Project 1 Report

TOP 15 LEAST LOANED BOOKS

ER Model

TOP 15 MOST POPULAR BOOKS IN LAST MONTH

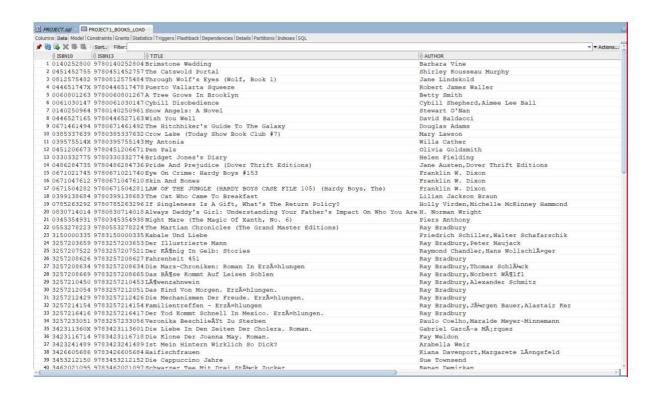
Project 1 Report INITIAL LOAD TABLES PROJECT1_BOOK_COPIES_LOAD PROJECT1_BOOKS__LOAD PROJECT1_BORROWERS__LOAD PROJECT1_LIBRARY_BRANCH_LOAD **Creating and Populating Tables** PROJECT1_BOOK PROJECT1_AUTHORS PROJECT1_BOOK_AUTHORS PROJECT1_LIBRARY_BRANCH_LOAD PROJECT1_BORROWER PROJECT1_BOOK_COPIES PROJECT1_BOOK_LOANS Exactly 400 books check-outs for exactly 200 different borrowers and exactly 100 different books. PROJECT1_FINES Exactly 50 fines records for 50 different borrowers. Fines should be generated by books checked back in late. CREATING INDEXES **Search Function** Reports TOP 10 BOOKS FOR WHICH MAXIMUM FINES WERE PAID

INITIAL LOAD TABLES

PROJECT1_BOOK_COPIES_LOAD

PROJECT.sql	■ PROJECT1_BOOK	_COPIES_LOAD *	
The second of th			rs Flashback Depende
I S X S IS	Sort Filter:		
∯ BOOK_ID		NO_OF_COPIES	
1 03453113		1	
2 03453113		1	
3 03453113		0	
4 03453113		1	
5 03453784		1	
6 03453784		1	
7 03453784		1	
8 03453784		1	
9 03453784		1	
10 03454047		1	
11 03454047		1	
12 03454047		1	
13 03454047		1	
14 03454047		1	
15 03454331		1	
16 03454331		1	
17 03454331		1	
18 03454331		1	
19 03454331		0	
20 03754001		1	
21 03754001		0	
22 03754001		1	
23 03754001		1	
24 03754001		0	
25 03757058		1	
26 03757058	56 2	1	
27 03757058	56 3	1	
28 03757058	56 4	1	
29 03757058	56 5	1	
30 03807170	18 1	0	
31 03807170	18 2	0	
32 03807170	18 3	1	
33 03807170	18 4	1	
34 03807170	18 5	0	
35 03807183	32 1	0	
36 03807183	32 2	1	
37 03807183	32 3	1	
38 03807183	32 4	1	
39 03807183		1	
40 03807545		0	

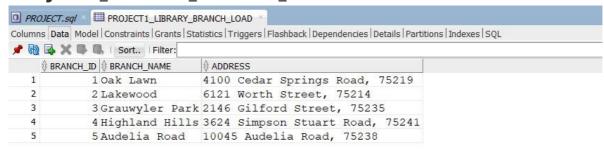
PROJECT1_BOOKS_LOAD



PROJECT1_BORROWERS_LOAD

			ependencies Details Partitions Indexes SQL					
Sort. Filter:			10	A	IA	10	A	
	FIRST_NAME LA		⊕ EMAIL	() ADDRESS		STATE		
1 ID000205 999-57-3479 J:		tkins	jwatkins50@msn.com	91873 Colorado Crossing	Dallas	TX		933-3579
2 ID000206 999-35-2839 Ke		sher	kfisher5p@ehow.com	2 Muir Crossing	Richardson			999-1883
3 ID000207 999-48-3434 Re		iver	roliver5q@reference.com	3152 Thackeray Point	Dallas	TX		971-9384
ID000208 999-19-5051 J		squez	jvasquez5r@diigo.com	809 Grover Circle	Dallas	TX		343-5554
5 ID000209 999-52-6239 J			jdunn5s@huffingtonpost.com	337 Northview Point	Dallas	TX		999-1156
ID000210 999-45-3343 R		eeman	rfreeman5t@opensource.org	13 Farmco Way	Dallas	TX		354-9842
' ID000211 999-87-0005 R:		iley	rbailey5u@fc2.com	3108 Browning Park	Richardson			718-0392
ID000212 999-20-1613 E		lmer	epalmer5v@japanpost.jp	66600 Pleasure Drive	Dallas	TX		238-1120
9 ID000213 999-22-0860 Ja			jlong5w@xrea.com	26577 Laurel Road	Dallas	TX		972-0889
ID000214 999-60-2564 T		hmidt	tschmidt5x@ucoz.ru	0 New Castle Crossing	Plano	TX		745-9014
ID000215 999-07-7138 K			khayes5y@usa.gov	18504 Basil Hill	Dallas	TX		331-7793
! ID000216 999-58-8800 C		rkins	cperkins5z@nasa.gov	14865 John Wall Center	Plano	TX		957-3368
ID000217 999-12-8122 T			tscott60@cpanel.net	449 Schurz Parkway	Dallas	TX		914-5396
ID000218 999-69-4479 J		chards	jrichards61@narod.ru	9420 Main Hill	Dallas	TX		371-8324
5 ID000219 999-89-1063 J		rrett	jgarrett62@naver.com	2998 Chive Place	Dallas	TX		309-6943
ID000220 999-12-0662 Ra		terson	rpeterson63@friendfeed.com	892 Fairfield Point	Richardson			947-5199
' ID000221 999-03-8015 Ma		lliams	mwilliams64@blinklist.com	0 John Wall Circle	Dallas	TX		992-8183
3 ID000222 999-80-9145 Te			treid65@baidu.com	9224 Manufacturers Terrace	77	TX		157-6436
9 ID000223 999-54-4529 I		dina	imedina66@hhs.gov	51 Southridge Pass	Dallas	TX		994-3852
ID000224 999-92-5219 L:			lcarpenter67@flavors.me	43 Dovetail Road	Dallas	TX		366-8440
I ID000225 999-30-6717 Jo				113 Havey Crossing	Plano	TX		900-2769
2 ID000226 999-63-5871 L		aham	lgraham69@rakuten.co.jp	72346 Emmet Place	Dallas	TX		392-4249
3 ID000227 999-64-8746 S	haron Pie	erce	spierce6a@dmoz.org	9 Clove Trail	Dallas	TX	(972) 9	930-5410
ID000228 999-27-4530 Ka	atherine Boy	yd	kboyd6b@cafepress.com	90 Park Meadow Junction	Dallas	TX	(214)	552-5153
ID000229 999-97-7822 B	rian Per	rkins		5988 Havey Street	Dallas	TX	(972)	973-2502
ID000230 999-84-8327 E	ric Coo	oper	ecooper6d@studiopress.com	7 Granby Road	Dallas	TX	(972) 5	970-2642
ID000231 999-94-1254 Ra	andy Sta	anley	rstanley6e@cbsnews.com	94552 Linden Court	Dallas	TX	(972) 8	815-8835
ID000232 999-59-2633 Pa	amela Gut	tierrez	pgutierrez6f@cdbaby.com	50236 Goodland Lane	Plano	TX	(972) 9	968-2569
ID000233 999-92-8000 Ke	eith Per	rkins	kperkins6g@mayoclinic.com	9543 Farragut Road	Richardson	TX	(214) 8	304-0599
ID000234 999-70-3782 S	cott Spe	encer	sspencer6h@edublogs.org	5 Lukken Junction	Dallas	TX	(214)	701-4621
I ID000235 999-96-4866 To	odd Bry	yant	tbryant6i@lycos.com	418 Onsgard Hill	Dallas	TX	(214) 9	980-7359
ID000236 999-54-8159 Jo	ose And	derson	janderson6j@comsenz.com	2705 Ohio Junction	Dallas	TX	(214)	530-2752
ID000237 999-83-4824 Ar	manda Dav	vis	adavis6k@studiopress.com	1636 Norway Maple Place	Plano	TX	(469)	913-5733
ID000238 999-12-8661 R	ichard Cru	ız	rcruz61@sina.com.cn	69 Marquette Park	Richardson	TX	(469) 9	902-7741
ID000239 999-77-2883 Sa	ara Wal	lker	swalker6m@bloomberg.com	18924 3rd Circle	Dallas	TX	(972)	932-7544
ID000240 999-70-9717 G	loria San	nders	gsanders6n@blog.com	36961 Green Ridge Place	Dallas	TX	(214) 9	937-3306
ID000241 999-04-3187 J	onathan Har	rris	jharris60@freewebs.com	286 Merry Way	Dallas	TX	(469) 8	373-4473
ID000242 999-31-3951 J		elds	jfields6p@nationalgeographic.com		Richardson	TX		916-7303
D0000243 999-88-3244 Wa			wmills6g@twitter.com	79024 Surrey Way	Dallas	TX		920-6298
0 TD000244 999-12-0643 K				83 Holy Cross Drive	Dallas	TX		390-5755

PROJECT1 LIBRARY BRANCH LOAD



Creating and Populating Tables

PROJECT1_BOOK

```
CREATE TABLE PROJECT1_BOOK

(ISBN VARCHAR2(20) NOT NULL,

TITLE VARCHAR2(512) NOT NULL,

CONSTRAINT ISBNPK PRIMARY KEY (ISBN));

INSERT INTO PROJECT1_BOOK (SELECT ISBN10, TITLE FROM PROJECT1_BOOKS_LOAD);
```

```
☐ PROJECT.sql ☐ PROJECT1_BOOK
Columns Data Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL
🌶 🍓 🗸 🔻 🕵 | Sort.. | Filter:
                    ∜ TΠLE
      1 0671888587 I'll Be Seeing You
2 0553582747 From The Corner Of His Eye
    3 0425182908 Isle Of Dogs (Andy Brazil)
4 042518630X Purity In Death
    5 0440223571 This Year It Will Be Different And Other Stories - A Christmas Treasury 6 0812523873 Proxies
    7 0842342702 Left Behind: A Novel Of The Earth's Last Days (Left Behind #1) 8 0440225701 The Street Lawyer
   9 0060914068 Love, Medicine And Miracles
10 0156047624 All The King's Men
   11 0245542957 Pacific Northwest
12 0380715899 Soldier Of The Great War
   13 0553280333 Getting Well Again: The Bestselling Classic About The Simontons' Revolutionary Lifesaving Self- Awareness Techn: 14 0961769947 Northwest Wines And Wineries
   15 0964778319 An Atmosphere Of Eternity: Stories Of India 16 0671623249 Lonesome Dove
   17 0679810307 Shabanu: Daughter Of The Wind (Border Trilogy) 18 0679865691 Haveli
   19 2070423204 Lieux Dits
20 0345260317 The Dragons Of Eden: Speculations On The Evolution Of Human Intelligence
   21 0394743741 The Yawning Heights
22 042511774X Breathing Lessons
   23 0804106304 The Joy Luck Club
24 1853262404 Heart Of Darkness & Darkness & Cher Stories (Wordsworth Collection)
   25 0312970242 Deepak Chopra's The Angel Is Near
26 1853260053 Tess Of The D'Urbervilles (Wadsworth Collection)
   27 1414035004 The Adventures Of Drew And Ellie: The Magical Dress 28 0060938412 The Accidental Virgin
   29 0140067477 The Tao Of Pooh
30 0345465083 Seabiscuit: An American Legend
   31 0451625889 The Prince (Mentor Series)
32 1558531025 Life's Little Instruction Book: 511 Suggestions, Observations, And Reminders On How To Live A Happy And Reward:
   33 0441783589 Starship Troopers
34 0394895894 The Ruby In The Smoke (Sally Lockhart Trilogy, Book 1)
   35 1569871213 Black Beauty (Illustrated Classics) 36 0375410538 Anil's Ghost
   37 0966986105 Prescription For Terror
38 087113375X Modern Manners: An Etiquette Book For Rude People
   39 0340767936 Turning Thirty
   40 0743403843 Decipher
```

PROJECT1_AUTHORS

```
CREATE TABLE PROJECT1_AUTHORS

(AUTHOR_ID VARCHAR2(30) NOT NULL,

NAME VARCHAR2(256),

CONSTRAINT AUTHORIDPK PRIMARY KEY (AUTHOR_ID));

CREATE SEQUENCE AUTHORS_SEQ START WITH 1 INCREMENT BY 1 NOCACHE NOCYCLE;

INSERT INTO PROJECT1_AUTHORS SELECT AUTHORS_SEQ.NEXTVAL, b.* from (SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,1) FROM PROJECT1_BOOKS_LOAD UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,2) FROM PROJECT1_BOOKS_LOAD

UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,3) FROM PROJECT1_BOOKS_LOAD

UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,4) FROM PROJECT1_BOOKS_LOAD

UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,5) FROM PROJECT1_BOOKS_LOAD

UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,5) FROM PROJECT1_BOOKS_LOAD b;
```

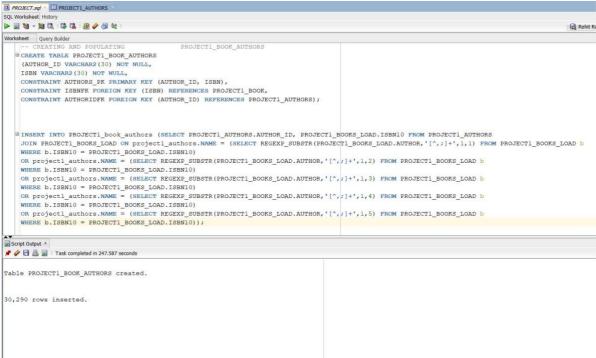
```
■ PROJECT.sql × ■ PROJECT1_BOOK
SQL Worksheet History

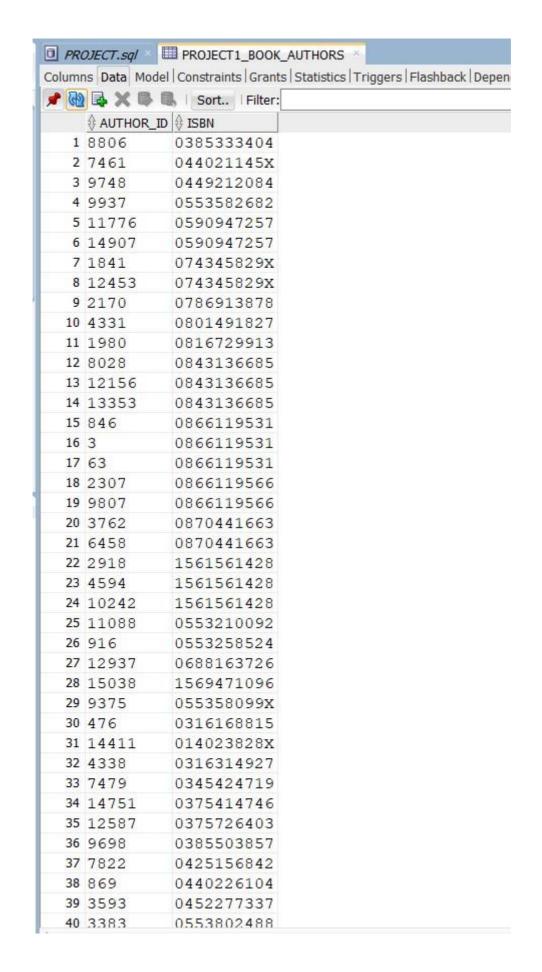
▶ 📓 🐿 🔻 🐧 🐧 🎏 🌽 👩 🔩
Worksheet Query Builder
                                                           PROJECT1 AUTHORS
    CREATE TABLE PROJECT1_AUTHORS
      (AUTHOR ID VARCHAR2 (30) NOT NULL,
      NAME VARCHAR2 (256) .
      CONSTRAINT AUTHORIDPK PRIMARY KEY (AUTHOR_ID));
      CREATE SEQUENCE AUTHORS_SEQ START WITH 1 INCREMENT BY 1 NOCACHE NOCYCLE;
    SINSERT INTO PROJECT1_AUTHORS SELECT AUTHORS_SEQ.NEXTVAL, b.* from (SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,1)
      FROM PROJECT1_BOOKS_LOAD
     UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,2) FROM PROJECT1_BOOKS_LOAD
UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,3) FROM PROJECT1_BOOKS_LOAD
UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,4) FROM PROJECT1_BOOKS_LOAD
UNION SELECT REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR,'[^,;]+',1,5) FROM PROJECT1_BOOKS_LOAD) b;
Script Output ×
🌶 🧳 🔒 📓 🛘 Task completed in 1.42 seconds
Table PROJECT1_AUTHORS created.
Sequence AUTHORS_SEQ created.
15,698 rows inserted.
```

PROJECT.sql PROJECT1_AUTHORS Columns Data Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL 📝 🔀 🔍 🕒 👢 | Sort.. | Filter: ♦ AUTHOR_ID ♦ NAME Alan Spence Alan Tiegreen 1 319 2 320 3 321 Alan Titchmarsh 4 322 Alan Trustman Alan V. Hewat 5 323 6 324 7 325 Alan Vanneman Alan W. Watts Alan Watts 8 326 9 327 Alan Witschonke Alanna Knight Alastair Ker 10 328 11 329 12 330 13 331 Alastair MacNeill Alastair McNeill Alayne Main Albert Bichler 14 332 15 333 16 334 Albert Camus Albert Cohen 17 335 18 336 19 337 Albert Einstein Albert Ellis Albert Gilman 20 338 21 339 22 340 Albert Goldman Albert H. Morehead Albert J. McBride 23 341 24 342 25 343 Albert Mousset Albert Murray Albert Payson Terhune 26 344 27 345 28 346 Albert Schwarzenbach Albert Uderzo Albert Wesselski 29 347 Alden T Aldo Leopold Aldous Huxley 30 348 31 349 32 350 33 351 34 352 Alec Fisher Alec Ross Alec Waugh 35 353 36 354 37 355 Aleen Malcolm Aleister Crowley Alejandro Dumas Alejandro Jodorowsky 38 356 39 357 40 358 Aleio Carpentier

PROJECT1 BOOK AUTHORS

```
CREATE TABLE PROJECT1_BOOK_AUTHORS
     (AUTHOR_ID VARCHAR2(30) NOT NULL,
    ISBN VARCHAR2(30) NOT NULL,
    CONSTRAINT AUTHORS_PK PRIMARY KEY (AUTHOR_ID, ISBN),
    CONSTRAINT ISBNFK FOREIGN KEY (ISBN) REFERENCES PROJECT1_BOOK,
    CONSTRAINT AUTHORIDFK FOREIGN KEY (AUTHOR_ID) REFERENCES PROJECT1_AUTHORS);
    INSERT INTO PROJECT1_book_authors (SELECT PROJECT1_AUTHORS.AUTHOR_ID,
    PROJECT1_BOOKS_LOAD.ISBN10 FROM PROJECT1_AUTHORS
    JOIN PROJECT1_BOOKS_LOAD ON project1_authors.NAME = (SELECT
    REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR, '[^,;]+',1,1) FROM PROJECT1_BOOKS_LOAD
    WHERE b.ISBN10 = PROJECT1_BOOKS_LOAD.ISBN10)
    OR project1_authors.NAME = (SELECT
    REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR, '[^,;]+',1,2) FROM PROJECT1_BOOKS_LOAD
    WHERE b.ISBN10 = PROJECT1_BOOKS_LOAD.ISBN10)
    OR project1_authors.NAME = (SELECT
    REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR, '[^,;]+',1,3) FROM PROJECT1_BOOKS_LOAD
    WHERE b.ISBN10 = PROJECT1_BOOKS_LOAD.ISBN10)
    OR project1_authors.NAME = (SELECT
    {\tt REGEXP\_SUBSTR}({\tt PROJECT1\_BOOKS\_LOAD.AUTHOR}, {\tt `[\Lambda,;]+',1,4')} \  \  {\tt FROM PROJECT1\_BOOKS\_LOAD.AUTHOR}, {\tt `[\Lambda,;]+
    WHERE b.ISBN10 = PROJECT1_BOOKS_LOAD.ISBN10)
    OR project1_authors.NAME = (SELECT
    REGEXP_SUBSTR(PROJECT1_BOOKS_LOAD.AUTHOR, '[^,;]+',1,5) FROM PROJECT1_BOOKS_LOAD
    WHERE b.ISBN10 = PROJECT1_BOOKS_LOAD.ISBN10));
PROJECT.sql PROJECT1_AUTHORS
```



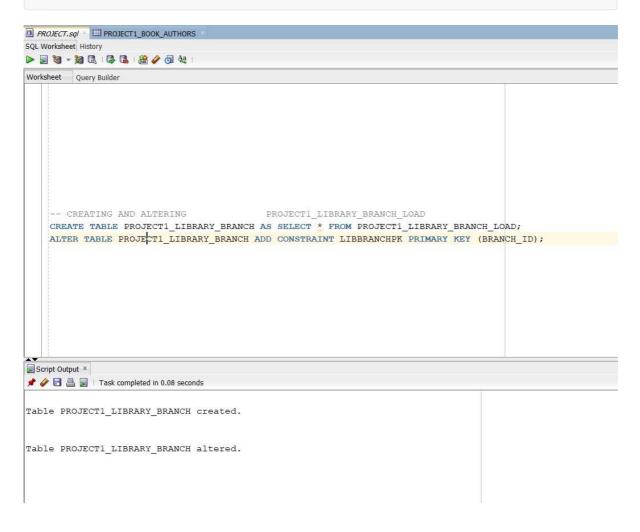


CREATE TABLE PROJECT1_LIBRARY_BRANCHAS SELECT * FROM

PROJECT1_LIBRARY_BRANCH_LOAD;

ALTER TABLE PROJECT1_LIBRARY_BRANCHADD CONSTRAINT LIBBRANCHPK PRIMARY KEY

(BRANCH_ID);





PROJECT1_BORROWER

```
CREATE TABLE PROJECT1_BORROWER
 (CARD_NO VARCHAR2(20) NOT NULL,
 SSN VARCHAR2(20) NOT NULL,
 FNAME VARCHAR2(20),
LNAME VARCHAR2(20),
ADDRESS VARCHAR2(128) NOT NULL,
 PHONE VARCHAR2(15) NOT NULL,
CONSTRAINT CARDPK PRIMARY KEY (CARD_NO));
INSERT INTO PROJECT1_BORROWER SELECT ID0000ID,
SSN, FIRST_NAME, LAST_NAME, ADDRESS || ', ' || CITY || ', ' || STATE, PHONE
FROM project1_borrowers_load;

☐ PROJECT.sql 
☐ PROJECT1_LIBRARY_BRANCH

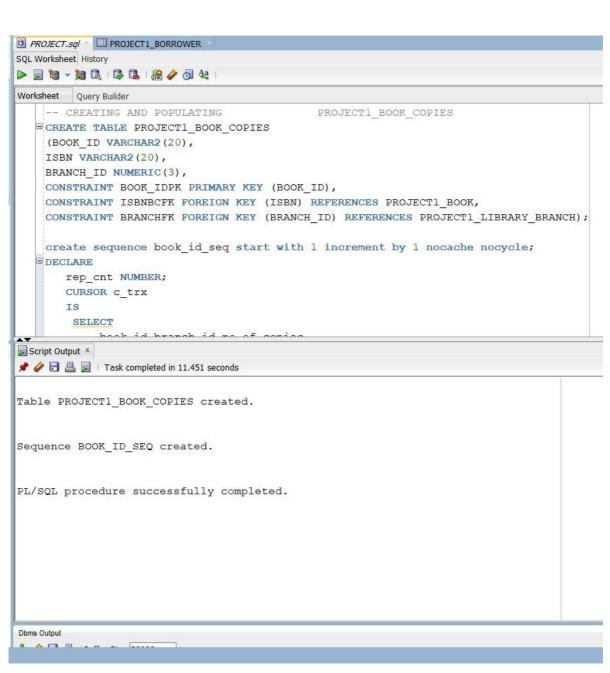
SQL Worksheet History
Worksheet Query Builder
    -- CREATING AND ALTERING
                                         PROJECT1 BORROWER
  CREATE TABLE PROJECT1 BORROWER
    (CARD NO VARCHAR2 (20) NOT NULL,
    SSN VARCHAR2 (20) NOT NULL,
    FNAME VARCHAR2 (20),
    LNAME VARCHAR2 (20),
    ADDRESS VARCHAR2 (128) NOT NULL,
    PHONE VARCHAR2 (15) NOT NULL,
    CONSTRAINT CARDPK PRIMARY KEY (CARD NO));
    INSERT INTO PROJECT1_BORROWER SELECT ID00001D,
    SSN, FIRST_NAME, LAST_NAME, ADDRESS || ', ' || CITY || ', ' || STATE, PHONE
    FROM project1_borrowers_load;
Script Output ×
📌 🥢 🖥 🚇 📕 | Task completed in 0.059 seconds
Table PROJECT1_BORROWER created.
1,000 rows inserted.
```

		iggers (Flashback)	Dependencies Details Partitions Indexes SQL		
🔞 📑 🗶 🕒 🖺 Sort	Filter:		102		
		↓ LNAME		♦ PHONE	
1 ID000289 999-4	6-8310 Shawn	Martinez	19 Lunder Park, Dallas, TX	(469)	986-41
2 ID000290 999-9	7-1438 Mary	Graham	701 Cordelia Court, Dallas, TX	(214)	687-08
3 ID000291 999-9		West	2308 Division Center, Dallas, TX	(214)	978-05
4 ID000292 999-6	0-4201 Aaron	Arnold	5886 Banding Trail, Dallas, TX	(214)	955-58
5 ID000293 999-1	7-0796 Justin	Brown	611 Green Plaza, Plano, TX	(214)	901-60
6 ID000294 999-0	6-9057 George	Torres	64206 Calypso Hill, Dallas, TX	(972)	925-41
7 ID000295 999-2	8-9325 Brian	Romero	4418 Green Ridge Terrace, Dallas, TX	(469)	825-91
8 ID000296 999-0	1-1020 Lawrence	Morris	42 Magdeline Pass, Dallas, TX	(214)	942-29
9 ID000297 999-9	3-9771 Patrick	Garcia	1 Nevada Parkway, Dallas, TX	(469)	827-61
0 ID000298 999-3	2-6866 Ashley	Moreno	067 Morning Park, Dallas, TX	(469)	869-62
1 ID000299 999-7	9-0842 Aaron	Ellis	1925 Grasskamp Alley, Dallas, TX	(469)	937-92
2 ID000300 999-2	8-3296 Jimmy	James	3 Knutson Way, Dallas, TX	(972)	930-81
3 ID000301 999-2	8-4504 Maria	Torres	56168 Arizona Drive, Dallas, TX	(214)	931-83
4 ID000302 999-7	8-4845 Chris	Owens	6 Browning Park, Dallas, TX	(972)	701-48
5 ID000303 999-2	7-9759 Elizabet	h Harvey	1995 Nelson Park, Dallas, TX	(972)	992-93
6 ID000304 999-6	1-9406 Jane	Baker	0062 Sunbrook Junction, Dallas, TX	(469)	754-66
7 ID000305 999-0	6-8429 Lisa	Kelley	272 Larry Drive, Dallas, TX	(469)	930-66
8 ID000306 999-6	2-6313 Jonathan	Diaz	18283 Brown Center, Dallas, TX	(469)	940-24
9 ID000307 999-9	3-9926 Mildred	Allen	5734 La Follette Point, Dallas, TX	(469)	946-22
0 ID000308 999-9	7-1208 Linda	Rogers	0590 Northport Drive, Dallas, TX	(972)	947-15
1 ID000309 999-1	8-1878 Gary	Garrett	5285 2nd Court, Dallas, TX	(469)	939-24
2 ID000310 999-3	6-5067 Earl	Hall	7755 Park Meadow Way, Dallas, TX	(214)	882-06
3 ID000311 999-2	0-4125 Benjamin	Bailey	72101 Elmside Parkway, Dallas, TX	(214)	896-33
4 ID000312 999-1	0-4620 Angela	Graham	5 High Crossing Crossing, Richardson, TX	(972)	878-14
5 ID000313 999-6	8-7899 Dennis	Hunter	7 2nd Place, Plano, TX	(469)	967-87
6 ID000314 999-2	1-2736 Matthew	Stevens	9603 Hansons Way, Dallas, TX	(469)	861-38
7 ID000315 999-7	5-0048 Annie	Freeman	7466 Gulseth Alley, Dallas, TX	(972)	921-01
8 ID000316 999-3	7-4979 Richard	Lawson	792 Dottie Circle, Dallas, TX	(214)	545-93
9 ID000317 999-3	5-3551 Susan	Allen	6 Morrow Alley, Dallas, TX	(214)	748-04
0 ID000318 999-5	5-4900 Rose	Coleman	26094 Loomis Alley, Dallas, TX	(469)	819-22
1 ID000319 999-5	7-5624 Kathy	Elliott	28 Boyd Pass, Dallas, TX	(469)	996-04
2 ID000320 999-1	3-6801 Teresa	Brooks	57699 Oak Circle, Richardson, TX	(972)	731-41
3 ID000321 999-6	5-2211 Julie	Lane	8261 Magdeline Road, Dallas, TX	(214)	930-83
4 ID000322 999-1	4-5596 Jessica	Day	80 Cascade Junction, Dallas, TX	(214)	947-17
5 ID000323 999-4	7-3959 Billy	Cruz	75 Mosinee Court, Dallas, TX	(214)	797-59
6 ID000324 999-1	0-4874 Martha	Мссоу	74 Claremont Park, Dallas, TX	(214)	915-15
7 ID000325 999-4	1-8699 Frances	Long	0 Schlimgen Alley, Dallas, TX	(214)	951-48
8 ID000326 999-5	7-4791 Carolyn	Duncan	1 Merry Place, Dallas, TX	(214)	279-85
9 ID000327 999-3	3-4483 Ryan	Mendoza	9 Myrtle Way, Dallas, TX	(214)	867-18
0 TD000328 999-6	1-4241 Jerry	Oliver	O Vera Alley, Dallas, TX	(469)	734-82

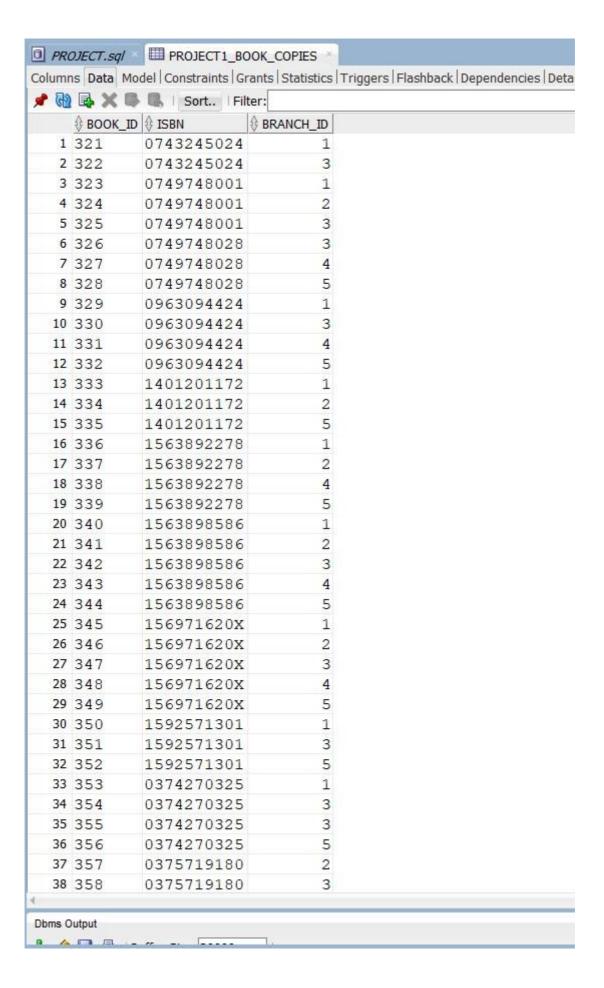
PROJECT1_BOOK_COPIES

```
CREATE TABLE PROJECT1_BOOK_COPIES
(BOOK_ID VARCHAR2(20),
ISBN VARCHAR2(20),
BRANCH_ID NUMERIC(3),
CONSTRAINT BOOK_IDPK PRIMARY KEY (BOOK_ID),
CONSTRAINT ISBNBCFK FOREIGN KEY (ISBN) REFERENCES PROJECT1_BOOK,
CONSTRAINT BRANCHFK FOREIGN KEY (BRANCH_ID) REFERENCES PROJECT1_LIBRARY_BRANCH);
CREATE sequence book_id_seq START WITH 1 INCREMENT by 1 nocache nocycle;
DECLARE
   rep_cnt NUMBER;
  CURSOR c_trx
   IS
    SELECT
        book_id, branch_id, no_of_copies
    FROM project1_book_copies_load;
BEGIN
   FOR r_trx IN c_trx
```

```
rep_cnt := r_trx.no_of_copies;
LOOP
    IF rep_cnt <= 0
    THEN
        EXIT;
    END IF;
    INSERT INTO project1_book_copies VALUES
(book_id_seq.nextval,r_trx.book_id,r_trx.branch_id);
    rep_cnt := rep_cnt-1;
    END LOOP;
END LOOP;
END;
/</pre>
```



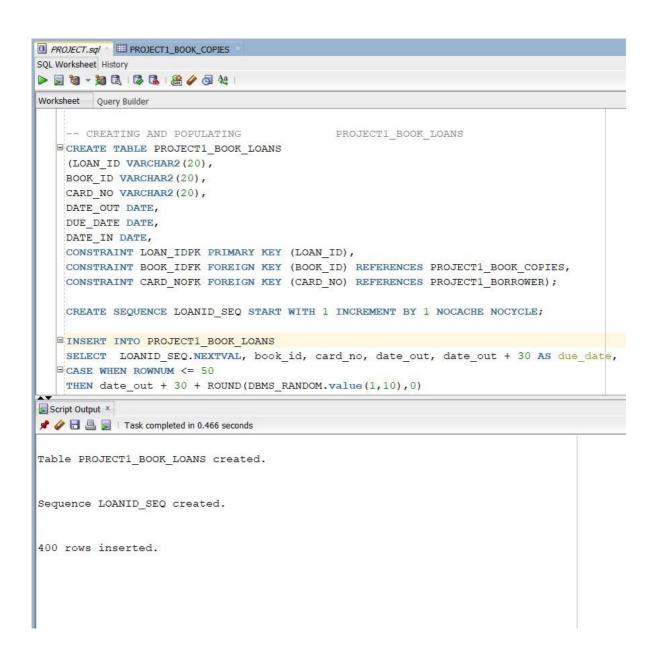
```
☐ PROJECT.sql × Ⅲ PROJECT1_BORROWER
SQL Worksheet History
Worksheet Query Builder
       rep_cnt NUMBER;
      CURSOR c_trx
       SELECT
           book_id,branch_id,no_of_copies
       FROM project1_book_copies_load;
   BEGIN
      FOR r_trx IN c_trx
      LOOP
       rep_cnt := r_trx.no_of_copies;
       LOOP
           IF rep_cnt <= 0</pre>
           THEN
              EXIT;
          END IF;
           INSERT INTO project1_book_copies VALUES (book_id_seq.nextval,r_trx.book_id,r_trx.branch_id);
           rep_cnt := rep_cnt-1;
       END LOOP;
     END LOOP;
   END;
Script Output ×
🤌 🥒 🔠 🚇 📦 | Task completed in 11.451 seconds
Table PROJECT1_BOOK_COPIES created.
Sequence BOOK_ID_SEQ created.
```

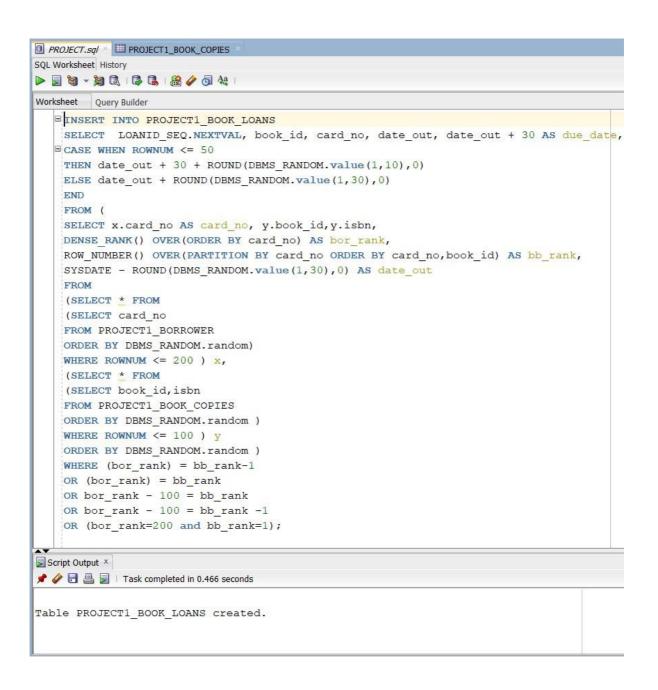


PROJECT1_BOOK_LOANS

Exactly 400 books check-outs for exactly 200 different borrowers and exactly 100 different books.

```
CREATE TABLE PROJECT1_BOOK_LOANS
(LOAN_ID VARCHAR2(20),
BOOK_ID VARCHAR2(20),
CARD_NO VARCHAR2(20),
DATE_OUT DATE,
DUE_DATE DATE,
DATE_IN DATE,
CONSTRAINT LOAN_IDPK PRIMARY KEY (LOAN_ID),
CONSTRAINT BOOK_IDFK FOREIGN KEY (BOOK_ID) REFERENCES PROJECT1_BOOK_COPIES,
CONSTRAINT CARD_NOFK FOREIGN KEY (CARD_NO) REFERENCES PROJECT1_BORROWER);
CREATE SEQUENCE LOANID_SEQ START WITH 1 INCREMENT BY 1 NOCACHE NOCYCLE;
INSERT INTO PROJECT1_BOOK_LOANS
SELECT LOANID_SEQ.NEXTVAL, book_id, card_no, date_out, date_out + 30 AS
due_date,
CASE WHEN ROWNUM <= 50
THEN date_out + 30 + ROUND(DBMS_RANDOM.value(1,10),0)
ELSE date_out + ROUND(DBMS_RANDOM.value(1,30),0)
END
FROM (
SELECT x.card_no AS card_no, y.book_id,y.isbn,
DENSE_RANK() OVER(ORDER BY card_no) AS bor_rank,
ROW_NUMBER() OVER(PARTITION BY card_no ORDER BY card_no,book_id) AS bb_rank,
SYSDATE - ROUND(DBMS_RANDOM.value(1,30),0) AS date_out
(SELECT * FROM
(SELECT card_no
FROM PROJECT1_BORROWER
ORDER BY DBMS_RANDOM.random)
WHERE ROWNUM \leq 200 ) x,
(SELECT * FROM
(SELECT book_id,isbn
FROM PROJECT1_BOOK_COPIES
ORDER BY DBMS_RANDOM.random )
WHERE ROWNUM <= 100 ) y
ORDER BY DBMS_RANDOM.random )
WHERE (bor_rank) = bb_rank-1
OR (bor_rank) = bb_rank
OR bor_rank - 100 = bb_rank
OR bor_rank - 100 = bb_rank - 1
OR (bor_rank=200 and bb_rank=1);
```





```
☐ PROJECT.sql ☐ PROJECT1_BOOK_LOANS

Columns Data Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL
🏓 🚱 💢 🕷 👢 | Sort.. | Filter:
           $ LOAN_ID $ BOOK_ID $ CARD_NO $ DATE_OUT $ DUE_DATE $ DATE_IN
       1 154 35021 ID000675 18-OCT-21 17-NOV-21 29-OCT-21
                            65426 ID000379 24-OCT-21 23-NOV-21 06-NOV-21 62918 ID000818 29-OCT-21 28-NOV-21 24-NOV-21
       3 156
      4 157 4810 ID000771 23-OCT-21 22-NOV-21 27-OCT-21 5 158 34664 ID000157 15-OCT-21 14-NOV-21 04-NOV-21 6 159 42420 ID000724 12-OCT-21 11-NOV-21 29-OCT-21
                       4810

        0 159
        42420
        ID000724 12-OCT-21 11-NOV-21 29-OCT-21

        7 160
        78957
        ID000916 17-OCT-21 16-NOV-21 24-OCT-21

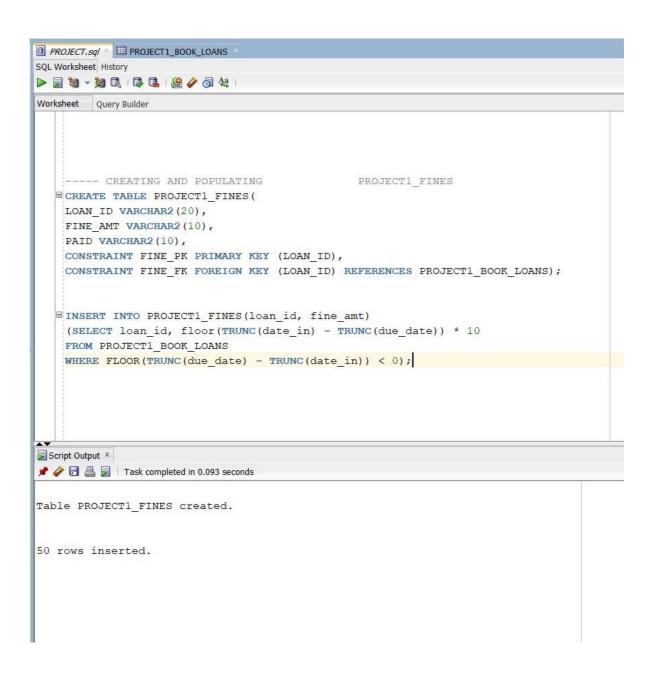
       8 161 16184 ID000038 11-OCT-21 10-NOV-21 08-NOV-21
     9 162 3352
10 163 17339
                                                 ID000664 04-OCT-21 03-NOV-21 12-OCT-21
                             17339 ID000536 20-OCT-21 19-NOV-21 21-OCT-21
     11 164 66007 ID000383 14-OCT-21 13-NOV-21 23-OCT-21
     12 165 3642 ID000163 01-OCT-21 31-OCT-21 05-OCT-21 13 166 14393 ID000520 28-OCT-21 27-NOV-21 20-NOV-21 14 167 67993 ID000388 24-OCT-21 23-NOV-21 05-NOV-21
     15 168 62976 ID000823 07-OCT-21 06-NOV-21 02-NOV-21
     16 169 3352
                                                 ID000657 19-OCT-21 18-NOV-21 04-NOV-21
                              64255 ID000378 13-OCT-21 12-NOV-21 31-OCT-21
    19 172 8511 ID000960 18-OCT-21 17-NOV-21 19-OCT-21 20 173 78257 ID000425 24-OCT-21 23-NOV-21 27-OCT-21 21 174 4810 ID000274 08-OCT-21 07-NOV-21 04-NOV-21 22 175 5248 ID000787 01-OCT-21 31-OCT-21 10-OCT-21 31-OCT-21 31-OCT-21 31-OCT-21 31-OCT-21 31-OCT-21 31-OCT-21 31-OCT-21 31-OCT-31 3
                             4810 ID000277 16-OCT-21 15-NOV-21 05-NOV-21 13397 ID000019 24-OCT-21 23-NOV-21 01-NOV-21
     23 176 4810
     24 177
                       71313 ID000879 19-OCT-21 18-NOV-21 11-NOV-21
     25 178
     26 179 31831 ID000150 24-OCT-21 23-NOV-21 25-OCT-21
     27 180 30291 ID000622 14-OCT-21 13-NOV-21 09-NOV-21 28 181 30561 ID000634 28-OCT-21 27-NOV-21 07-NOV-21
    28 181 30561 ID000634 28-OCT-21 27 NO. ___
29 182 86084 ID000445 15-OCT-21 14-NOV-21 11-NOV-21
25-NOV-21 25-NOV-21
     30 183 86459 ID000972 27-OCT-21 26-NOV-21 25-NOV-21 31 184 62976 ID000824 01-OCT-21 31-OCT-21 08-OCT-21 32 185 66007 ID000386 05-OCT-21 04-NOV-21 06-OCT-21
     33 186 42880 ID000729 24-OCT-21 23-NOV-21 10-NOV-21
     34 187 78957 ID000425 20-OCT-21 19-NOV-21 01-NOV-21 35 188 52953 ID000295 11-OCT-21 10-NOV-21 22-OCT-21
     35 188
                            16184 ID000532 23-OCT-21 22-NOV-21 29-OCT-21
     36 189
     37 190 75565 ID000884 21-OCT-21 20-NOV-21 01-NOV-21
     38 191
                             21376 ID000063 06-OCT-21 05-NOV-21 12-OCT-21 11349 ID000004 01-OCT-21 31-OCT-21 10-OCT-21
     39 192
     40 193
                         21376 TD000576 02-OCT-21 01-NOV-21 20-OCT-21
```

PROJECT1 FINES

Exactly 50 fines records for 50 different borrowers. Fines should be generated by books checked back in late.

```
CREATE TABLE PROJECT1_FINES(
LOAN_ID VARCHAR2(20),
FINE_AMT VARCHAR2(10),
PAID VARCHAR2(10),
CONSTRAINT FINE_PK PRIMARY KEY (LOAN_ID),
CONSTRAINT FINE_FK FOREIGN KEY (LOAN_ID) REFERENCES PROJECT1_BOOK_LOANS);

INSERT INTO PROJECT1_FINES(loan_id, fine_amt)
(SELECT loan_id, floor(TRUNC(date_in) - TRUNC(due_date)) * 10
FROM PROJECT1_BOOK_LOANS
WHERE FLOOR(TRUNC(due_date) - TRUNC(date_in)) < 0);
```



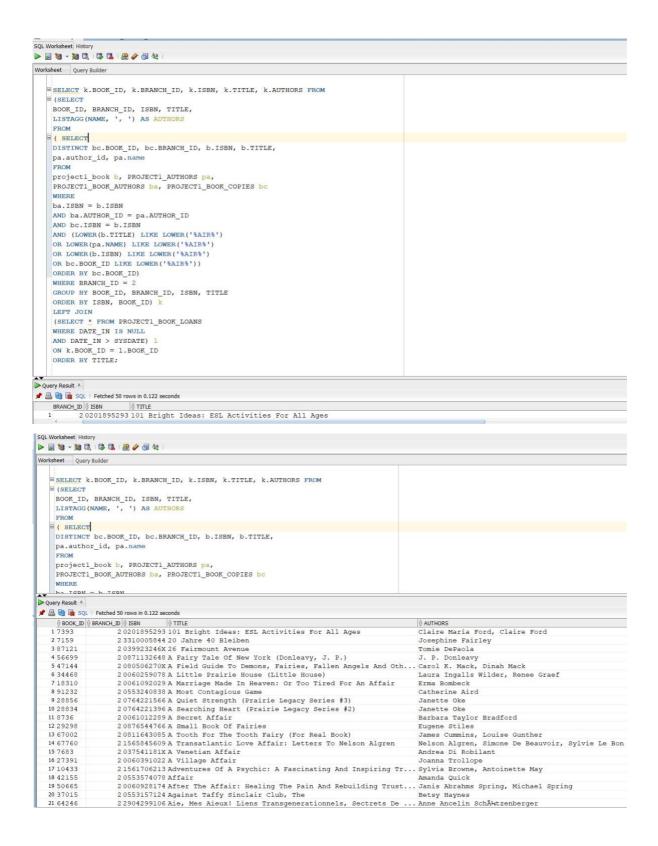
1000	B X B	Sort	ts Grants Statistics Triggers Flashback De
913		♦ FINE_AMT	
1	1	50	(null)
	2	60	(null)
	3	100	(null)
	4	80	(null)
	5	30	(null)
	6	80	(null)
	7	50	(null)
	8	30	(null)
	9	40	(null)
	10	20	(null)
	11	30	(null)
	12	20	(null)
	13	30	(null)
	14	90	(null)
	15	70	(null)
	16	10	(null)
	17	90	(null)
	18	90	(null)
	19	80	(null)
	20	80	(null)
	21	100	(null)
	22	50	(null)
	23	50	(null)
	24	90	(null)
	25	60	(null)
		70	
	26		(null)
	27	50	(null)
	28	30	(null)
	29	40	(null)
	30	30	(null)
	31	20	(null)
	32	70	(null)
	33	40	(null)
	34	40	(null)
	35	50	(null)
	36	90	(null)
	37	10	(null)
	38	90	(null)
10	39	100	(null)

CREATING INDEXES

CREATE INDEX BOOK_TITLE_ISBN_INDEX ON PROJECT1_BOOK(ISBN,TITLE);
CREATE INDEX AUTHOR_IND ON PROJECT1_AUTHORS(AUTHOR_ID,NAME);

Search Function

```
SELECT k.BOOK_ID, k.BRANCH_ID, k.ISBN, k.TITLE, k.AUTHORS FROM
(SELECT
BOOK_ID, BRANCH_ID, ISBN, TITLE,
LISTAGG(NAME, ', ') AS AUTHORS
FROM
( SELECT
DISTINCT bc.BOOK_ID, bc.BRANCH_ID, b.ISBN, b.TITLE,
pa.author_id, pa.name
project1_book b, PROJECT1_AUTHORS pa,
PROJECT1_BOOK_AUTHORS ba, PROJECT1_BOOK_COPIES bc
WHERE
ba.ISBN = b.ISBN
AND ba.AUTHOR_ID = pa.AUTHOR_ID
AND bc.ISBN = b.ISBN
AND (LOWER(b.TITLE) LIKE LOWER('%AIR%')
OR LOWER(pa.NAME) LIKE LOWER('%AIR%')
OR LOWER(b.ISBN) LIKE LOWER('%AIR%')
OR bc.BOOK_ID LIKE LOWER('%AIR%'))
ORDER BY bc.BOOK_ID)
WHERE BRANCH_ID = 2
GROUP BY BOOK_ID, BRANCH_ID, ISBN, TITLE
ORDER BY ISBN, BOOK_ID) k
LEFT JOIN
(SELECT * FROM PROJECT1_BOOK_LOANS
WHERE DATE_IN IS NULL
AND DATE_IN > SYSDATE) 1
ON k.BOOK_ID = 1.BOOK_ID
ORDER BY TITLE;
```



Reports

TOP 10 BOOKS FOR WHICH MAXIMUM FINES WERE PAID

```
SELECT * FROM (SELECT b.TITLE, b.ISBN, SUM(f.FINE_AMT) FINE_AMOUNT FROM PROJECT1_FINES f

JOIN PROJECT1_BOOK_LOANS | ON f.LOAN_ID = | l.loan_id

JOIN project1_book_copies c ON c.book_id = | l.book_id

JOIN PROJECT1_BOOK b ON b.ISBN = c.ISBN

group by b.TITLE, b.ISBN

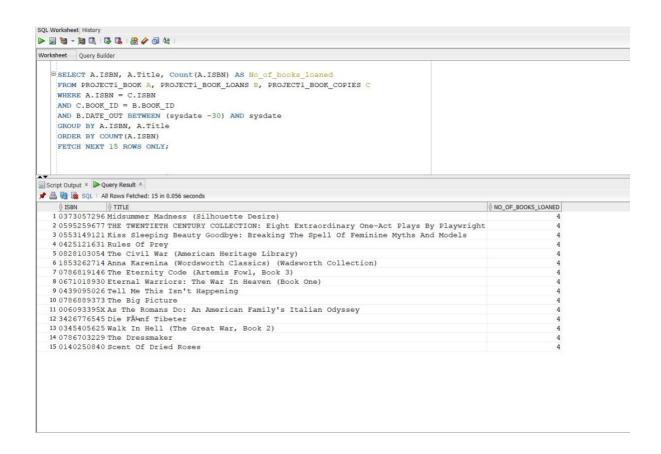
ORDER BY FINE_AMOUNT DESC)

WHERE ROWNUM < 11;
```

```
-- TOP 10 BOOKS FOR WHICH MAXIMUM FINES WERE PAID
   SELECT * FROM (SELECT b.TITLE, b.ISBN, SUM(f.FINE AMT) FINE AMOUNT FROM PROJECT1 FINES f
   JOIN PROJECT1_BOOK_LOANS 1 ON f.LOAN_ID = 1.loan_id
    JOIN project1_book_copies c ON c.book_id = 1.book_id
    JOIN PROJECT1 BOOK b ON b.ISBN = c.ISBN
    group by b.TITLE, b.ISBN
   ORDER BY FINE AMOUNT DESC)
   WHERE ROWNUM < 11;
Query Result ×
🌶 🚇 🝓 📚 SQL | All Rows Fetched: 10 in 0.042 seconds
    ∜ TITLE
                                                                           ∲ ISBN
                                                                                     180
   1 The Art Of Imperfection: Simple Ways To Make Peace With Yourself
                                                                           0609605216
  2 Paroles
                                                                           2070367622
                                                                                             110
  3 A More Perfect Union
                                                                           0380754134
                                                                                             110
  4 Life Is Short, Wear Your Party Pants
                                                                           1401901484
                                                                                             110
  5 Out Of The Deep I Cry: A Clare Fergusson And Russ Van Alstyne Mystery 0312312628
                                                                                             110
  6 Mathematics And The Imagination (Tempus)
                                                                          1556151047
                                                                                            100
   7 Whose Dinner
  8 GATES OF PARADISE
                                                                           0671670646
                                                                                             90
   9 Purple Ronnie's Love Poems
                                                                           0752271474
                                                                                              90
  10 Happy Isles Of Oceania: Paddling The Pacific
                                                                          0449908585
                                                                                             90
```

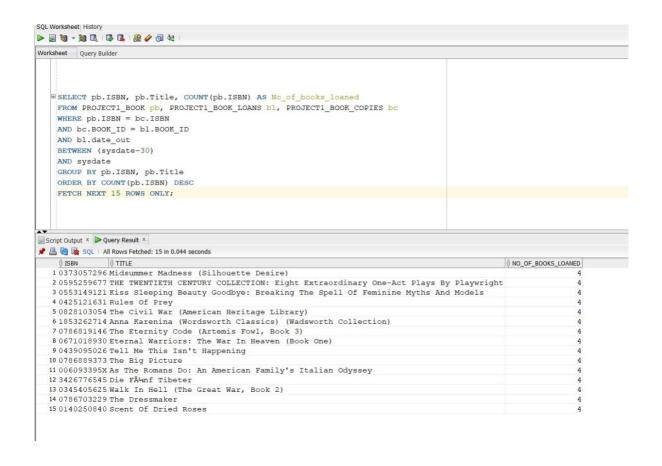
TOP 15 LEAST LOANED BOOKS

```
SELECT A.ISBN, A.Title, Count(A.ISBN) AS No_of_books_loaned
FROM PROJECT1_BOOK A, PROJECT1_BOOK_LOANS B, PROJECT1_BOOK_COPIES C
WHERE A.ISBN = C.ISBN
AND C.BOOK_ID = B.BOOK_ID
AND B.DATE_OUT BETWEEN (sysdate -30) AND sysdate
GROUP BY A.ISBN, A.Title
ORDER BY COUNT(A.ISBN)
FETCH NEXT 15 ROWS ONLY;
```



TOP 15 MOST POPULAR BOOKS IN LAST MONTH

```
SELECT pb.ISBN, pb.Title, COUNT(pb.ISBN) AS No_of_books_loaned
FROM PROJECT1_BOOK pb, PROJECT1_BOOK_LOANS bl, PROJECT1_BOOK_COPIES bc
WHERE pb.ISBN = bc.ISBN
AND bc.BOOK_ID = bl.BOOK_ID
AND bl.date_out
BETWEEN (sysdate-30)
AND sysdate
GROUP BY pb.ISBN, pb.Title
ORDER BY COUNT(pb.ISBN) DESC
FETCH NEXT 15 ROWS ONLY;
```



ER Model

BOOK (ISBN, TITLE)

BOOK_AUTHORS (AUTHOR_ID, ISBN)

BOOK_AUTHORS.AUTHOR_ID references AUTHORS.AUTHOR_ID.

AUTHORS (<u>AUTHOR_ID</u>, NAME)

LIBRARY_BRANCH (BRANCH_ID, BRANCH_NAME, ADDRESS)

BOOK_COPIES (BOOK ID, ISBN, BRANCH_ID)

BOOK_COPIES.ISBN references BOOK.ISBN,

BOOK_COPIES.BRANCH_ID references LIBRARY_BRANCH.BRANCH_ID.

BORROWER (CARD NO, SSN, FNAME, LNAME, ADDRESS, PHONE)

BOOK_LOANS (LOAN_ID, BOOK_ID, CARD_NO, DATE_OUT, DUE_DATE, DATE_IN)

BOOK_LOANS.BOOK_ID references BOOK_COPIES.BOOK_ID,

BOOK_LOANS.CARD_NO references BORROWER.CARD_NO.

FINES.LOAN_ID references BOOK_LOANS.LOAN_ID.

