

INTRODUCTION

This design is for Riverwood Books, a used book business that sells on Amazon FBA. Because all books are used rather than new, each has a unique combination of data (i.e., source, purchase date, cost, condition, listing price, etc.). Therefore, a surrogate key (SKU) identifies each book.

In the Amazon FBA model, Riverwood ships many SKUs in a single box, which are then stored in Amazon’s warehouses. When a book sells, Amazon packs and ships the book to the customer. This bulk shipping explains Riverwood’s shipment weights and costs.

eScore is an indicator of how many copies of a particular book are sold on Amazon in an average month. The eScore Desc column in the CR_ESCSCORE table describes a character-based range that is computed by and used in a separate software app for Amazon booksellers. In the Riverwood Books database, a book may have a null eScore value.

DATA FOR DATABASE TABLES

ITC 295 Course Project

Data for Riverwood Books Database Tables

CR_BOOK (SKU, ISBN, Source ID, Purchase Date, Per Item Cost, Condition, Listing Price, Listing Date, Shipment ID, Status ID, Sell Date, Sell Price, Amazon Fees)

SKU	ISBN	Source ID	Purchase Date	Per Item Cost	Condition	Listing Price	Listing Date	Shipment ID	Status ID	Sell Date	Sell Price	Amazon Fees
1001	9780415904131	BK	21-Jul-19	13.03	G	35.00	29-Jul-19	1	S	14-Mar-20	35.00	12.94
1002	9781590526569	BK	10-Aug-19	0.00	VG	0.00	28-Jan-20	4	D	28-Oct-20	0.00	0.15
1003	B01FIVZFAA	TH	27-Aug-19	0.00	LN	0.00	NULL	NULL	H	NULL	0.00	0.00
1004	9780830736263	IN	18-Dec-19	0.00	VG	13.97	18-Dec-19	7	S	21-Jun-20	13.97	7.39
1005	9780140074482	TH	22-Dec-19	0.47	LN	10.43	22-Dec-19	8	S	01-Sep-20	10.43	6.85
1006	9780073523972	TH	6-Jan-20	0.50	VG	49.97	06-Jan-20	9	A	12-Sep-20	49.97	15.05
1007	9781790877225	TH	6-Jan-20	0.79	LN	20.70	06-Jan-20	9	A	05-Apr-20	20.70	9.18
1008	9780393240832	TH	6-Jan-20	0.79	LN	21.83	06-Jan-20	9	A	22-Aug-20	21.83	10.82
1009	9780981559667	TH	9-Jan-20	0.55	LN	14.97	09-Jan-20	10	A	25-Feb-20	14.97	9.80
1010	9781118073766	TH	9-Jan-20	2.88	LN	17.05	09-Jan-20	10	A	01-Oct-20	17.05	7.83

CR_CATEGORY (Category ID, Category Description)

Category ID	Category Description
1	Arts & Photography
2	Biographies & Memoirs
3	Business & Money
4	Children's Books
5	Christian Books & Bibles
6	Comics & Graphic Novels
7	Computers & Technology
8	Cookbooks, Food & Wine
9	Crafts, Hobbies & Home
10	Education & Teaching
11	Engineering & Transportation
12	Health, Fitness & Dieting
13	History
14	Humor & Entertainment
15	Law
16	Literature & Fiction
17	Medical Books
18	Mystery, Thriller & Suspense
19	Parenting & Relationships
20	Politics & Social Sciences
21	Reference
22	Religion, Spirituality, Philosophy
23	Science & Math
24	Science Fiction & Fantasy
25	Self-Help
26	Sports & Outdoors
27	Teen & Young Adult
28	Test Preparation
29	Travel

CR_STATUS (Status ID, Status Description)

Status ID	Status Description
P	Pending shipment
A	Active
H	Hold
R	Restricted
S	Sold
L	Lost
D	Disposed
X	Dud

CR_SOURCE (Source ID, Source Description)

Source ID	Source Description
BB	Books Bee
BK	Bookstore
FL	Flea Market
GA	Garage Sale
IN	Individuals
LB	Library Ongoing
LF	Little Free Library
LS	Library Book Sale
TH	Thrift Shop

Explanations:

- 1 All books are used. As such, every book has a different combination of data (source, purchase date, cost, condition, listing price, etc.).
- 2 eScore is a measure of how many copies of a book sell each month on Amazon. It can sometimes be null.

CR_ESCSCORE (eScore ID, eScore Desc)

eScore ID	eScore Desc
1	1-2
2	3-5
3	6-12
4	13-24
5	25-45
6	46-70
7	71-114
8	115-150
9	151-9999

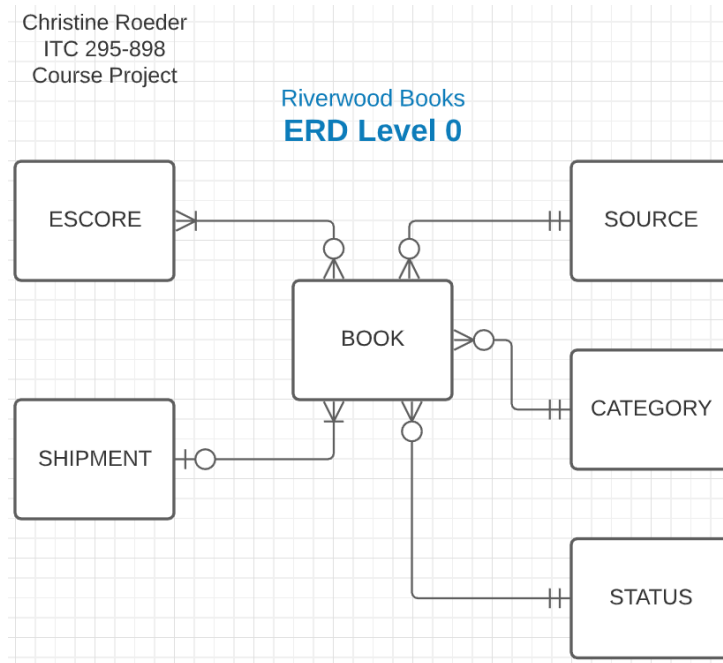
CR_ISBN (ISBN, Title, Category ID, eScore ID)

ISBN	Title	Category ID	eScore ID
9780415904131	Love's Labor	22	4
9781590526569	Lessons I Learned in	5	3
B01FIVZFAA	Who Switched Off M	25	NULL
9780830736263	The Breaker Anointir	5	4
9780140074482	Life and Times of Mic	16	NULL
9780073523972	The Humanistic Trad	1	5
9781790877225	50 Shades of Politics	20	4
9780393240832	The Language of Foo	21	5
9780981559667	The Five Thousand Y	15	NULL
9781118073766	The Investor's Manif	3	7

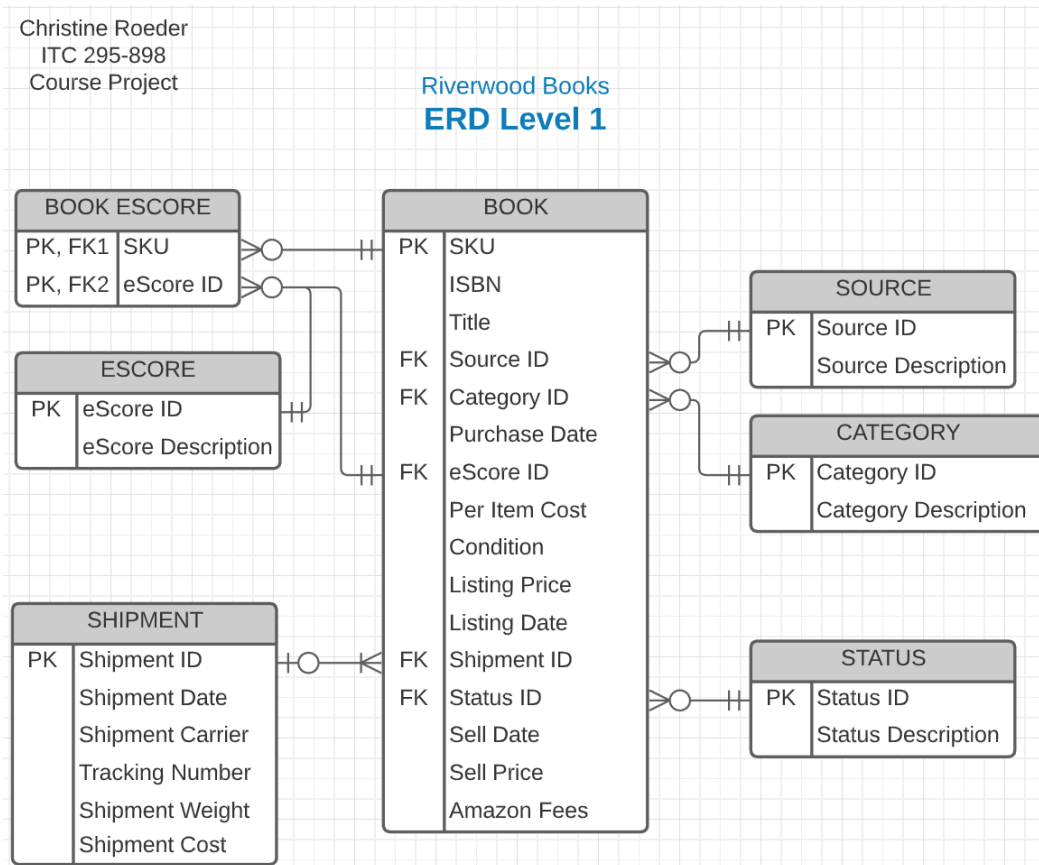
CR_SHIPMENT (Shipment ID, Shipment Date, Shipment Carrier, Tracking Number, Shipment Weight, Shipment Cost)

Shipment ID	Shipment Date	Shipment Carrier	Tracking Number	Shipment Weight	Shipment Cost
1	07/28/19	FedEx	1ZSRF1890376966440	29.9	\$7.81
2	7/29/2019	FedEx	1ZSRF1890376966450	35.8	\$8.84
3	8/16/2019	UPS	1ZSRF1890376966460	41.9	\$11.25
4	9/1/2019	UPS	1ZSRF1890376966470	50.0	\$12.73
5	9/15/2019	UPS	1ZSRF1890376966439	49.9	\$12.68
6	10/10/2019	UPS	1ZSRF1890376966450	43.8	\$11.60
7	12/18/2019	UPS	1ZSRF1890376966470	25.3	\$8.42
8	12/22/2019	UPS	1ZSRF1890376966439	36.7	\$8.91
9	1/4/2020	UPS	1ZSRF1890376966450	34.3	\$9.09
10	1/9/2020	UPS	1ZSRF1890376966450	32.2	\$8.51
11	5/25/2020	UPS	1ZSRF1890376966450	97.2	\$26.19

ERD LEVEL 0



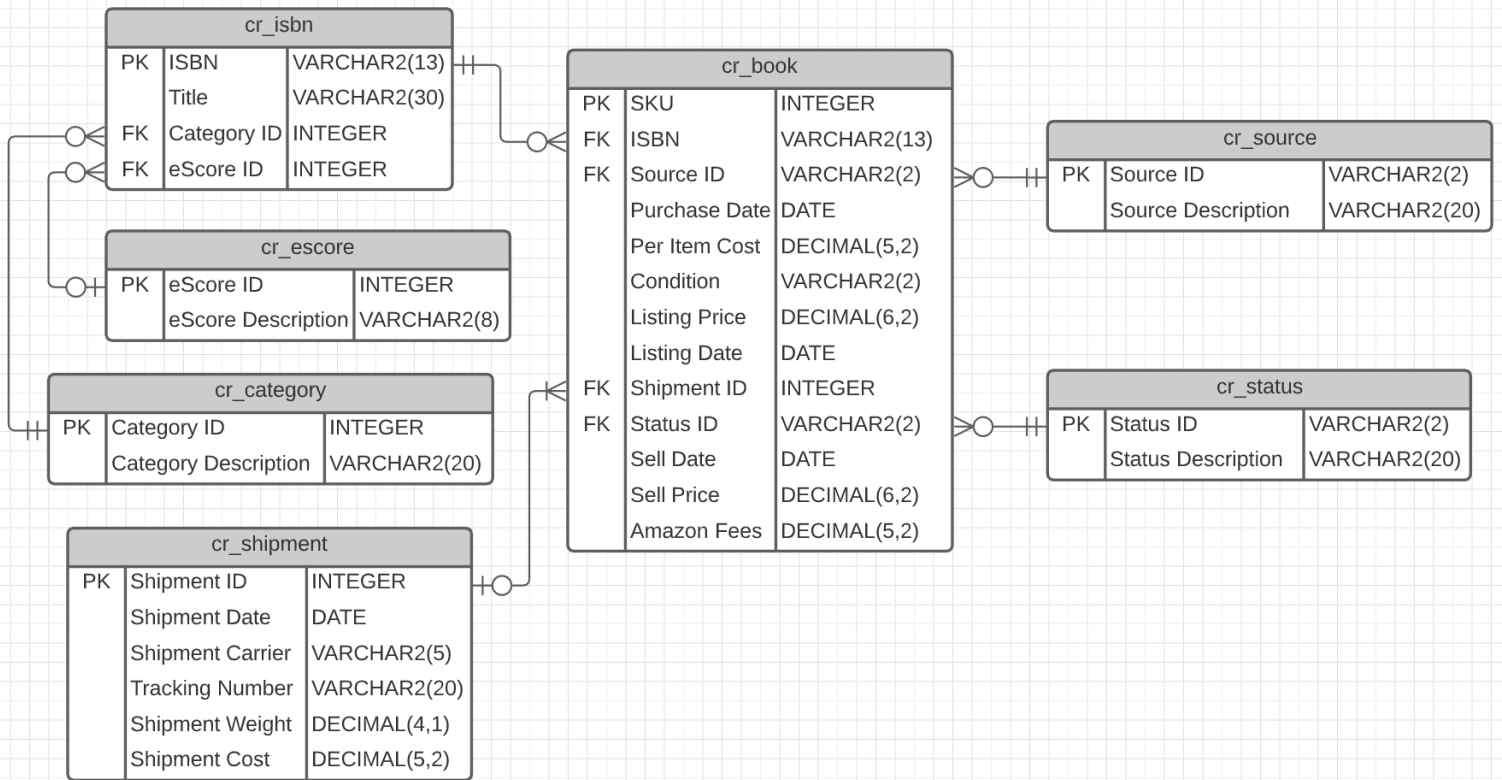
ERD LEVEL 1



ERD LEVEL 2

Christine Roeder
ITC 295-898
Course Project

Riverwood Books
ERD Level 2



CREATE AND SELECT STATEMENTS

```
CREATE TABLE cr_shipment (
    shipment_id INTEGER PRIMARY KEY,
    shipment_date DATE,
    shipment_carrier VARCHAR2(5),
    tracking_number VARCHAR2(20),
    shipment_weight DECIMAL(4,1),
    shipment_cost DECIMAL(5,2)
);
```

```
INSERT INTO cr_shipment
VALUES (1, TO_DATE('03-May-20', 'DD-MON-YY'), 'FedEx', '1Z5RF1890376966440', 29.9, 7.81);
```

```
SELECT * FROM cr_shipment;
```

SHIPMENT_ID	SHIPMENT_DATE	SHIPMENT_CARRIER	TRACKING_NUMBER	SHIPMENT_WEIGHT	SHIPMENT_COST
1	103-MAY-20	FedEx	1Z5RF1890376966440	29.9	7.81
2	204-MAY-20	FedEx	1Z5RF1890376966450	35.8	8.84
3	301-JUL-20	UPS	1Z5RF1890376966460	41.9	11.25
4	425-JUL-20	UPS	1Z5RF1890376966470	50	12.73
5	526-JUL-20	UPS	1Z5RF1890376966439	49.9	12.68
6	612-AUG-20	UPS	1Z81RF430349255093	43.8	11.6
7	713-AUG-20	UPS	1Z81RF430322837086	25.3	8.42
8	810-SEP-20	UPS	1Z81RF430342238203	36.7	8.91
9	912-SEP-20	UPS	1Z81RF430327574619	34.3	9.09
10	1017-OCT-20	UPS	1Z81RF430329953992	32.2	8.51

```
CREATE TABLE cr_source (
    source_id VARCHAR2(2) PRIMARY KEY,
    source_desc VARCHAR2(20) UNIQUE
);
```

```
INSERT INTO cr_source
VALUES ('BB', 'Books Bee');
```

```
SELECT * FROM cr_source;
```

SOURCE_ID	SOURCE_DESC
1 BB	Books Bee
2 BK	Bookstore
3 FL	Flea Market
4 GA	Garage Sale
5 IN	Individuals
6 LB	Library Ongoing
7 LF	Little Free Library
8 LS	Library Book Sale
9 TH	Thrift Shop

```
CREATE TABLE cr_status (
    status_id VARCHAR2(2) PRIMARY KEY,
    status_desc VARCHAR2(20) UNIQUE
);
```

```
INSERT INTO cr_status
VALUES ('P', 'Pending shipment');
```

```
SELECT * FROM cr_status;
```

STATUS_ID	STATUS_DESC
1 P	Pending shipment
2 A	Active
3 H	Hold
4 R	Restricted
5 S	Sold
6 L	Lost
7 D	Disposed
8 X	Dud

```
CREATE TABLE cr_category (
  category_id INTEGER PRIMARY KEY,
  category_desc VARCHAR2(25) UNIQUE
);
```

```
INSERT INTO cr_category
VALUES (1, 'Arts, Photography');
```

```
SELECT * FROM cr_category;
```

CATEGORY_ID	CATEGORY_DESC
1	1 Arts, Photography
2	2 Biographies, Memoirs
3	3 Business, Money
4	4 Childrens Books
5	5 Christian, Bibles
6	6 Comics, Graphic Novels
7	7 Computers, Technology
8	8 Cookbooks, Food and Wine
9	9 Crafts, Hobbies, Home
10	10 Education, Teaching
11	11 Engineering, Transport
12	12 Health, Fitness, Dieting
13	13 History
14	14 Humor, Entertainment
15	15 Law
16	16 Literature, Fiction
17	17 Medical Books
18	18 Mystery, Suspense
19	19 Parenting, Relationships
20	20 Politics, Social Sciences
21	21 Reference
22	22 Religion, Philosophy
23	23 Science, Math
24	24 Science Fiction, Fantasy
25	25 Self Help
26	26 Sports, Outdoors
27	27 Teen, Young Adult
28	28 Test Preparation
29	29 Travel

```
CREATE TABLE cr_escore (
  escore_id INTEGER PRIMARY KEY,
  escore_desc VARCHAR2(8)
);
```

```
INSERT INTO cr_escore
VALUES (1, '1-2');
```

```
SELECT * FROM cr_escore;
```

ESCORE_ID	ESCORE_DESC
1	1 1-2
2	2 3-5
3	3 6-12
4	4 13-24
5	5 25-45
6	6 46-70
7	7 71-114
8	8 115-150
9	9 151-9999

```
CREATE TABLE cr_isbn (
  isbn VARCHAR2(13) PRIMARY KEY,
  title VARCHAR2(30),
  category_id INTEGER,
  escore_id INTEGER,
  CONSTRAINT cr_isbn_category_id_fk
    FOREIGN KEY (category_id)
    REFERENCES cr_category (category_id),
  CONSTRAINT cr_isbn_escore_id_fk
    FOREIGN KEY (escore_id)
    REFERENCES cr_escore (escore_id)
);
```

```
INSERT INTO cr_isbn
VALUES ('9780415904131', 'Loves Labor', 22, 4);
```

```
SELECT * FROM cr_isbn;
```

ISBN	TITLE	CATEGORY_ID	ESCORE_ID
1 9780415904131	Loves Labor	22	4
2 9781590526569	Lessons I Learned in the Light	5	3
3 B01FIVZFAA	Who Switched Off My Brain?	25	(null)
4 9780830736263	Breaker Anointing	5	4
5 9780140074482	Life and Times of Michael K	16	(null)
6 9780073523972	Humanistic Tradition, Book 1	1	5
7 9781790877225	50 Shades of Politics	20	4
8 9780393240832	Language of Food	21	5
9 9780981559667	Five Thousand Year Leap	15	(null)
10 9781118073766	Investors Manifesto	3	7
11 9780393312836	A Clockwork Orange	27	7

```
CREATE TABLE cr_book (
  sku INTEGER PRIMARY KEY,
  isbn VARCHAR2(13) NOT NULL,
  source_id VARCHAR2(2) NOT NULL,
  purchase_date DATE,
  per_item_cost DECIMAL(5,2),
  condition VARCHAR2(2),
  listing_price DECIMAL(6,2),
  listing_date DATE,
  shipment_id INTEGER,
  status_id VARCHAR2(2),
  sell_date DATE,
  sell_price DECIMAL(6,2),
  amazon_fees DECIMAL(5,2),
  CONSTRAINT cr_book_isbn_fk
    FOREIGN KEY (isbn)
```

```

REFERENCES cr_isbn (isbn),
CONSTRAINT cr_book_source_id_fk
  FOREIGN KEY (source_id)
    REFERENCES cr_source (source_id),
CONSTRAINT cr_book_shipment_id_fk
  FOREIGN KEY (shipment_id)
    REFERENCES cr_shipment (shipment_id),
CONSTRAINT cr_book_status_id_fk
  FOREIGN KEY (status_id)
    REFERENCES cr_status (status_id)
);

INSERT INTO cr_book
VALUES (1001, '9780415904131', 'BK', TO_DATE('09-Apr-20', 'DD-MON-YY'), 13.03, 'G', 35.00,
      TO_DATE('03-May-20', 'DD-MON-YY'), 1, 'A', NULL, 0.00, 0.00);

SELECT * FROM cr_book;

```

SKU	ISBN	SOURCE_ID	PURCHASE_DATE	PER_ITEM_COST	CONDITION	LISTING_PRICE	LISTING_DATE	SHIPMENT_ID	STATUS_ID	SELL_DATE	SELL_PRICE	AMAZON_FEES
1	10019780415904131	BK	09-APR-20	13.03	G	35	03-MAY-20	1	A	(null)	0	0
2	10029781590526569	GA	27-APR-20	0	VG	0	03-MAY-20	2	D	28-OCT-20	0	0.15
3	1003B01FIVZFAA	LF	27-APR-20	0	LN	0	(null)	(null)	H	(null)	0	0
4	10049780830736263	IN	30-JUN-20	0	VG	13.97	01-JUL-20	3	S	21-AUG-20	13.97	7.39
5	10059780140074482	TH	05-JUL-20	0.47	LN	10.43	25-JUL-20	4	S	01-SEP-20	10.43	6.85
6	10069780073523972	TH	05-JUL-20	0.5	VG	49.97	25-JUL-20	5	A	(null)	0	0
7	10079781790877225	LS	06-AUG-20	0.79	LN	20.7	12-AUG-20	6	A	(null)	0	0
8	10089780393240832	LS	06-AUG-20	0.79	LN	21.83	12-AUG-20	7	S	15-SEP-20	21.83	10.82
9	10099780981559667	TH	09-SEP-20	0.55	LN	14.97	10-SEP-20	8	S	25-OCT-20	14.97	9.8
10	10109781118073766	TH	09-SEP-20	2.88	LN	17.05	10-SEP-20	9	S	01-NOV-20	17.05	7.83
11	10119780393312836	LF	15-OCT-20	0	LN	14.97	17-OCT-20	10	A	(null)	0	0

QUERIES AND OUTPUT

1. *User query:* Which books have been listed for more than 90 days? *Solution:* List all books where Status ID is A (Active) and Listing Date is at least 90 days ago.

```
SELECT sku, isbn, status_id, listing_date,
       TRUNC(SYSDATE - listing_date) AS "Days Aged"
FROM cr_book
WHERE status_id = 'A'
AND SYSDATE - listing_date > 90
ORDER BY "Days Aged" DESC;
```

SKU	ISBN	STATUS_ID	LISTING_DATE	Days Aged
1	10019780415904131	A	03-MAY-20	212
2	10069780073523972	A	25-JUL-20	129
3	10079781790877225	A	12-AUG-20	111

2. *User query:* Which categories are most profitable? *Solution:* Calculate profit on each book sold ("S" status_id), join 3 tables to get the category of each sold book, group by category, then sort descending on profit.

```
SELECT c.category_id, c.category_desc AS "CATEGORY DESCRIPTION", b.sell_price,
       b.per_item_cost AS "COST", b.amazon_fees AS "FEES",
       b.sell_price - b.per_item_cost - b.amazon_fees AS "PROFIT"
FROM cr_book b, cr_isbn i, cr_category c
WHERE b.isbn = i.isbn
AND i.category_id = c.category_id
AND b.status_id = 'S'
GROUP BY c.category_id, c.category_desc, b.sell_price, b.per_item_cost,
         b.amazon_fees, b.sell_price - b.per_item_cost - b.amazon_fees
ORDER BY "PROFIT" DESC;
```

CATEGORY_ID	CATEGORY DESCRIPTION	SELL_PRICE	COST	FEES	PROFIT
1	21Reference	21.83	0.79	10.82	10.22
2	5Christian, Bibles	13.97	0	7.39	6.58
3	3Business, Money	17.05	2.88	7.83	6.34
4	15Law	14.97	0.55	9.8	4.62
5	16Literature, Fiction	10.43	0.47	6.85	3.11

3. *User query:* How many active (listed but not yet sold) books are in each eScore range? *Solution:* Count books with status_id "A" (active) for each escore_id.

```
SELECT e.escor_desc AS "eScore Range", COUNT(DISTINCT b.sku) AS "Active SKUs"
FROM cr_book b, cr_isbn i, cr_escor e
WHERE b.isbn = i.isbn
AND i.escor_id = e.escor_id
AND b.status_id = 'A'
GROUP BY e.escor_desc
ORDER BY e.escor_desc;
```

eScore Range	Active SKUs
1 13-24	2
2 25-45	1
3 71-114	1

4. *User query:* What is the total net profit for the year 2020? *Solution:* Sum sell_price, per_item_cost, and amazon_fees for all SKUs that have a sell_date in 2020.

```
SELECT SUM(sell_price - per_item_cost - amazon_fees) AS "2020 Net Profit"
FROM cr_book
WHERE TO_CHAR(sell_date, 'YY') = '20';
```

	2020 Net Profit
1	30.72

Confirm result:

```
SELECT sku, sell_date, sell_price, per_item_cost, amazon_fees,
       sell_price - per_item_cost - amazon_fees AS Profit
FROM cr_book
WHERE TO_CHAR(sell_date, 'YY') = '20'
ORDER BY sell_date;
```

SKU	SELL_DATE	SELL_PRICE	PER_ITEM_COST	AMAZON_FEES	PROFIT
1 1004	21-AUG-20	13.97	0	7.39	6.58
2 1005	01-SEP-20	10.43	0.47	6.85	3.11
3 1008	15-SEP-20	21.83	0.79	10.82	10.22
4 1009	25-OCT-20	14.97	0.55	9.8	4.62
5 1002	28-OCT-20	0	0	0.15	-0.15
6 1010	01-NOV-20	17.05	2.88	7.83	6.34

5. *User query:* How many books have come from each source? *Solution:* Count the number of SKUs per source_id.

```
SELECT s.source_desc AS "Source", COUNT(DISTINCT b.sku) AS "# of Books"
FROM cr_book b, cr_source s
WHERE b.source_id = s.source_id
GROUP BY s.source_desc
ORDER BY s.source_desc DESC;
```

Source	# of Books
1 Thrift Shop	4
2 Little Free Library	2
3 Library Book Sale	2
4 Individuals	1
5 Garage Sale	1
6 Bookstore	1

6. (One more just to be sure all seven of the tables have been used in at least one query.) *User query:* What is the shipment information for SKU 1006?

```
SELECT b.sku, sh.shipment_date AS "Ship Date",
       sh.shipment_carrier AS "Carrier", sh.tracking_number AS "Tracking #"
FROM cr_book b, cr_shipment sh
WHERE b.shipment_id = sh.shipment_id
AND b.sku = 1006;
```

SKU	Ship Date	Carrier	Tracking #
1 1006	26-JUL-20	UPS	1Z5RF1890376966439