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Group 06 – Comp 421 Project Deliverable 3 Report

Q2. Database Application Programming

```
Welcome to the Group 06 SQL Console !
Please select one of the following options by entering it's corresponding number
1. Check for the availability of a book
2. View the location of a bookstore
3. Search for bill
4. Modify the customer record
5. Add or Delete a review to book
6. Exit
```

Submenu 1: Check the availability of a book

```
Which category of books are you looking for?
1. Horror
2. Memoir
3. Mystery
4. Textbook
5. Prayer
6. Religion
7. Back to main manu
```

Option 1: Book category = 'Horror' :

```
What is the name of the book? (You can leave it blank)
What is the name of the ISBN of the book? (You can leave it blank)
SELECT bname , isbn ,stock_status, price, author, publisher FROM book WHERE category = 'Horror'
----- Matching Result -----
      NAME                ISBN                Stock Status      Price      Author                Publisher
      Elit Ltd              (506) 356-4353                10           5      Sharon Marsh Nascetur Ridiculus Mus Inc.
      Phasellus Company      (782) 668-2485                10           7      Aurora Holt              Malesuada Foundation
      Arcu Eu Odio Foundation (343) 268-0989                10           5      Hilary Clay Tincidunt Tempus Risus Inc.
      Feugiat Corporation    (825) 910-8835                10           5      Zia McCormick            Vivamus Rhoncus Ltd
      Urna PC                (647) 916-4672                10           7      Rae ReedElementum Purus Accumsan Cor
      Mollis Phasellus Institute (902) 611-8257                10           6      Blaze AcostaOdio Nam Interdum Foundatio
      Urna Company           (236) 597-2003                0           6      Jena ChaseSed Dolor Fusce Incorporated
----- End of Result -----
```

Option 2 : Book category = 'Memoir'

```
What is the name of the book? (You can leave it blank)
What is the name of the ISBN of the book? (You can leave it blank)
SELECT bname , isbn ,stock_status, price, author, publisher FROM book WHERE category = 'Memoir'
----- Matching Result -----
      NAME                ISBN                Stock Status      Price      Author                Publisher
      Feugiat Nec Diam Inc.  (581) 187-2326                3           9      Miranda MorenoNec Ligula Consectetuer Consulting
      Etiam Incorporated     (306) 219-2961                0           6      Jayme Giles              Phasellus Dolor Company
----- End of Result -----
```

Option 3 : Book category = 'Mystery'

```

What is the name of the book? (You can leave it blank)

What is the name of the ISBN of the book? (You can leave it blank)

SELECT bname , isbn ,stock_status, price, author, publisher FROM book WHERE category = 'Mystery'
----- Matching Result -----
      NAME                ISBN                Stock Status                Price                Author                Publisher
      -----
      Ultricies Sem Company      (306) 300-4885                10                8                Jameson Bartlett      Sagittis Nullam Foundation
      Natoque PC                (306) 655-2891                10                10               Jael Decker          Enim Sit PC
      Magna Foundation          (782) 638-7070                10                7                Jacqueline Landry     Lorem Ipsum Inc.
      Quis Foundation            (879) 854-0942                10                8                Beverly Clay          Nulla Magna Malesuada PC
      -----
      End of Result

```

Option 4 : Book category = 'Textbook'

```

What is the name of the book? (You can leave it blank)

What is the name of the ISBN of the book? (You can leave it blank)

SELECT bname , isbn ,stock_status, price, author, publisher FROM book WHERE category = 'Textbook'
----- Matching Result -----
      NAME                ISBN                Stock Status                Price                Author                Publisher
      -----
      Primis In Ltd            (403) 468-9550                10                8                Nigel Norton Neque Sed Dictum Foundation
      Cursus Purus Corporation  (902) 768-5263                10                5                Hamish HuberParturient Montes Incorporated
      Arcu Vel Quam Corp.      (428) 157-4203                10                10               Signe Torres          Neque Non Quam Inc.
      -----
      End of Result

```

Option 5 : Book category = 'Prayer'

```

What is the name of the book? (You can leave it blank)

What is the name of the ISBN of the book? (You can leave it blank)

SELECT bname , isbn ,stock_status, price, author, publisher FROM book WHERE category = 'Prayer'
----- Matching Result -----
      NAME                ISBN                Stock Status                Price                Author                Publisher
      -----
      Primis In Ltd            (403) 468-9550                23                8                Nigel Norton Neque Sed Dictum Foundation
      Primis In Ltd            (403) 468-9550                28                8                Nigel Norton Neque Sed Dictum Foundation
      In Nec LLP               (438) 837-3491                1                10               Melinda GrimesEnim Curabitur Massa Institute
      Primis In Ltd            (403) 468-9550                38                8                Nigel Norton Neque Sed Dictum Foundation
      -----
      End of Result

```

Option 6 : Book category = 'Religion'

```

What is the name of the book? (You can leave it blank)

What is the name of the ISBN of the book? (You can leave it blank)

SELECT bname , isbn ,stock_status, price, author, publisher FROM book WHERE category = 'Religion'
----- Matching Result -----
      NAME                ISBN                Stock Status                Price                Author                Publisher
      -----
      Magna Ut Tincidunt Associates      (705) 587-4893                52                9                Amelia Mcmillan Ac Fermentum Vel Associates
      Dictum Eu Placerat LLP            (902) 908-3839                19                10               Brock Dean Sed Dictum Proin Associates
      Scelerisque Dui Associates         (437) 773-8023                65                8                Josiah Sharp          Nec LLP
      Sapien Molestie Orci Consulting    (825) 441-2582                78                6                Nomlanga Barnes      Pede Suspendisse Company
      Primis In Ltd                      (403) 468-9550                5                8                Nigel Norton Neque Sed Dictum Foundation
      -----
      End of Result

```

Option 7 : Book category = 'Back to Main menu'

```

Which category of books are you looking for?
1. Horror
2. Memoir
3. Mystery
4. Textbook
5. Prayer
6. Religion
7. Back to main manu
> 7
Please select one of the following options by entering it's corresponding number
1. Check for the avaiability of a book
2. View the location of a bookstore
3. Search for bill
4. Modify the customer record
5. Add or Delete a review to book
6. Exit

```

Submenu 2: View the location of a bookstore

```

> 2
Search by Store ID or store Name?
1. Store ID
2. Store Name
3. Back to main menu
>

```

Option 1 : Store ID

```
> 1
What is the ID of bookstore ? (You can leave it blank)
1
----- Matching Result -----
                        Sid          Store Name          Location
                        1Netus Et Malesuada Incorporated  4223 Sed Avenue
----- End of Result -----
```

Option 2 : Store Name

```
> 2
What is the name of the bookstore?
1. Netus Et Malesuada Incorporated
2. At LLP
3. Nunc Ullamcorper Velit Corporation
4. Montes LLP
5. Sed Pharetra Felis Ltd
6. Back to previous menu
> 3
----- Matching Result -----
                        Sid          Store Name          Location
                        3Nunc Ullamcorper Velit CorporationP.O. Box 693, 1400 Ut Rd.
----- End of Result -----
```

Option 3 : Back to main menu

```
What is the name of the bookstore?
1. Netus Et Malesuada Incorporated
2. At LLP
3. Nunc Ullamcorper Velit Corporation
4. Montes LLP
5. Sed Pharetra Felis Ltd
6. Back to previous menu
> 6
Search by Store ID or store Name?
1. Store ID
2. Store Name
3. Back to main menu
> 3
Please select one of the following options by entering it's corresponding number
1. Check for the avaliability of a book
2. View the location of a bookstore
3. Search for bill
4. Modify the customer record
5. Add or Delete a review to book
6. Exit
```

Submenu 3: Search for a Bill

```
> 3
Search by Email, Bill Amount or Payment Type?
1. Email
2. Bill Amount
3. Payment Type
4. Return to main menu
>
```

Option 1 : Search by Email

```
> 1
What is the Email of the Customer ? (You can leave it blank)
sit@vulputate.org
----- Matching Result -----
Payment ID      Email      Amount      Payment Type
2      sit@vulputate.org      40      debit
7      sit@vulputate.org      40      debit
12     sit@vulputate.org      40      debit
17     sit@vulputate.org      40      debit
22     sit@vulputate.org      40      debit
27     sit@vulputate.org      40      debit
31     sit@vulputate.org      40      debit
36     sit@vulputate.org      40      debit
41     sit@vulputate.org      40      debit
49     sit@vulputate.org      40      debit
54     sit@vulputate.org      40      debit
59     sit@vulputate.org      40      debit
```

Option 2: Search by Bill Amount

```
Which payment type that the Bill is?
1. 0 ~ 50
2. 50 ~ 100
3. > 100
4. Return to previous menu
> 1
----- Matching Result -----
Payment ID      Email      Amount      Payment Type
2      sit@vulputate.org      40      debit
3      fames.ac.turpis@risus.ca      18      mastercard
4      Cras.vulputate.velit@pede.com      18      debit
5      urna@velit.net      24      visa
7      sit@vulputate.org      40      debit
8      fames.ac.turpis@risus.ca      18      mastercard
9      Cras.vulputate.velit@pede.com      18      debit
10     urna@velit.net      24      visa
12     sit@vulputate.org      40      debit
13     fames.ac.turpis@risus.ca      18      mastercard
14     Cras.vulputate.velit@pede.com      18      debit
15     urna@velit.net      24      visa
```

Option 3: Search by Bill Type

```
> 3
What is the payment type?
1. visa
2. debit
3. mastercard
4. Return to previous menu
> 3
----- Matching Result -----
Payment ID      Email      Amount      Payment Type
3      fames.ac.turpis@risus.ca      18      mastercard
9      fames.ac.turpis@risus.ca      18      mastercard
13     fames.ac.turpis@risus.ca      18      mastercard
18     fames.ac.turpis@risus.ca      18      mastercard
23     fames.ac.turpis@risus.ca      18      mastercard
28     fames.ac.turpis@risus.ca      18      mastercard
32     fames.ac.turpis@risus.ca      18      mastercard
37     fames.ac.turpis@risus.ca      18      mastercard
42     fames.ac.turpis@risus.ca      18      mastercard
45     fames.ac.turpis@risus.ca      18      mastercard
50     fames.ac.turpis@risus.ca      18      mastercard
55     fames.ac.turpis@risus.ca      18      mastercard
60     fames.ac.turpis@risus.ca      18      mastercard
65     fames.ac.turpis@risus.ca      18      mastercard
```

Option 4: Return to main menu

```
Search by Email, Bill Amount or Payment Type?
1. Email
2. Bill Amount
3. Payment Type
4. Return to main menu
> 4
Please select one of the following options by entering it's corresponding number
1. Check for the availability of a book
2. View the location of a bookstore
3. Search for bill
4. Modify the customer record
5. Add or Delete a review to book
6. Exit
```

Submenu 4: Modify the customer record

Option 1: Update customer address

```
Please select one of the following options by entering it's corresponding number
1. Check for the availability of a book
2. View the location of a bookstore
3. Search for bill
4. Modify the customer record
5. Add or Delete a review to book
6. Exit

> 4
Which record are you trying to modify? (email is not modifiable)
1. Address
2. Customer Name
3. Phone Number
4. Back to main manu
> 1
Please enter the current email address correctly.
> non@luctusut.ca
What is the New Address?
> 1455 Aylmer Street
Customer information updated successful !
non@luctusut.ca
----- Matching Result -----
      email      address      name      phone_number
non@luctusut.ca  1455 Aylmer Street  Maggie Callahan  1-176-307-4120
----- End of Result -----
```

Option : Update customer name

```
Which record are you trying to modify? (email is not modifiable)
1. Address
2. Customer Name
3. Phone Number
4. Back to main manu
> 2
Please enter the current email address correctly.
> non@luctusut.ca
What is the New Customer Name?
> Hao Shu
Customer information updated successful !
non@luctusut.ca
----- Matching Result -----
      email      address      name      phone_number
non@luctusut.ca  1455 Aylmer Street  Hao Shu      1-176-307-4120
----- End of Result -----
```

Option 2 : Update customer phone number

Which record are you trying to modify? (email is not modifiable)

1. Address
2. Customer Name
3. Phone Number
4. Back to main manu

> 3

Please enter the current email address correctly.

> non@luctusut.ca

What is the New Phone Number?

> 1-234-567-8910

Customer information updated successful !

non@luctusut.ca

```
----- Matching Result -----
              email          address          name          phone_number
non@luctusut.ca  1455 Aylmer Street      Hao Shu      1-234-567-8910
----- End of Result -----
```

Submenu 5: Add or Delete a review to book

Option 1 : Delete a review

Please select one of the following options by entering it's corresponding number

1. Check for the avaiability of a book
2. View the location of a bookstore
3. Search for bill
4. Modify the customer record
5. Add or Delete a review to book
6. Exit

> 5

Do you wanna delete or add a review?

1. Delete a Review
2. Add a Review
3. Back to main menu

> 1

Please enter the review ID

> 3

Review deleted successful !

Option 2: Add a new review


```

Do you wanna delete or add a review?
1. Delete a Review
2. Add a Review
3. Back to main menu
> 2
Please enter the store id
> 4
Please enter the store book ID
> 5
What is the rating?
1
2
3
4
5
6. Return to Previou menu
> 4
Please enter comment of the review
> Good
Review added successful !
----- Matching Result -----
              sid      instore_bookId      reviewId      rate      comment
              4              5              8              4              Good
----- End of Result -----

```

Q3.

1. CREATE INDEX bookInfo_User ON book(author);
 - This index is useful as queries which need equality search on the author of books. These queries will execute fast with the index. In the application, the query which ask to display the book with a specific author will use this feature for a quicker execution.
2. CREATE INDEX bookInfo_seller ON book(stock_status);
 - This index is useful as queries which need range or equality search on the quantity of books. These queries will execute faster with the index. In the application, the query which ask to display the books with stocks in a certain range will use this feature for a quicker execute.

Q4.

1. Visualization 1 - Number of Transactions per Month of Year 2019
 - a. This data is useful in determining trends in when the users are more active in buying books online. Based on the chart we can see that the month of July has the lowest number of transactions and in the month of April and December, the website achieved the two highest number of transactions.

The queries and chart is shown below.

```

WITH t_date AS (
    SELECT payment_date
    FROM bill
) SELECT
CASE
    when payment_date <= '2019-01-31' and payment_date >= '2019-01-01' then 1
    when payment_date <= '2019-02-28' and payment_date >= '2019-02-01' then 2
    when payment_date <= '2019-03-31' and payment_date >= '2019-03-01' then 3
    when payment_date <= '2019-04-30' and payment_date >= '2019-04-01' then 4
    when payment_date <= '2019-05-31' and payment_date >= '2019-05-01' then 5
    when payment_date <= '2019-06-30' and payment_date >= '2019-06-01' then 6
    when payment_date <= '2019-07-31' and payment_date >= '2019-07-01' then 7
    when payment_date <= '2019-08-31' and payment_date >= '2019-08-01' then 8
    when payment_date <= '2019-09-30' and payment_date >= '2019-09-01' then 9
    when payment_date <= '2019-10-31' and payment_date >= '2019-10-01' then 10
    when payment_date <= '2019-11-30' and payment_date >= '2019-11-01' then 11
    when payment_date <= '2019-12-31' and payment_date >= '2019-12-01' then 12
END AS payment_month, count(*)
FROM t_date
Group By payment_month
Order By payment_month

```



2. Visualization 2 - Percentage of Type of Payment Customer tends to Use.
 - a. This data is useful in determining which type of payment users prefer when purchasing in the online book store. Base on the chart, it is clear that ... percent of the customers tends to use ... when purchasing online.

The query and chart is shown below:


```
SELECT payment_type, COUNT(*) FROM bill GROUP BY payment_type;
```

Visulization 2 - Ratio of Different Types of Payment

