

E-Business Bookstore

Database



Final Project

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Project Overview

Current Status

Record information using Excel

Two PCs and various spreadsheet

Instore transaction

Problems

Inaccurate and redundant data

Low efficiency

Unable to expand business

Our Goals

Create a quick and accurate database

Help expand online business

Main Users

Managers- keep track of inventory and business information

Salesmen-process customer orders

Customers-check and order books

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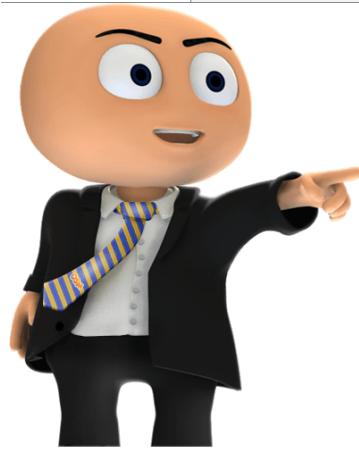
I don't know much about computer.
But this database is simple and
user-friendly. I can use it to
overlook and expand my business!

99

Business Owner



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Managers

66

I can use it to manage the book store and keep track of sales, inventory, employees and all the other information in store.

39

SLIDE 4

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I can enter and update the sales records easily. The database really save me a lot of time.

99

Sales Person In Store



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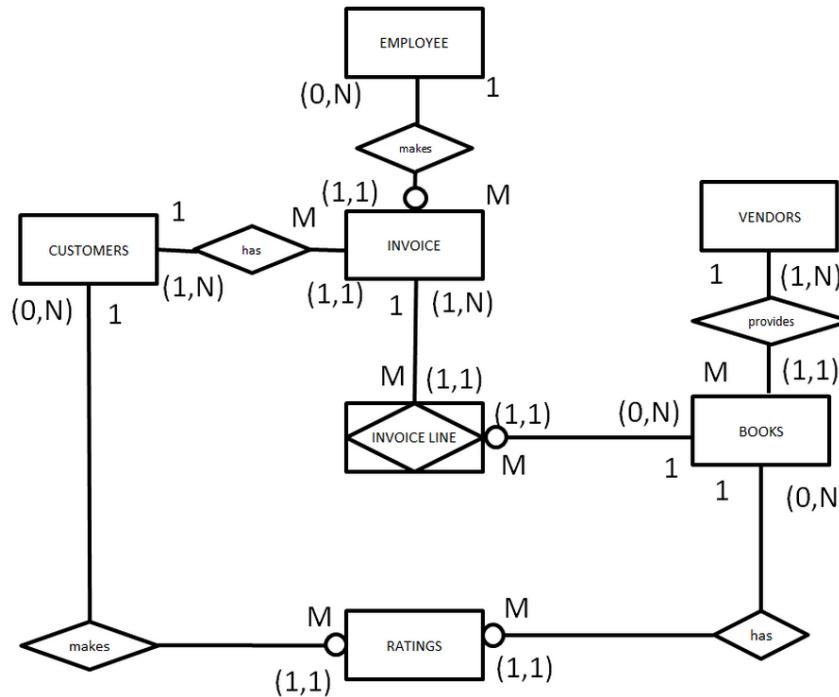
I can check the ratings and compare prices using this database to make more informed decisions.

39



Customers

ERD

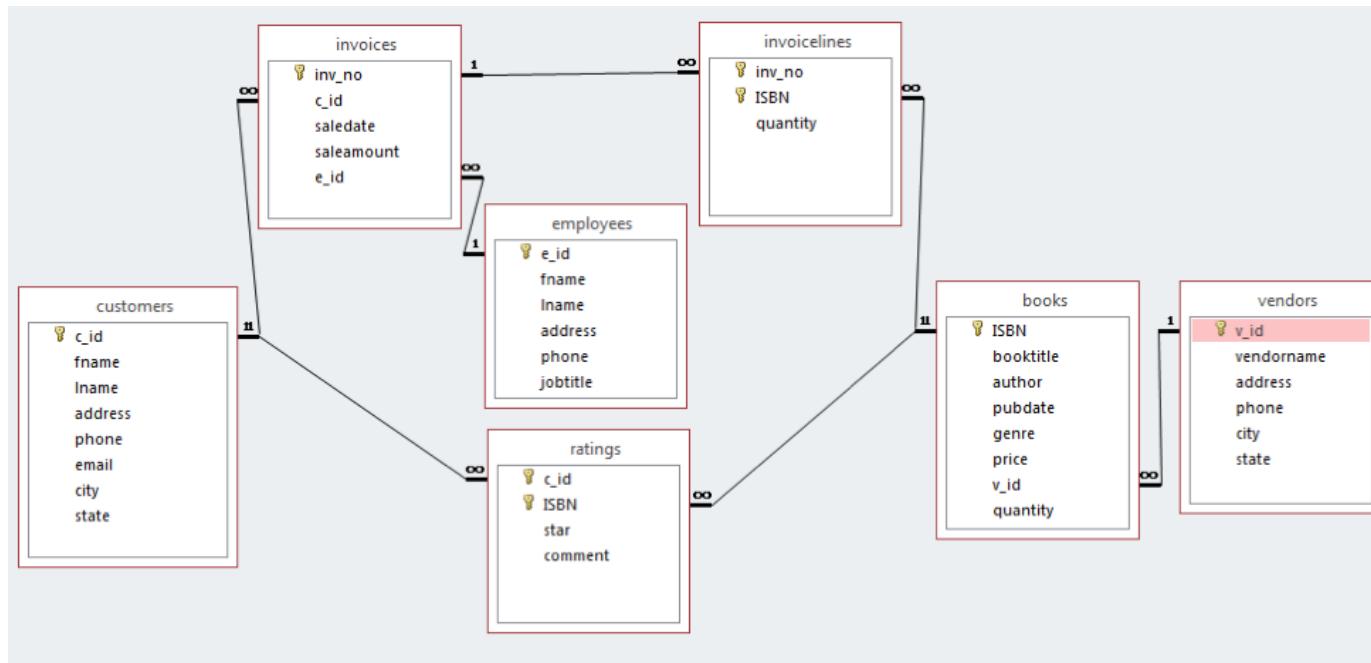


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Entities and Relationships



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Business Rules

- (1) One customer has multiple invoices. One invoice is generated by one customer.
- (2) One invoice has many invoice lines. One invoice line belongs to one invoice.
- (3) One employee makes many invoices. One invoice is made by one employee.
- (4) One invoice line refers to one book. One book can have many invoice lines.
- (5) One vendor provides many books. One book is provided by one vendor.
- (6) One customer makes many ratings. One rating is made by one customer.
- (7) One rating refers to one book. One book can have many ratings.

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Data Dictionary

Table	Attribute	Key	Ref.Table of Fk
customers	c_id	PK	
	fname		
	lname		
	address		
	city		
	state		
	phone		
	email		
employees	e_id	PK	
	fname		
	lname		
	address		
	phone		
	jobtitle		
books	ISBN	PK	
	booktitle		
	author		
	pubdate		
	genre		
	price		
	v_id	FK	vendors
	quantity		

Table	Attribute	Key	Ref.Table of Fk
invoices	inv_no	PK	
	saledate		
	saleamount		
	e_id	FK	employees
	c_id	FK	customers
invoicelines	inv_no	PK, FK	invoices
	ISBN	PK, FK	books
	quantity		
ratings	c_id	PK,FK	customers
	ISBN	PK,FK	books
	star		
	comment		
vendors	v_id	PK	
	vendorname		
	address		
	city		
	state		
	phone		

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Database System Task List

(1) Tasks the Database Will Perform

- Enter and store customer's personal and contact information
- Enter and store employee's personal and contact information
- Enter book information
- Enter vendor's information
- View customer's invoice includes sale date, sale amount, book details
- Search for book information includes author, ISBN, reviews by customers

(2) Questions the Database Will Answer

- How many customers were there in one area?
- How many books left in the bookstore?
- How many books a customer bought in a particular day?
- What's the customers' review for a particular book?
- How many book are provided by a vendor?
- What's total sale amount for a given month?
- How many books are sold by each employee?

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Query 1

- ☞ Find the books that have both customer star ratings above the average rating and comments containing the word “Great” or “Interesting”.

```
SELECT ratings.* FROM ratings  
WHERE star > (SELECT avg(star) from ratings) and  
comment like '*Great*' or comment like '*Interesting*';
```

c_id	ISBN	star	comment
2	300105894	4	Interesting approach to a familiar topic.
2	374526915	5	Great, comprehensive collection.
7	679733841	5	Interesting read, though quite morbid.
8	142424501	3	Interesting but rather unusual.

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Query 2

- ☞ Find all the vendor information as well as the total number of books each provides to this book store.

```
SELECT v.v_id, v.vendorname, count(b.ISBN) AS totalbooks  
FROM vendors v INNER JOIN books b ON v.v_id = b.v_id  
GROUP BY v.v_id, v.vendorname;
```

v_id	vendorname	totalbooks
1	Booksmasters	3
2	Information Today, Inc.	1
3	The Bilingual Publications Company	1
4	Overdrive, Inc.	1
5	Worldwide Books	3
6	Alibris	4

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Query 3

- ☞ Find all the customers, salesmen, and sale information for the top 10 orders that have a total sale amount of more than 10 dollars.

```
SELECT TOP 10 e.fname, e.lname, c.fname, c.lname, i.inv_no, i.saleamount  
FROM employees e INNER JOIN (customers c INNER JOIN invoices i ON c.c_id =  
i.c_id) ON e.e_id = i.e_id WHERE i.saleamount > 10 ORDER BY saleamount DESC ;
```

e.fname	e.lname	c.fname	c.lname	inv_no	saleamount
Karen	Blake	Trevor	Hicks	13	70
Rhonda	McDonald	Nicolas	Cramer	5	67
Rhonda	McDonald	Kimberly	Glazer	6	57
Karen	Blake	Jonas	Klein	3	43
Rhonda	McDonald	Frank	Dole	11	39
Rhonda	McDonald	Bill	Lewinski	2	34
Bob	Thomas	Lisa	Beaverhouse	7	32
Karen	Blake	Courtney	Cameron	8	24
Rhonda	McDonald	Fran	Jenkins	9	19
Rhonda	McDonald	Lydia	Elm	10	18
Rhonda	McDonald	Adrian	Bartholomew	1	18

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Sample Reports

- ☞ Report that provides the sales invoices to customers, containing all the details of that order, including sale date, invoice number, total amount, items purchased, and

q [invoices for customers](#)

The screenshot shows a Microsoft Access report interface. At the top, there are three text input fields: 'saledate' (14-04-2015), 'inv_no' (1), and 'saleamount (\$)' (18). Below these, a section titled 'details' contains a table with two rows of data. The table has columns for ISBN and quantity. The data is as follows:

ISBN	quantity
415900425	1
520244966	1
*	0
	0

At the bottom of the report, there is a navigation bar with the text 'Record: 1 of 2'.

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Validation of Database System

- ☞ • Database has ability to store and access information about each individual customer
- ☞ • System is capable of generating reports that provide an overview of invoices
- ☞ • Meet customers' requirements: find the information of a particular type of book, the availability and the other relevant information
- ☞ • Records information regarding vendors and which products each supplies
- ☞ • Database offers efficient and uniform method of storing and accessing book information, including titles, authors, genres, and prices, as well as their ratings
- ☞ • Keep track of total sales for given amounts of time (months, weeks, etc.) as well as employee sales histories

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Weaknesses & Limitations

- ☞• Users will still be required to manually update the stock in the database when books are sold to customers or received from vendors
- ☞• There is no way to automatically reorder books when they are low in stock
- ☞• The use of Access can only manage small data and is not the most efficient DBMS for online transactions
- ☞• Financial reports are not automatically generated for the owner at the end of each month
- ☞• Customer ID and Vendor ID are not automatic increments

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Future Changes and Upgrades

- ☞ • Database can be expanded to allow generation of financial reports for the owner
- ☞ • Build filter to ensure that customer's information, like city and state, is eligible
- ☞ • Provide a user friendly user interface for customers
- ☞ • Address weaknesses and limitations as they arise

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