

Final Project

CS3500

Fall 2017

Please design and create a Database Management System for an online book store in your mysql account on storm.cis.fordham.edu.

- A. A customer of the store should register to purchase a book. To register, customers should provide information of full name, gender, birth date, email address, delivery address, contact phone number(s). The customer also should provide one or more payment methods, such as debit card(s), credit card(s), bank account(s). Debit card and credit card should have information of card holder, card number, expiration date, contact phone number, and billing address. Each bank account should have account holder info, account type (checking or saving), account number and bank name. After registration, each customer will have a unique customerid, username and password.
- B. The books of the store are divided into several sections, such as Sciences, Arts, Children, and so on. Each book belongs to a section, has a title, author(s), ISBN, price, edition, year and publisher. For each book, keep track of its current inventory. Every author has full name and an author could have written one or more books.
- C. Customer can purchase one or more books in different quantities, and all books the customer purchases are put into his/her shopping cart. Based on the quantity and price of books in the shopping cart of that day, the bill will be generated when the customer checks out. Each bill belongs to a customer and associates with a shopping cart and a payment method is required to settle the bill.

The following information is some instances of customers, books and so on.

Books

Book ISBN: 0-8053-1755-4

Title: Fundamentals of Database Systems, 3rd edition

Authors: Ramez A. Elmasri and Shamkant Navathe

Year and Publisher: 2000, Addison Wesley

Price: \$100.00

Section: Sciences

Inventory: 20

Book ISBN: 978-0-12-374856-0

Title: Data Mining, Practical Machine Learning Tools and Techniques,
3rd edition

Authors: Ian H. Witten, Eibe Frank, and Mark Hall

Year and Publisher: 2011, Elsevier

Price: \$120.00

Section: Sciences

Inventory: 25

Book ISBN: 0-1153-2555-5

Title: Writing Skills

Authors: Matt Florence

Year and Publisher: 2010, Addison Wesley

Price: \$30.00

Section: Arts

Inventory: 10

Book ISBN: 978-0-07-246563-1

Title: Database Management Systems, 3rd edition

Authors: Raghuram Ramakrishnan and Johannes Gehrke

Year and Publisher: 2003, McGraw-Hill

Price: \$110.00

Section: Sciences

Inventory: 15

Customers:

Customerid: 00001
Username: xxyy
Password: 0808
Name: Tom Hunks
Birth date: 12/1/1990
Gender: M
Email address: thunks@yahoo.com
Delivery address: 1100 Grand Road, New York, NY 10001
Phone number: 212-400-0001 (Home), 212-100-2222 (Cell)
Payment method:

Credit card

Holder: Tom Hunks
Card #: 9999 9999 8888 8888
Expiration Date: 08/17
Phone Number: 212-400-0001
Billing Address: 1100 Grand Road, New York, NY 10001

Bank Account:

Holder: Tom Hunks
Account #: 1112223
Account Type: Checking
Bank Name: Chase

Books in his shopping cart on 11/24/17:

1 copy of "*Data Mining, Practical Machine Learning Tools and Techniques*"

2 copies of "*Database Management Systems*"

1 copy of "*Writing Skills*"

*He would like to pay with his checking account.

Customerid: 00002
Username: xzzz
Password: 11223
Name: Tom Cruise
Birth date: 10/1/1991
Gender: M
Email address: tcruise@yahoo.com
Delivery address: 441 East Fordham Road, Bronx, NY 10458
Phone number: 718-817-3333 (Cell)
Payment method:
 Credit card
 Holder: Tom Cruise
 Card #: 2222 4444 5555 6666
 Expiration Date: 12/14
 Phone Number: 718-817-3333
 Billing Address: 441 East Fordham Road, Bronx, NY 10458

Books in his shopping cart on 11/23/17:

1 copy of "*Data Mining, Practical Machine Learning Tools and Techniques*"

1 copy of "*Database Management Systems*"

1 copy of "*Writing Skills*"

*He would like to pay with his credit card.

Customerid: 00003
Username: abcde
Password: xyz123
Name: Tina Fei
Birth date: 12/1/1956
Gender: F
Email address: tfei11@yahoo.com
Delivery address: 442 Fordham Road, Bronx, NY 10458
Phone number: 817-718-0001 (Work), 212-100-2234 (Cell)
Payment method:

Debit card

Holder: Tina Fei
Card #: 1234 1234 5678 5678
Expiration Date: 10/18
Phone Number: 817-718-0001
Billing Address: 442 Fordham Road, Bronx, NY10458

Bank Account:

Holder: Tom Fei
Account #: 12667
Account Type: Checking
Bank Name: Capital One

Books in her shopping cart on 12/1/17:

1 copy of "*Data Mining, Practical Machine Learning Tools and Techniques*"

1 copy of "*Database Management Systems*"

1 copy of "*Writing Skills*"

1 copy of "*Fundamentals of Database Systems*"

*She would like to pay with her debit card.

Customerid: 00004
Username: iama
Password: 34ii
Name: Rice Brown
Birth date: 12/1/1970
Gender: F
Email address: rbrown1999@hotmail.com
Delivery address: 383 56th Street, New York, NY 10002
Phone number: 212-0001-7788 (Cell)
Payment method:

Credit card

Holder: Rice Brown
Card #: 1122 3344 5566 7788
Expiration Date: 1/16
Phone Number: 212-0001-7788
Billing Address: 38 56th Street, New York, NY 10002

Books in her shopping cart on 11/24/17:

- 1 copy of "*Data Mining, Practical Machine Learning Tools and Techniques*"
- 1 copy of "*Database Management Systems*"
- 2 copies of "*Writing Skills*"
- 1 copy of "*Fundamentals of Database Systems*"

*She would like to pay with her credit card.

Customerid: 00005
Username: lisaw
Password: 8877
Name: Lisa Warren
Birth date: 12/1/1972
Gender: F
Email address: lisawarren@gmail.com
Delivery address: 1 Fordham Road, Bronx, NY 10458
Phone number: 212-300-1199 (Cell), 212-300-7777 (Home)
Payment method:
Credit card:
Holder: Lisa Warren
Card #: 1111 2222 3333 4444
Expiration Date: 1/17
Phone Number: 212-300-1199
Billing Address: 1 Fordham Road, Bronx, NY 10458
Bank Account:
Holder: Lisa Warren
Account #: 9922882
Account Type: Checking
Bank Name: Chase

* She does not have any book in her cart.

Submission:

1. ER Diagram of the database you design for this book store.
2. The RM of the database.
3. Create the database in MySQL server at storm.cis.fordham.edu.
4. Perform the following queries on the database you create and script the query results.
 - 4.1. Is there any customer who does not purchase any books at all? If there is, list names of them.
 - 4.2. Who have bought the book - "Writing Skills"?
 - 4.3. Who have bought more than 2 different books?
 - 4.4.
 - 4.4.1. Which book is the most popular book among all customers? Please list its title and number of copies are sold.
 - 4.4.2. Which book is the most popular book among female customers?
 - 4.5. How many customers would like to use credit cards as payment method?
 - 4.6. In which zipcode, this book store is very popular? (it does not matter whether the customer has bought or not)
 - 4.7. Among all customers, whose purchase amount is the highest?

(Fundamentals of Database Systems, Third Edition). Contents of This Edition Guidelines for Using This Book Acknowledgments. This book introduces the fundamental concepts necessary for designing, using, and implementing database systems and applications. Our presentation stresses the fundamentals of database modeling and design, the languages and facilities provided by database management systems, and system implementation techniques. The book is meant to be used as a textbook for a one- or two-semester course in database systems at the junior, senior, or graduate level, and as a reference book