**Database Management Systems - Lab 2**

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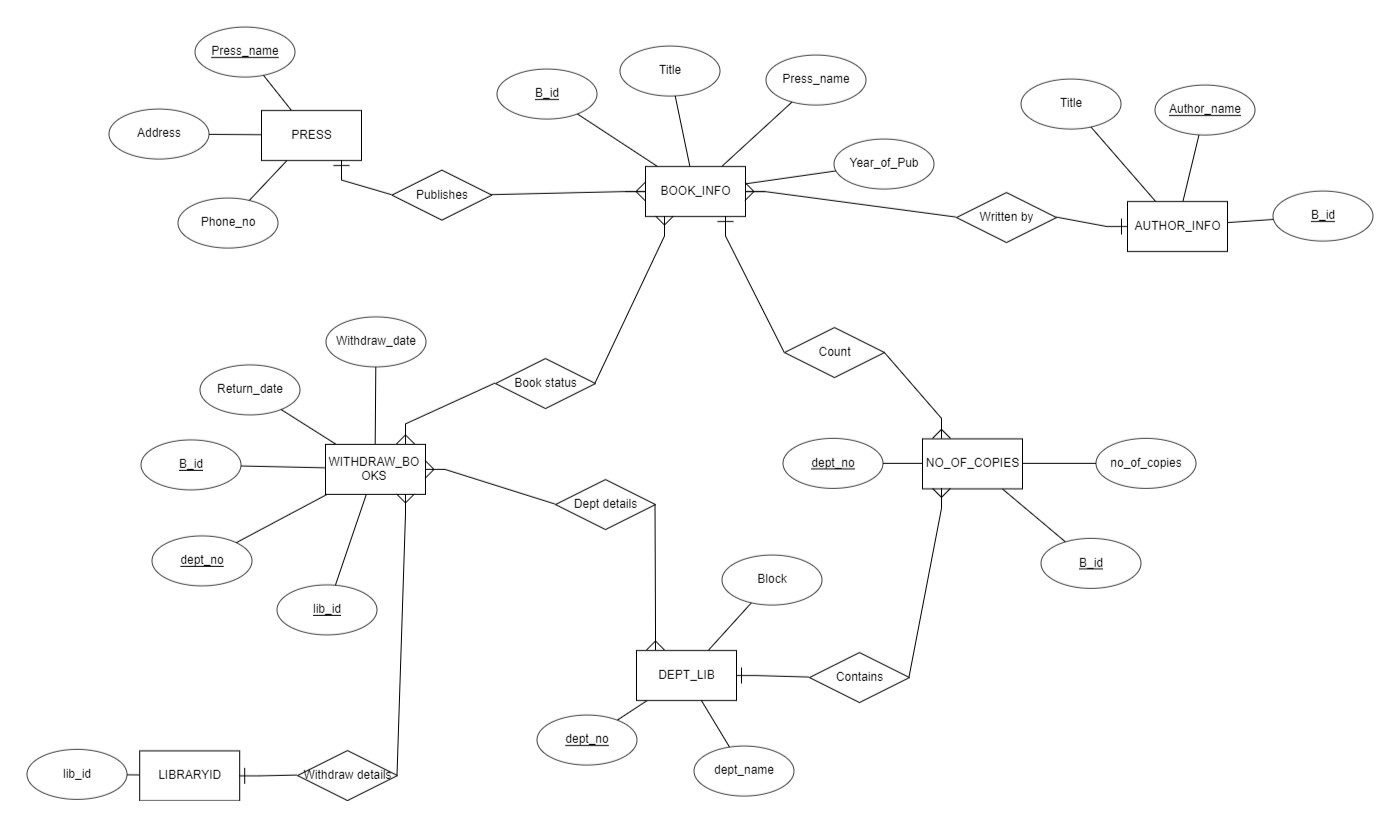
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|  |
| --- |
| **from** IPython.display **import** Image |

In [ ]:

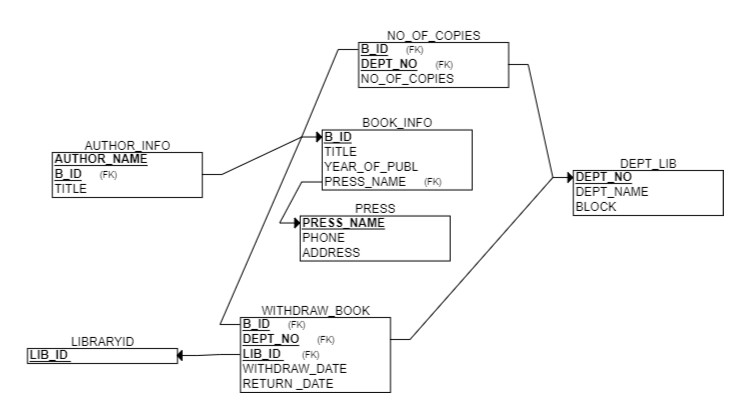
|  |
| --- |
| Image("./Assets/lab2ER.png") |

In [ ]:

Out[ ]: 

|  |
| --- |
| Image("./Assets/lab2Schema.png") |

In [ ]:

Out[ ]: 

|  |
| --- |
| **import** sqlite3 |

In [ ]:

In [ ]: conn **=** sqlite3**.**connect('./Dumps/lab2.db') cur **=** conn**.**cursor()

PRESS (NAME, ADDR, PHNO)

BOOK\_INFO (B\_ID, TITLE, PRESS\_NAME, YEAR\_OF\_PUBLICATION)

AUTHOR\_INFO (B\_ID, TITLE,AUTHOR\_NAME)

DEPT\_LIB(DEPT\_NO, DEPT\_NAME,DEPT\_BLOCK)

NO\_OF\_COPIES(B\_ID, DEPT\_NAME,TOTAL\_COPIES)

WITHDRAW\_BOOK(B\_ID,DEPT\_NAME,LIB\_ID,WITHDRAW\_DATE,RETURN \_DATE)

LIBRARYID(LIB\_ID)

|  |
| --- |
| createTables **=** ''' BEGIN;  CREATE TABLE PRESS (  NAME TEXT PRIMARY KEY,  ADDR TEXT,  PHNO TEXT  );  CREATE TABLE BOOK\_INFO (  B\_ID TEXT PRIMARY KEY,  TITLE TEXT PRIMAY KEY,  PRESS\_NAME TEXT REFERENCES PRESS(NAME) ON DELETE CASCADE,  YEAR\_OF\_PUBLICATION INT );  CREATE TABLE AUTHOR\_INFO (  TITLE TEXT PRIMARY KEY,  B\_ID TEXT REFERENCES BOOK\_INFO(B\_ID) ON DELETE CASCADE,  AUTHOR\_NAME TEXT );  CREATE TABLE DEPT\_LIB (  DEPT\_NO INT PRIMARY KEY,  DEPT\_NAME TEXT,  DEPT\_BLOCK TEXT );  CREATE TABLE NO\_OF\_COPIES (  B\_ID TEXT PRIMARY KEY,  DEPT\_NO INT REFERENCES DEPT\_LIB(DEPT\_NO) ON DELETE CASCADE,  TOTAL\_COPIES INT );  CREATE TABLE LIBRARYID (  LIB\_ID INT PRIMARY KEY );  CREATE TABLE WITHDRAW\_BOOK (  B\_ID TEXT PRIMARY KEY,  DEPT\_NO TEXT REFERENCES DEPT\_LIB(DEPT\_NO) ON DELETE CASCADE, |

In [ ]:

|  |
| --- |
| LIB\_ID INT REFERENCES LIBRARYID(LIB\_ID) ON DELETE CASCADE,  WITHDRAW\_DATE DATE,  RETURN\_DATE DATE );  COMMIT;  ''' |

In [ ]: cur**.**executescript(createTables)

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

In [ ]: press **=** [

('holmes', '221B', '132324'),

('holmes Jr.', 'Pall Mall', '156324')

] cur**.**executemany('INSERT INTO PRESS VALUES (?, ?, ?)', press)

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

In [ ]: book\_info **=** [

('b1', 'On the Origins of Tree Worship', 'holmes', '1896'),

('b2', 'Bee Culture', 'holmes Jr.', '1890'),

('b3', 'Khalifa of Khatoum', 'holmes', '1896'),

('b4', 'Neath the Reichenbach', 'holmes Jr.', '1898'),

] cur**.**executemany('INSERT INTO BOOK\_INFO VALUES (?, ?, ?, ?)', book\_info)

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

In [ ]: author\_info **=** [

('On the Origins of Tree Worship', 'b1', 'Sigerson'),

('Bee Culture', 'b2', 'Sherlock'),

('Khalifa of Khartoum', 'b3', 'Sigerson'),

('Neath the Reichenback', 'b4', 'Sherlock')

] cur**.**executemany('INSERT INTO AUTHOR\_INFO VALUES (?, ?, ?)', author\_info)

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

In [ ]: dept\_lib **=** [

(1, 'D1', 'Block 1'),

(2, 'D2', 'Block 2')

] cur**.**executemany('INSERT INTO DEPT\_LIB VALUES (?, ?, ?)', dept\_lib)

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

|  |
| --- |
| no\_of\_copies **=** [ ('b1', 1, 69), ('b2', 2, 420)  ] cur**.**executemany('INSERT INTO NO\_OF\_COPIES VALUES (?, ?, ?)', no\_of\_copies) |

In [ ]:

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

In [ ]: libraryid **=** [

(1, ),

(2, ) ] cur**.**executemany('INSERT INTO LIBRARYID VALUES (?)', libraryid)

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

In [ ]: withdraw\_book **=** [

('b1', 1, 1, '2022-08-05', '2022-08-09'),

('b2', 2, 2, '2022-07-09', '2022-08-11')

] cur**.**executemany('INSERT INTO WITHDRAW\_BOOK VALUES (?, ?, ?, ?, ?)', withdraw\_book)

Out[ ]: <sqlite3.Cursor at 0x16979df80c0>

In [ ]: conn**.**commit()

DISPLAY THE FOLLOWING DETAILS OF BOOKS FROM THE LIBRARY USING A SINGLE QUERY [B\_ID, TITLE, PRESS\_NAME, AUTHOR\_NAME, TOTAL\_COPIES]

|  |
| --- |
| res1 **=** cur**.**execute('''  SELECT B.B\_ID, B.TITLE, B.PRESS\_NAME, A.AUTHOR\_NAME, N.TOTAL\_COPIES FROM BOOK\_INFO B  INNER JOIN AUTHOR\_INFO A ON A.B\_ID = B.B\_ID  INNER JOIN NO\_OF\_COPIES N ON B.B\_ID = N.B\_ID  ''') res1**.**fetchall() |

In [ ]:

Out[ ]: [('b1', 'On the Origins of Tree Worship', 'holmes', 'Sigerson', 69),

('b2', 'Bee Culture', 'holmes Jr.', 'Sherlock', 420)]

Display the details of the students withdrawn the books between 16.05.2022 and 16.08.2022

|  |
| --- |
| res2 **=** cur**.**execute('''  SELECT \* FROM WITHDRAW\_BOOK  WHERE WITHDRAW\_DATE BETWEEN '2022-05-16' AND '2022-08-16'  ''') res2**.**fetchall() |

In [ ]:

|  |
| --- |
| res3 **=** cur**.**execute('''  DELETE FROM BOOK\_INFO WHERE B\_ID = 'b1'  ''') res3**.**fetchall() |

Out[ ]: [('b1', '1', 1, '2022-08-05', '2022-08-09'), ('b2', '2', 2, '2022-07-09', '2022-08-11')] In [ ]:

|  |  |
| --- | --- |
| Out[ ]: | [] |

In [ ]: commands **=** [

'SELECT \* FROM BOOK\_INFO',

'SELECT \* FROM WITHDRAW\_BOOK',

'SELECT \* FROM NO\_OF\_COPIES',

'SELECT \* FROM AUTHOR\_INFO'

]

**for** command **in** commands:

print(command) print(cur**.**execute(command)**.**fetchall())

SELECT \* FROM BOOK\_INFO

[('b2', 'Bee Culture', 'holmes Jr.', 1890), ('b3', 'Khalifa of Khatoum', 'holmes',

1896), ('b4', 'Neath the Reichenbach', 'holmes Jr.', 1898)]

SELECT \* FROM WITHDRAW\_BOOK

[('b1', '1', 1, '2022-08-05', '2022-08-09'), ('b2', '2', 2, '2022-07-09', '2022-08 -11')]

SELECT \* FROM NO\_OF\_COPIES

[('b1', 1, 69), ('b2', 2, 420)]

SELECT \* FROM AUTHOR\_INFO

[('On the Origins of Tree Worship', 'b1', 'Sigerson'), ('Bee Culture', 'b2', 'Sher lock'), ('Khalifa of Khartoum', 'b3', 'Sigerson'), ('Neath the Reichenback', 'b4', 'Sherlock')]

Partition the BOOK\_INFO table based on the NO\_OF\_COPIES. Illustrate this with a simple query in Data Manipulation.

Assume that you have received few new copies of books (for the books which are already available) for your Library., then Update the values of No\_of\_Copies Attribute in NO\_OF\_COPIES table.

|  |
| --- |
| res5Verify **=** cur**.**execute('''  SELECT \* FROM NO\_OF\_COPIES WHERE B\_ID = 'b2'  ''') res5Verify**.**fetchall() |

In [ ]:

|  |  |
| --- | --- |
| Out[ ]: | [('b2', 2, 420)] |

|  |
| --- |
| res5 **=** cur**.**execute('''  UPDATE NO\_OF\_COPIES SET TOTAL\_COPIES = TOTAL\_COPIES + 5 WHERE B\_ID = 'b2'  ''') res5**.**fetchall() |

In [ ]:

|  |  |
| --- | --- |
| Out[ ]: | [] |

|  |
| --- |
| res5Verify **=** cur**.**execute('''  SELECT \* FROM NO\_OF\_COPIES WHERE B\_ID = 'b2'  ''') res5Verify**.**fetchall() |

In [ ]:

Out[ ]: [('b2', 2, 425)]

Display the details of books with same author name in AUTHOR\_TABLE. Group it w.r.to

AUTHOR\_NAME column and display the no of books available with the same author name.

In [ ]: res6 **=** cur**.**execute('''

|  |
| --- |
| SELECT AUTHOR\_NAME, COUNT(B\_ID)  FROM AUTHOR\_INFO  GROUP BY AUTHOR\_NAME  ''') res6**.**fetchall() |

|  |
| --- |
| conn**.**commit() |

Out[ ]: [('Sherlock', 2), ('Sigerson', 2)] In [ ]:

|  |
| --- |
| conn**.**close() |

In [ ]: