

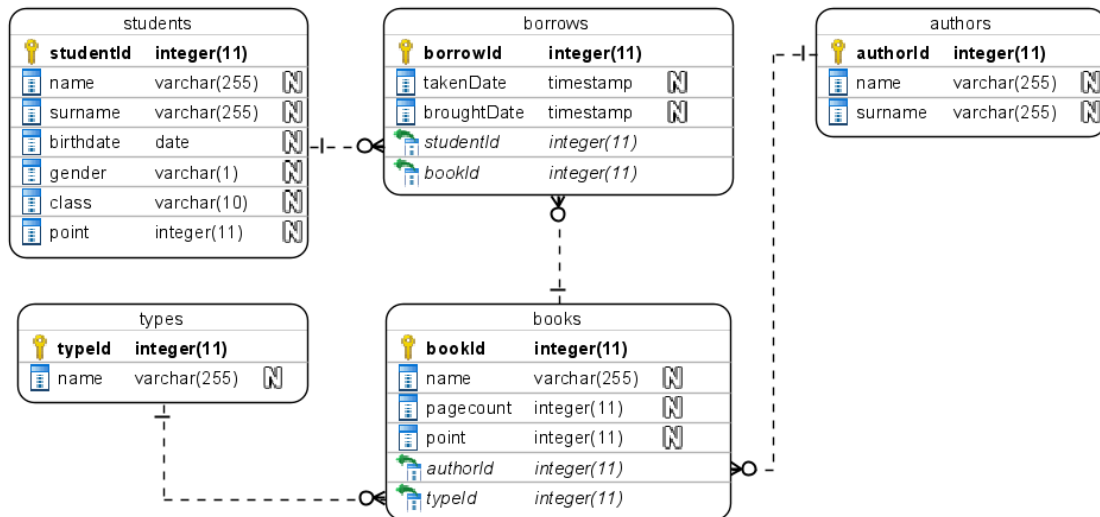
KAWAH EDUKASI BACKEND BATCH VI

Tugas : Test Minggu Ke-2 (ERD & SQL Database)

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1. Membuat ERD yang terdiri minimal 3 table yang saling memiliki relasi



2. Menjelaskan ERD yang sudah dibuat

ERD diatas merupakan rancangan dari database sederhana dari sebuah perpustakaan untuk peminjaman sebuah buku.

3. Buat SQL create table berdasarkan ERD yang dibuat

Dibawah ini merupakan sintaks DDL untuk membuat table sesuai dengan ERD yang telah dibuat sebelumnya

a. Tabel Student

```
CREATE TABLE students (  
  studentId INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,  
  name VARCHAR(255) DEFAULT NULL,  
  surname VARCHAR(255) DEFAULT NULL,  
  birthday DATETIME DEFAULT NULL,  
  gender ENUM('M','F') DEFAULT NULL,  
  class VARCHAR(10) DEFAULT NULL,  
  point integer(11) DEFAULT 0  
);
```

b. Tabel Book Author

```
CREATE TABLE authors (  
  authorId INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,  
  name VARCHAR(255) DEFAULT NULL,  
  surname VARCHAR(255) DEFAULT NULL  
);
```

c. Tabel Book Type

```
CREATE TABLE types (  
  typeId INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,  
  name VARCHAR(255) DEFAULT NULL  
);
```

d. Tabel Borrow

```
CREATE TABLE borrows (  
  borrowId INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,  
  takenDate DATETIME DEFAULT NULL,  
  broughtDate DATETIME DEFAULT NULL,  
  studentId INT(11) DEFAULT NULL,  
  bookId INT(11) DEFAULT NULL  
);
```

e. Tabel Book

```
CREATE TABLE books (  
  bookId INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,  
  name VARCHAR(255) DEFAULT NULL,  
  pagecount INT(11) DEFAULT 0,  
  point INT(11) DEFAULT 0,  
  authorId INT(11) DEFAULT NULL,  
  typeId INT(11) DEFAULT NULL  
);
```

f. Relasi Tabel Borrow

```
ALTER TABLE borrows  
  ADD CONSTRAINT borrows_1 FOREIGN KEY (studentId) REFERENCES students  
  (studentId) ON DELETE SET NULL ON UPDATE CASCADE,  
  ADD CONSTRAINT borrows_2 FOREIGN KEY (bookId) REFERENCES books  
  (bookId) ON DELETE SET NULL ON UPDATE CASCADE;
```

g. Relasi Tabel Book

```
ALTER TABLE books
```

```
ADD CONSTRAINT books_1 FOREIGN KEY (authorId) REFERENCES authors
(authorId) ON DELETE SET NULL ON UPDATE CASCADE,
ADD CONSTRAINT books_2 FOREIGN KEY (typeId) REFERENCES types (typeId)
ON DELETE SET NULL ON UPDATE CASCADE;
```

4. Buat SQL insert data ke dalam masing table-table.

Dibawah ini merupakan sintaks DML mengisi separuh data yang ada ke dalam masing-masing table yang sudah di buat sebelumnya.

a. Tabel Student

```
INSERT INTO students
(studentId, name, surname, birthday, gender, class, point)
VALUES
(1, 'Hazel', 'Gree', '1999-05-15', 'F', '9B', 916),
(2, 'Ashley', 'Marshall', '1999-10-28', 'F', '12D', 215);
```

b. Tabel Book Author

```
INSERT INTO authors
(authorId, name, surname)
VALUES
(1, 'William Dean', 'Howells'),
(2, 'Frederic', 'Brown');
```

c. Tabel Book Type

```
INSERT INTO types
(typeId, name)
VALUES
(1, 'Science fiction'),
(2, 'Satire');
```

d. Tabel Borrow

```
INSERT INTO borrows
(borrowId, studentId, bookId, takenDate, broughtDate)
VALUES
(1, 360, 142, '2015-08-09 13:26:00.000', '2015-08-20 06:59:00.000'),
(2, 308, 131, '2015-08-10 19:44:00.000', '2015-08-15 10:46:00.000');
```

e. Tabel Book

```
INSERT INTO books
(bookId, name, pagecount, point, authorId, typeId)
VALUES
```

```
(1, 'A Daughter of the Snows', 199, 84, 3, 9),
(2, 'The Near East: 10,000 Years of History', 298, 52, 9, 13);
```

5. Buat SQL select data dari satu table
Mengambil data dari table students

```
SELECT * FROM students;
```

studentid	first_name	last_name	birthday	gender	class	point
1	Heidi	Gee	1999-05-15	F	9B	916
2	Ashley	Marshall	1999-10-23	F	12D	215
3	Ashley	Gee	2000-07-12	F	12B	772
4	Alissa	Chapman	1999-07-25	F	10C	180
5	Maddox	Taylor	1999-12-30	F	11B	215
6	Gee	Wright	1999-05-28	M	10A	552
7	Pinto	Foster	1999-03-03	M	12B	775
8	Gray	King	1999-06-26	M	12D	402
9	James	Collins	1999-07-26	M	11A	816
10	Leslie	Young	1999-02-10	F	11C	835
11	Hailey	Hall	2001-01-16	F	10C	342
12	Washington	Mach	2001-09-26	M	9C	160
13	Ramona	Gee	1999-08-28	M	11A	564
14	Morgan	Smith	2001-05-13	M	10C	666
15	Perez	Adams	1999-10-27	M	9C	936
16	Adelle	Watson	2001-04-05	M	10C	552
17	Maddox	Jackson	2001-03-15	F	9B	125
18	Beverly	Morris	1999-11-10	F	9C	260
19	Kate	Anderson	2000-11-11	M	9D	976
20	Carter	Adams	2000-07-08	M	11C	658
21	Acikland	Adams	2000-05-19	F	11C	889
22	Hailey	Parker	1999-11-21	F	11C	104
23	Henderson	Cook	2001-08-08	M	9C	798
24	Wright	Young	2000-05-14	M	11E	268
25	Lindsay	Wilkinson	2000-10-08	F	10E	225
26	Wiss	Chapman	2000-11-08	F	12A	58
27	Love	Chapman	2000-10-10	F	12B	657
28	Wes	Bell	2001-01-25	M	9A	713
29	Tyler	Carter	2001-08-24	M	11C	709
30	Eden	Cook	2000-05-17	M	10C	882
31	Sally	Wood	1999-06-27	F	12D	99
32	Nelson	Smith	1999-11-15	M	12D	129
33	Aracelia	Brown	2000-03-11	F	11C	7

6. Buat SQL select data dari satu table dengan minimal 2 kondisi dan jelaskan maksud dari SQL yang dibuat

Mengambil data student yang gender nya Female atau F, Kemudian kelahiran nya lebih dari sama dengan tahun 2000 dan mempunyai poin lebih dari 700.

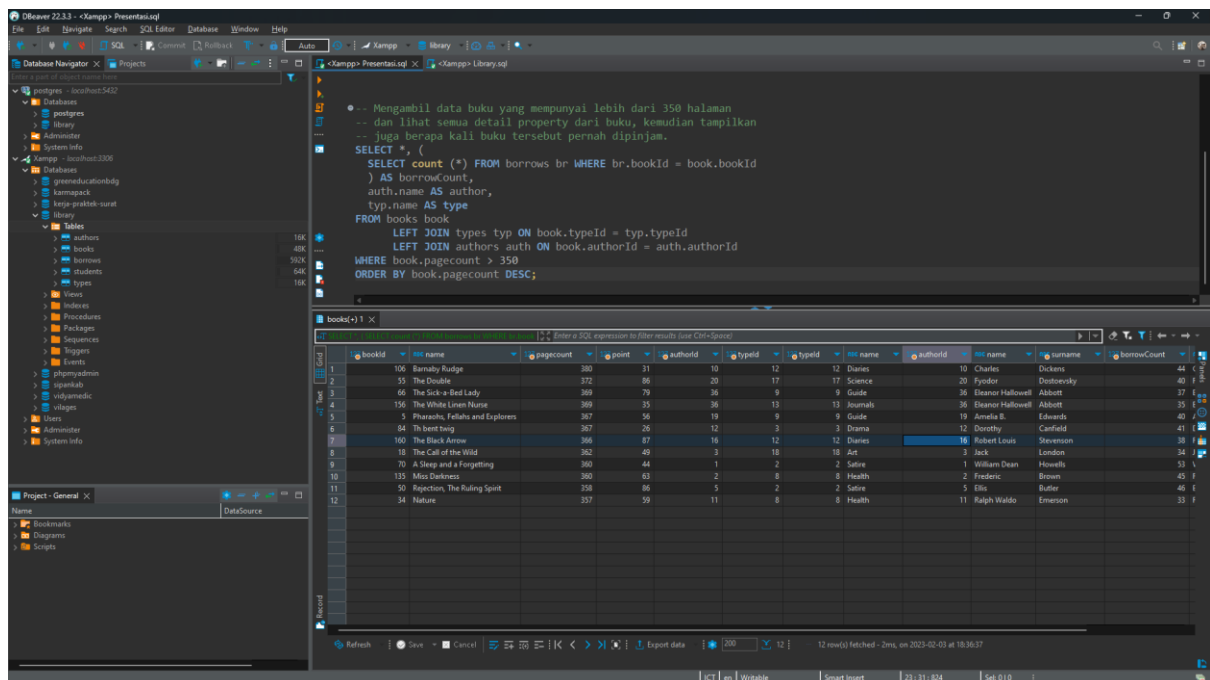
```
SELECT * FROM students WHERE gender = 'F' AND birthday >= '2000-01-01' AND POINT > 700;
```

studentid	first_name	last_name	birthday	gender	class	point
3	Ashley	Gee	2000-07-12	F	12B	772
21	Acikland	Adams	2000-05-19	F	11C	889
44	Agnes	Taylor	2000-04-09	F	12A	852
57	Adley	Adams	2000-05-31	F	11C	886
60	Alice	Wood	2000-04-05	F	12C	762
68	Beverly	Bell	2000-05-25	F	11B	812
75	Adrian	Adams	2001-03-04	F	9D	961
83	Alisa	Turner	2000-09-10	F	9C	829
91	Deny	Taylor	2000-08-10	F	9A	732
116	Jennifer	Thomas	2000-10-31	F	13E	844
128	Hailey	Rubinson	2001-06-23	F	10D	954
134	Alaina	Jefferson	2000-08-16	F	10E	789
140	Alisa	Jackson	2000-11-21	F	10C	862
144	Kim	Taylor	2001-05-17	F	10A	711
148	Alissa	Jackson	2000-03-21	F	12D	952
165	Alana	Cook	2000-08-18	F	9E	818
193	Maddie	Baker	2001-05-21	F	9C	906
207	Jenny	Wright	2001-08-06	F	9B	744
208	Heather	Brown	2001-02-21	F	12D	941
213	Alisa	Bellamy	2000-08-13	F	12B	808
221	Alcama	Chapman	2000-04-30	F	12E	676
228	Hailey	Love	2000-05-16	F	11D	746
238	Aurelia	Morris	2000-10-31	F	10E	849
251	Ady	Anderson	2000-08-06	F	11B	811
258	Willow	Bell	2000-11-29	F	9E	848
261	Maddie	Shaw	2001-08-26	F	10A	814
271	Addie	Turner	2001-01-13	F	12A	672
272	Adelle	Harris	2001-04-24	F	12C	882
275	Helen	Richardson	2001-03-23	F	9E	856
279	Joyce	Chapman	2001-04-06	F	12B	714

7. Buat SQL select yang mengimplementasikan join/sub query/cte dan jelaskan maksud dari SQL yang dibuat

Mengambil data buku yang mempunyai lebih dari 350 halaman dan lihat semua detail property dari buku, kemudian tampilkan juga berapa kali buku tersebut pernah dipinjam.

```
SELECT *, (  
    SELECT count (*) FROM borrows br WHERE br.bookId = book.bookId  
    ) AS borrowCount,  
    auth.name AS author,  
    typ.name AS type  
FROM books book  
    LEFT JOIN types typ ON book.typeId = typ.typeId  
    LEFT JOIN authors auth ON book.authorId = auth.authorId  
WHERE book.pagecount > 350  
ORDER BY book.pagecount DESC;
```



The screenshot shows the DBeaver SQL editor with the following SQL query:

```
-- Mengambil data buku yang mempunyai lebih dari 350 halaman  
-- dan lihat semua detail property dari buku, kemudian tampilkan  
-- juga berapa kali buku tersebut pernah dipinjam.  
SELECT *, (  
    SELECT count (*) FROM borrows br WHERE br.bookId = book.bookId  
    ) AS borrowCount,  
    auth.name AS author,  
    typ.name AS type  
FROM books book  
    LEFT JOIN types typ ON book.typeId = typ.typeId  
    LEFT JOIN authors auth ON book.authorId = auth.authorId  
WHERE book.pagecount > 350  
ORDER BY book.pagecount DESC;
```

The results table shows 12 rows of data. The columns are: bookId, title, pagecount, point, authorId, typeId, type, author, type, author, borrowCount.

bookId	title	pagecount	point	authorId	typeId	type	author	type	author	borrowCount
106	Barnaby Rudge	380	31	10	12	Dianes	10	Charles	Dickens	44
55	The Double	372	86	20	17	Science	20	Fyodor	Dostoevsky	40
66	The Sick-a-Bed Lady	369	79	36	9	Guide	36	Eleanor Hallowell	Abbott	37
156	The White Linen Nurse	369	35	36	13	Journals	36	Eleanor Hallowell	Abbott	35
5	Pharos, Felah and Explorers	367	56	19	9	Guide	19	Arnold B.	Edwards	40
84	The best twig	367	26	12	3	Drama	12	Dorothy	Canfield	41
160	The Black Arrow	366	87	16	12	Dianes	16	Robert Louis	Stevenson	38
18	The Call of the Wild	362	49	3	18	Kit	3	Jack	London	34
70	A Sleep and a Forgetting	360	44	1	2	Satire	1	William Dean	Howells	53
133	Miss Darkness	360	63	2	8	Health	2	Frederic	Brown	45
50	Rejection, The Ruling Spirit	358	86	5	2	Satire	5	Ellis	Butler	46
34	Nature	357	39	11	8	Health	11	Ralph Waldo	Emerson	33

Link Database SQL:

https://github.com/upi20/be_kawah_edukasi_batch_6/raw/master/Minggu%202/Library.sql