



GROUP 7

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Database Systems Projects

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LIBRARY MANAGEMENT SYSTEM

The book borrowing system of a university library is being renewed. Students and teachers who will borrow books are required to provide their first name, last name, department, and phone number. Additionally, students' class information is also collected. Email is optionally recorded.

Each book in the library system is registered with unique numbers. Information such as the book's title, publication year, author, page count, and publisher are recorded. The maximum number of books that teachers and students can borrow is also registered in the system.

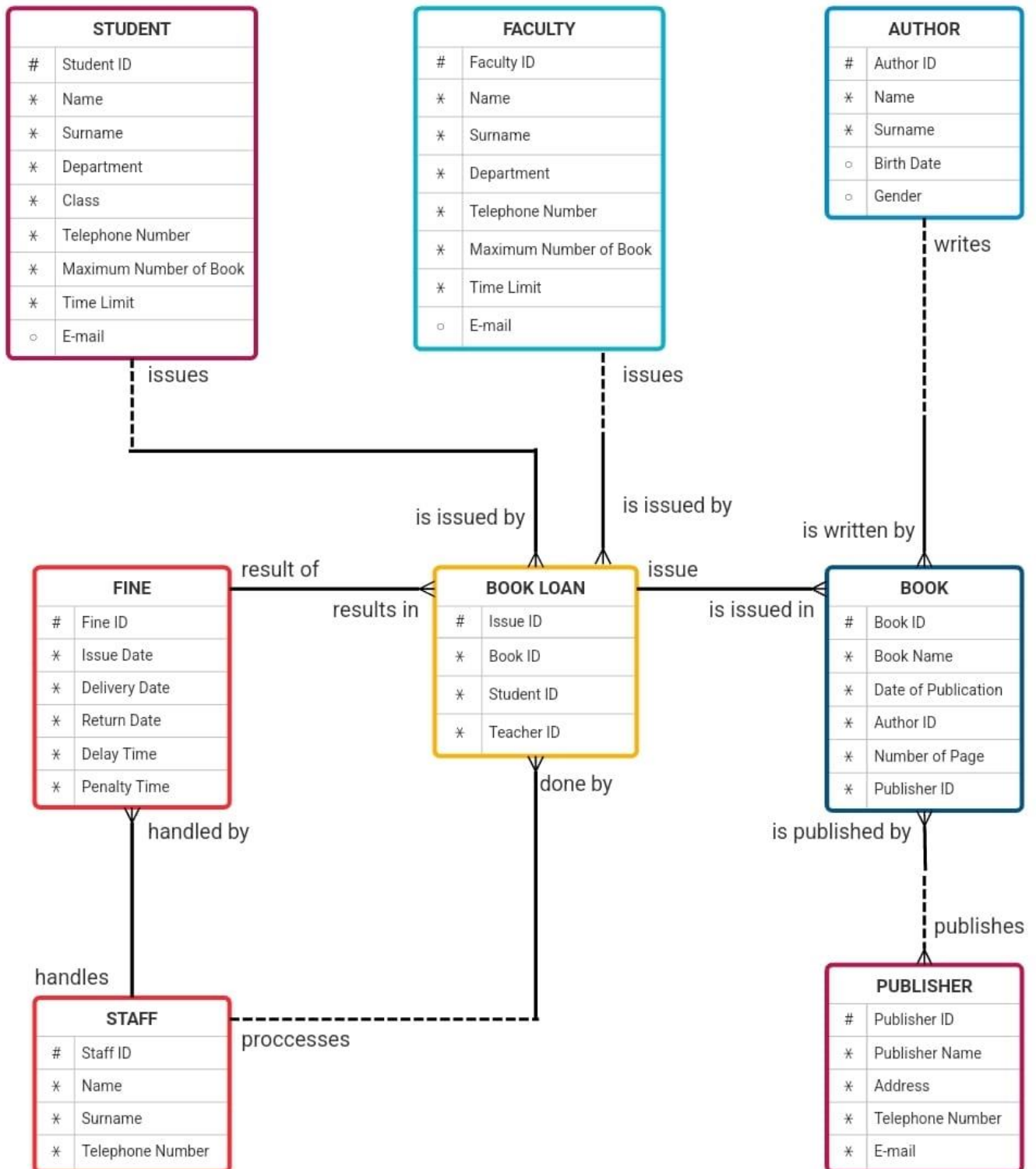
The system also includes the authors' first and last names. Each author is registered in the system with different IDs. Optionally, the author's date of birth, gender, and works can also be added to the system.

The date when each book is borrowed and the return date are recorded. The borrowing periods for teachers and students are different. For those who exceed the return date, the delay period and penalty fees are calculated based on the duration of the delay.

The system allows searching by publisher. The publisher's name, address, phone number, and email information are recorded. Additionally, the staff member performing the transaction is also registered in the system with their first name, last name, phone number, and ID.

	ENTITIES							
ATTRIBUTES	STUDENT	FACULTY	BOOK	AUTHOR	PUBLISHER	STAFF	BOOK LOAN	FINE
	Student ID	Faculty ID	Book ID	Author ID	Publisher ID	Staff ID	Issue ID	Fine ID
	Name	Name	Book Name	Name	Publisher Name	Name	Book ID	Issue Date
	Surname	Surname	Date of Publication	Surname	Address	Surname	Student ID	Delivery Date
	Department	Depatment	Author ID	Birthday Date	Telephone Number	Telephone Number	Teacher ID	Return Date
	Class	Telephone Number	Number of Page	Gender	E-mail			Delay Time
	Telephone Number	E-mail	Publisher ID					Penalty Fee
	E-mail	Maximum Number of Book						
	Maximum Number of Book	Time Limit						
	Time Limit							

		Entity-1	Entity-2	Entity-3	Entity-4	Entity-5	Entity-6	Entity-7	Entity-8
		STUDENT	FACULTY	BOOK	AUTHOR	PUBLISHER	STAFF	BOOK LOAN	FINE
Entity-1	STUDENT							issues	
Entity-2	FACULTY							issues	
Entity-3	BOOK				is written by	is published by		is issued in	
Entity-4	AUTHOR			writes					
Entity-5	PUBLISHER			publishes					
Entity-6	STAFF							proccesses	handles
Entity-7	BOOK LOAN	is issued by	is issued by	issue			done by		Results in
Entity-8	FINE	is given to	is given to				Handled by	Result of	



Column Name	Data Type	Nullable	Default	Primary Key
STUDENT_ID	NUMBER	No		1
FIRST_NAME	VARCHAR2(50)	No		
LAST_NAME	VARCHAR2(50)	No		
DEPARTMENT	VARCHAR2(50)	No		
CLASS	VARCHAR2(50)	No		
PHONE_NUMBER	VARCHAR2(15)	No		
EMAIL	VARCHAR2(100)	Yes		
MAX BOOKS	NUMBER	No		

Column Name	Data Type	Nullable	Default	Primary Key
FACULTY_ID	NUMBER	No		1
FIRST_NAME	VARCHAR2(50)	No		
LAST_NAME	VARCHAR2(50)	No		
DEPARTMENT	VARCHAR2(50)	No		
PHONE_NUMBER	VARCHAR2(15)	No		
EMAIL	VARCHAR2(100)	Yes		
MAX BOOKS	NUMBER	No		

Column Name	Data Type	Nullable	Default	Primary Key
BOOK_ID	NUMBER	No		1
TITLE	VARCHAR2(200)	No		
PUBLICATION_YEAR	NUMBER	No		
AUTHOR_ID	NUMBER	No		
PAGE_COUNT	NUMBER	No		
PUBLISHER_ID	NUMBER	No		

Column Name	Data Type	Nullable	Default	Primary Key
LOAN_ID	NUMBER	No		1
BOOK_ID	NUMBER	No		
USER_ID	NUMBER	No		
LOAN_DATE	DATE	No		
RETURN_DATE	DATE	No		
STAFF_ID	NUMBER	No		
STATUS	VARCHAR2(20)	Yes		

Column Name	Data Type	Nullable	Default	Primary Key
AUTHOR_ID	NUMBER	No		1
FIRST_NAME	VARCHAR2(50)	No		
LAST_NAME	VARCHAR2(50)	No		
BIRTH_DATE	DATE	Yes		
GENDER	VARCHAR2(10)	Yes		

Column Name	Data Type	Nullable	Default	Primary Key
STAFF_ID	NUMBER	No		1
FIRST_NAME	VARCHAR2(50)	No		
LAST_NAME	VARCHAR2(50)	No		
PHONE_NUMBER	VARCHAR2(15)	No		

Column Name	Data Type	Nullable	Default	Primary Key
FINE_ID	NUMBER	No		1
LOAN_ID	NUMBER	No		
USER_ID	NUMBER	No		
DELAY_TIME	NUMBER	No		
PENALTY_FEE	NUMBER	No		
STAFF_ID	NUMBER	No		

Column Name	Data Type	Nullable	Default	Primary Key
PUBLISHER_ID	NUMBER	No		1
NAME	VARCHAR2(100)	No		
ADDRESS	VARCHAR2(200)	No		
PHONE_NUMBER	VARCHAR2(15)	No		
EMAIL	VARCHAR2(100)	No		

STUDENT_ID	FIRST_NAME	LAST_NAME	DEPARTMENT	CLASS	PHONE_NUMBER	EMAIL	MAX_BOOK
2010204525	IMRAN NISA	TAPAR	SPORT SCIENCE	THIRD YEAR	5512648933	imrannisa@gmail.com	3
2315231425	SENA	AKKAYA	PHILOSOPHY	FIRST CLASS	5536458972	senaakkaya@gmail.com	3
2110213067	MELIKE	ERYILMAZ	MEDICINE	FIRST CLASS	5456521875		3
1910602008	ÖMER FARUK	POLAT	SPORT SCIENCE	FOURTH YEAR	5516458972	omerfaruk_78@gmail.com	3
2110213020	METEHAN	AYCIL	COMPUTER ERNGINEERING	SECOND YEAR	557132649		3

FACULTY_ID	FIRST_NAME	LAST_NAME	DEPARTMENT	PHONE_NUMBER	EMAIL	MAX_BOOK
86957637585	ayse	demir	ENGINEERING	5037895046	cdf@gmail.com	5
6574893029	ismail	papagan	ENGINEERING	5097896354		5
775948968	zeynep	çelik	LITERATURE	553758499		5
74653859	tugba	çetinoglu	SPORT SIENCE	5537896578	aabc@gmail.com	5
2746832792	nuray	polat	MEDICINE FAKULTY	75839859		5

BOOK_ID	TITLE	PUBLICATION_YEAR	AUTHOR_ID	PAGE_COUNT	PUBLISHER_ID
12	Twenty Thousand Leagues Under the Sea	1865	2	340	2001
10	ANN KARENINA	1870	4	680	2003
13	Pride and Prejudice	1790	5	532	2002
14	Days his suicide	1884	3	236	2004
11	The Hunchback of Notre Dame	1831	1	568	2000

LOAN_ID	BOOK_ID	USER_ID	LOAN_DATE	RETURN_DATE	STAFF_ID	STATUS
1012	14	6574893029	17.12.2024	17.01.2025	78901	
1013	11	1910602008	24.08.2024	9.09.2024	78786	
1009	10	2110213067	5.04.2024	20.04.2024	78650	JJ
1011	13	86957637585	1.07.2024	1.08.2024	78650	
1010	12	2010204525	15.06.2024	30.06.2024	78654	

AUTHOR_ID	FIRST_NAME	LAST_NAME	BIRTH_DATE	GENDER
4	LEV	TOLSTOY	09-Sep-1828	MALE
1	VICTOR	HUGO		MALE
2	JULES	VERNE	02-Jan-2002	MALE
5	JANE	AUSTE	16-Dec-1775	FEMALE
3	STEFAN	ZWEIG	28-Oct-1881	

STAFF_ID	FIRST_NAME	LAST_NAME	PHONE_NUMBER
78650	BARIS	ALBAYRAK	5469626654
78654	ONUR	DIKMEN	5536489654
78450	NEVIN	ÇINARLI	5527843696
78901	HAMZA	GÜL	5534697825
78786	HÜLYA	MIZGIN	5536489623

FINE_ID	LOAN_ID	USER_ID	DELAY_TIME	PENALTY_FEE	STAFF_ID
215	1013	1910602008	89	89	78786
216	1011	86957637585	3	3	78650
213	1009	2010204525	10	10	78650
214	1012	6574893029	56	56	78901
217	1010	2010204525	32	32	78654

PUBLISHER_ID	NAME	ADDRESS	PHONE_NUMBER	EMAIL
2003	Open Court Publishing Company	ABD chicago	1953625908	opencourt@gmail.com
2000	Henry Holt and Company	ABD NEWYORK	196489378	henryholt@gmail.com
2001	Adisson wesley	ABD BOSTON	1967904795	adissonwesley@gmail.com
2002	YEN PRESS	ABD NEWYORK	1953625908	yenpress@gmail.com
2004	Wizards of the Coast	ABD RENTON	198352490	wizardofthecoast@gmail.com

STATEMENTS.sql X

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```
1  --Statement including a subquery:
2  SELECT FIRST_NAME, LAST_NAME, DEPARTMENT
3  FROM STUDENT
4  WHERE DEPARTMENT = (SELECT DEPARTMENT FROM STUDENT WHERE STUDENT_ID = 2110213020);
5
6  --Statement including a JOIN:
7  SELECT s.FIRST_NAME, s.LAST_NAME, bi.ISSUE_DATE
8  FROM STUDENT s
9  INNER JOIN BOOK_ISSUE bi ON s.STUDENT_ID = bi.STUDENT_ID;
10
11 --Statement including a GROUP BY:
12 SELECT DEPARTMENT, COUNT(*) AS STUDENT_COUNT
13 FROM STUDENT
14 GROUP BY DEPARTMENT;
15
16 --Statement including a date function:
17 SELECT COUNT(*)
18 FROM BOOK_LOAN
19 WHERE EXTRACT(MONTH FROM ISSUE_DATE) = EXTRACT(MONTH FROM SYSDATE)
20 AND EXTRACT(YEAR FROM ISSUE_DATE) = EXTRACT(YEAR FROM SYSDATE);
21
22 --Statement including a character function:
23 SELECT UPPER(SUBSTR(FIRST_NAME, 1, 1)) AS FIRST_INITIAL, LAST_NAME
24 FROM STUDENT;
25
26 --Statement including an UPDATE:
27 UPDATE STUDENT
28 SET LAST_NAME = 'Doe'
29 WHERE FIRST_NAME = 'John';
30
31 --Statement including an ALTER TABLE;
32 ALTER TABLE STUDENT
33 ADD (ADMISSION_DATE DATE);
34
35
36
```

```
1
2 CREATE TABLE STUDENT (
3     STUDENT_ID NUMBER PRIMARY KEY,
4     FIRST_NAME VARCHAR2(50) NOT NULL,
5     LAST_NAME VARCHAR2(50) NOT NULL,
6     DEPARTMENT VARCHAR2(50) NOT NULL,
7     CLASS VARCHAR2(50) NOT NULL,
8     PHONE_NUMBER VARCHAR2(15) NOT NULL,
9     EMAIL VARCHAR2(100),
10    MAX_BOOKS NUMBER
11 );
12
13
14 CREATE TABLE FACULTY (
15     FACULTY_ID NUMBER PRIMARY KEY,
16     FIRST_NAME VARCHAR2(50) NOT NULL,
17     LAST_NAME VARCHAR2(50) NOT NULL,
18     DEPARTMENT VARCHAR2(50) NOT NULL,
19     PHONE_NUMBER VARCHAR2(15) NOT NULL,
20     EMAIL VARCHAR2(100),
21     MAX_BOOKS NUMBER
22 );
23
24
25 CREATE TABLE AUTHOR (
26     AUTHOR_ID NUMBER PRIMARY KEY,
27     FIRST_NAME VARCHAR2(50) NOT NULL,
28     LAST_NAME VARCHAR2(50) NOT NULL,
29     BIRTH_DATE DATE,
30     GENDER VARCHAR2(10)
31 );
32
33
34 CREATE TABLE PUBLISHER (
35     PUBLISHER_ID NUMBER PRIMARY KEY,
36     NAME VARCHAR2(100) NOT NULL,
37     ADDRESS VARCHAR2(200) NOT NULL,
38     PHONE_NUMBER VARCHAR2(15) NOT NULL,
39     EMAIL VARCHAR2(100) NOT NULL
40 );
41
42 CREATE TABLE BOOK (
43     BOOK_ID NUMBER PRIMARY KEY,
44     TITLE VARCHAR2(200) NOT NULL,
45     PUBLICATION_YEAR NUMBER NOT NULL,
46     AUTHOR_ID NUMBER NOT NULL,
47     PAGE_COUNT NUMBER NOT NULL,
48     PUBLISHER_ID NUMBER NOT NULL,
49     CONSTRAINT FK_BOOK_AUTHOR FOREIGN KEY (AUTHOR_ID) REFERENCES AUTHOR (AUTHOR_ID),
50     CONSTRAINT FK_BOOK_PUBLISHER FOREIGN KEY (PUBLISHER_ID) REFERENCES PUBLISHER (PUBLISHER_ID)
51 );
52
53
54 CREATE TABLE STAFF (
55     STAFF_ID NUMBER PRIMARY KEY,
56     FIRST_NAME VARCHAR2(50) NOT NULL,
57     LAST_NAME VARCHAR2(50) NOT NULL,
58     PHONE_NUMBER VARCHAR2(15) NOT NULL,
59     EMAIL VARCHAR2(100) NOT NULL
60 );
61
62
63 CREATE TABLE BOOK_ISSUE (
64     ISSUE_ID NUMBER PRIMARY KEY,
65     BOOK_ID NUMBER NOT NULL,
66     USER_ID NUMBER NOT NULL,
67     ISSUE_DATE DATE NOT NULL,
68     RETURN_DATE DATE NOT NULL,
69     STAFF_ID NUMBER NOT NULL,
70     STATUS VARCHAR2(20),
71     CONSTRAINT FK_ISSUE_BOOK FOREIGN KEY (BOOK_ID) REFERENCES BOOK (BOOK_ID),
72     CONSTRAINT FK_ISSUE_STAFF FOREIGN KEY (STAFF_ID) REFERENCES STAFF (STAFF_ID)
73 );
74
75
76 CREATE TABLE FINE (
77     FINE_ID NUMBER PRIMARY KEY,
78     ISSUE_ID NUMBER NOT NULL,
79     USER_ID NUMBER NOT NULL,
80     DELAY_TIME NUMBER NOT NULL,
81     PENALTY_FEE NUMBER NOT NULL,
82     STAFF_ID NUMBER NOT NULL,
83     CONSTRAINT FK_FINE_ISSUE FOREIGN KEY (ISSUE_ID) REFERENCES BOOK_ISSUE (ISSUE_ID),
84     CONSTRAINT FK_FINE_STAFF FOREIGN KEY (STAFF_ID) REFERENCES STAFF (STAFF_ID)
85 );
86
87
```