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: Raghu 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 System 7Th Edition. Elmasri Ramez Andâ€¦ 3.3 out of 5 stars 157. Paperback. $25.35. Fundamentals of Database Systems (4th Edition).Â He is the leading author of the textbook Fundamentals of Database Systems, which is used in many universities all over the world and has been translated into several languages. Elmasri has served on the program committees of many international conferences, and has presented tutorials and keynote talks at a number of international conferences. He has received the Robert Q. Lee teaching award of the College of Engineering of UT-Arlington. Shamkant Navathe is a professor and the head of the database research group at the College of Computing, Georgia Institute of Technology, Atlanta. Database Fundamentals: 17. Relations as a Database. A binary relation (i.e., a subset of a Cartesian product of two sets) could be be represented in a computer system as two-column tabular file, with one member from the first set named in the first column of each record and one member of the second set in the second column. For example, a binary relation could be used to provide unique three-letter identifiers for academic departments.Â If a commercial relational database system is used, mapping from a relational conceptual model to the physical database should be relatively straightforward. File: N_drive:\jhu\class\1995\db-fund.ppt. Â© 1994, 1995 Robert Robbins.