate the next sequence value with a unique
146 -- team descriptor.
147 INSERT
148     INTO probe (id, timestamp, type)
149   VALUES (probe_seq.nextval || '_team1', SYSDATE, 'Milch');
150
151 INSERT
152     INTO probe (id, timestamp, type)
153   VALUES (probe_seq.nextval || '_team2', SYSDATE, 'Eier');
154
```

```
155 SELECT * FROM probe;
156
157 DROP TABLE probe;
158 DROP SEQUENCE probe_seq;
```

Ergebnisse

	RELEASE_YEAR ⬦	TITLE ⬦	ACTORS ⬦
1	1983	BORN SPINAL	M. ALLEN, R. JOHANSSON, K. PALT…
2	1983	BOWFINGER GABLES	K. BERRY, C. HUNT, M. MCCONAUGH…
3	1983	BUNCH MINDS	K. BERRY, C. BRIDGES, L. BULLOC…
4	1983	CHITTY LOCK	V. BOLGER, S. DAVIS, N. DEGENER…
5	1983	CIDER DESIRE	J. CHASE, F. DAY-LEWIS, J. DEGE…
6	1983	CLOSER BANG	J. DEGENERES, J. FAWCETT, E. GU…
7	1983	DIVIDE MONSTER	C. AKROYD, H. BERRY, A. DREYFUS…
8	1983	DRAGON SQUAD	A. CRONYN, S. DAVIS, S. DEPP, E…
9	1983	DRUMS DYNAMITE	V. BERGEN, J. CRUISE, L. DEE, M…
10	1983	INNOCENT USUAL	C. AKROYD, J. PITT, D. TORN
11	1983	LOST BIRD	C. BIRCH, K. JOVOVICH, K. TORN
12	1983	MAJESTIC FLOATS	N. HOPKINS, E. MANSFIELD, G. SI…
13	1983	MOONSHINE CABIN	M. CARREY, J. DEGENERES, G. GOO…
14	1983	NASH CHOCOLAT	H. BALE, J. DEAN, H. GARLAND, B…
15	1983	PET HAUNTING	L. BRODY, J. DEGENERES, N. DEGE

Figure 1: Resultat der Abfrage 1.1

	CUSTOMER ⬦	FILMS ⬦
1	RAFAEL ABNEY	CHOCOLAT HARRY (2006),CONEHEADS SMOOCHY (20…
2	NATHANIEL ADAM	TIGHTS DAWN (2006),GATHERING CALENDAR (2005…
3	KATHLEEN ADAMS	SPY MILE (2008),SWARM GOLD (2003),SUNDANCE …
4	DIANA ALEXANDER	REBEL AIRPORT (2008),SHOW LORD (2006),JASON…
5	GORDON ALLARD	SILVERADO GOLDFINGER (2008),BINGO TALENTED …
6	SHIRLEY ALLEN	BIRD INDEPENDENCE (2006),ORANGE GRAPES (200…
7	CHARLENE ALVAREZ	BIRDS PERDITION (2006),INDEPENDENCE HOTEL (…
8	LISA ANDERSON	MOTHER OLEANDER (2007),COLOR PHILADELPHIA (…
9	JOSE ANDREW	CROOKED FROGMEN (2008),GARDEN ISLAND (2007)…
10	IDA ANDREWS	CITIZEN SHREK (2008),VOLCANO TEXAS (2008),A…
11	OSCAR AQUINO	AFFAIR PREJUDICE (2008),OPEN AFRICAN (2007)…
12	HARRY ARCE	COMA HEAD (2007),FROST HEAD (2007),JASON TR…
13	JORDAN ARCHULETA	AFFAIR PREJUDICE (2008),LORD ARIZONA (2008)…
14	MELANIE ARMSTRONG	DOLLS RAGE (2006),TOURIST PELICAN (2000),BO…
15	BEATRICE ARNOLD	BALLOON HOMEWARD (2007),DOLLS RAGE (2006),M

Figure 2: Resultat der Abfrage 1.2

	CUSTOMER	INTERESTS
1	KATHLEEN ADAMS	Children, Classics, Music
2	DIANA ALEXANDER	Classics, Documentary, Drama, Foreign
3	SHIRLEY ALLEN	Animation, Children, Classics, Documentary, Family, Foreign, Sports
4	KENT ARSENAULT	Animation, Drama, Sci-Fi, Sports
5	TYRONE ASHER	Documentary, Sci-Fi
6	REGINA BERRY	Animation, Family, Foreign, Games, Horror
7	CLINTON BUFORD	Children, Family, Foreign
8	LYDIA BURKE	Children, Documentary, Games
9	ADRIAN CLARY	Family, Games, Music
10	GARY COY	Comedy, Games, Music
11	EUGENE CULPEPPER	Comedy
12	STACY CUNNINGHAM	Documentary, Family
13	LEAH CURTIS	Children, Music
14	EMILY DIAZ	Animation, New, Sports
15	GRACE ELLIS	Action, Children, Classics, Foreign, New, Sports

Figure 3: Resultat der Abfrage 1.3

	CUSTOMER	INTERESTS
1	KATHLEEN ADAMS	Children, Classics, Music
2	DIANA ALEXANDER	Classics, Documentary, Drama, Foreign
3	SHIRLEY ALLEN	Animation, Children, Classics, Documentary, Family, Foreign, Sports
4	KENT ARSENAULT	Animation, Drama, Sci-Fi, Sports
5	TYRONE ASHER	Documentary, Sci-Fi
6	REGINA BERRY	Animation, Family, Foreign, Games, Horror
7	CLINTON BUFORD	Children, Family, Foreign
8	LYDIA BURKE	Children, Documentary, Games
9	ADRIAN CLARY	Family, Games, Music
10	GARY COY	Comedy, Games, Music
11	EUGENE CULPEPPER	Comedy
12	STACY CUNNINGHAM	Documentary, Family
13	LEAH CURTIS	Children, Music
14	EMILY DIAZ	Animation, New, Sports
15	GRACE ELLIS	Action, Children, Classics, Foreign, New, Sports

Figure 4: Resultat der Abfrage 2.1

	COLUMN_NAME	DATA_TYPE	DATA_LENGTH	NULLABLE
1	ADDRESS_ID	NUMBER	22	N
2	ADDRESS	VARCHAR2	50	N
3	ADDRESS2	VARCHAR2	50	Y
4	DISTRICT	VARCHAR2	40	Y
5	CITY_ID	NUMBER	22	N
6	POSTAL_CODE	VARCHAR2	10	Y
7	PHONE	VARCHAR2	40	Y
8	LAST_UPDATE	TIMESTAMP(6)	11	Y

Figure 5: Resultat der Abfrage 3.1

	TABLE_NAME	COMMENTS
1	STORE	This is one hell of a store collection.

Figure 6: Resultat der Abfrage 3.2

	COLUMN_NAME	CONSTRAINT_NAME	CONSTRAINT_TYPE	SEARCH_CONDITION	STATUS
1	CITY_ID	FK_ADDRESS_CITY	R	<null>	ENABLED
2	CITY_ID	SYS_C00819280	C	"CITY_ID" IS NOT NULL	ENABLED
3	ADDRESS	SYS_C00819279	C	"ADDRESS" IS NOT NULL	ENABLED
4	ADDRESS_ID	SYS_C00819278	C	"ADDRESS_ID" IS NOT NULL	ENABLED
5	ADDRESS_ID	ADDRESS_PK	P	<null>	ENABLED

Figure 7: Resultat der Abfrage 3.3

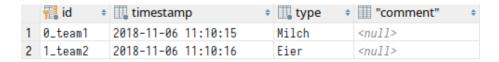|	id	timestamp	type	"comment"
1	0_team1	2018-11-06 11:10:15	Milch	<null>
2	1_team2	2018-11-06 11:10:16	Eier	<null>

Figure 8: Resultat der Abfrage 4.1

Theorie

4.2 Autokennzeichen

Autokennzeichen sind künstliche Schlüssel, die sich aus verschiedenen Informationen zusammensetzen, wie zum Beispiel dem Sitz der Behörde, bei der ein besimmtes Auto angemeldet ist. Es eignet sich nicht als Primärschlüssel für Kunden, da man mehrere Autos auf seinen Namen anmelden kann und deswegen Kunden der Autostatt zwei mal aufgeführt wären. Weiters ist das Kennzeichen ungeeignet als Primärschlüssel für Auto-Relationen, da bei einem Umzug das Auto (Modell, Zustand etc.) gleich bleibt, sich die Kenntafel aber ändert.

4.3 ISBN

Die ISBN ist eine Kombination von Nummern, welche Informationen über Titel, Verlag etc. geben, sie ist demnach ein zusammengesetzter / künstlicher Schlüssel. Sie identifiziert ein Buch und kein Exemplar eines Buches und ist deshalb ungeeignet als (einziger) Primärschlüssel für Buchexemplare, da eine Bibliothek ohne weiteres mehrere Exemplare eines Buches im Bestand haben kann. Wird der ISBN aber als Schlüssel für Bücher (nicht Exemplare) verwendet, ist das kein Problem - schließlich ist das der Sinn einer ISBN.