CPSC 304 Project Cover Page

Milestone #: ____4____

Date: ___01/12/23_____

Group Number: ___126_____

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

a)

A short description of the final project, and what it accomplished

Our database organizes data related to various aspects of art gallery operations including event organization, exhibit planning, employee and project management. From the main window labeled 'Art Gallery Operations,' users are able to choose either which transactions to perform or which information to view.

b)

A description of how your final schema differed from the schema you turned in. If the final schema differed, explain why.

// Add schemas from your part relevant to this question

country has been added to the donor table in order to better make use of the aggregation by having query

Project(projectID: integer, title: varchar(50), budget: integer, status: varchar(50), startDate: varchar(50), endDate: varchar(50))
-> the datatype of attribute 'budget' has been changed from double to integer so that users do not have to input decimal numbers, and instead only have to input whole numbers.

c)

A copy of the schema and screenshots that show what data is present in each relation after the SQL script from item #2 is run.

List the relational schemas with the primary key attributes underlined and foreign keys bolded.

// Add schemas from your part

Artist:

ARTISTID	NAME	DATEOFBIRTH	DATEOFDEATH	SKILLLEVEL
51	Andy Warhol	August 6, 1928	February 22, 1987	76
52	Leonardo Da Vinci	April 15, 1452	May 2, 1519	96
53	Pablo Picasso	October 25, 1881	April 8, 1973	86
54	Vincent van Gogh	March 30, 1853	July 29, 1890	92
55	Gerhard Richter	February 9, 1932	<null>	68

Artwork:

ARTWORKID	ARTISTID	TITLE	DIMENSIONS	DATECREATED	DISPLAYMEDIUM	DONORID	FEATUR
91	51	Green Coca-Cola Bottles	82.8 in by 57.1 in	1962	painting	14	
92	52	The Virgin and Child with Saint Anne	51 in by 66.3 in	1510	painting	13	
93	51	Big Campbells Soup Can 19c (Beef Noodle)	8.3 x 4.3 in.	1962	painting	11	
94	55	Two Candles (Zwei Kerzen)	47 1/4 × 39 1/2 in.	1982	painting	12	
95	54	The Potato Eaters	82 x 114 cm	1885	painting	14	

ARTISTID	TITLE	DIMENSIONS	DATECREATED	DISPLAYMEDIUM	DONORID	FEATUREID	VALUE
51	Green Coca-Cola Bottles	82.8 in by 57.1 in	1962	painting	14	302	78000000
52	The Virgin and Child with Saint Anne	51 in by 66.3 in	1510	painting	13	301	5780000000
51	Big Campbells Soup Can 19c (Beef Noodle)	8.3 x 4.3 in.	1962	painting	11	303	88000000
55	Two Candles (Zwei Kerzen)	47 1/4 × 39 1/2 in.	1982	painting	12	305	9000000
54	The Potato Eaters	82 x 114 cm	1885	painting	14	304	54000000

donor:

DONORID	NAME	TOTALDONATIONVALUE	PHONENUM	COUNTRY
11	John Doe	500	123-456-7890	Canada
12	Jane Smith	750	987-654-3210	Canada
13	Alice Johnson	300	555-123-4567	USA
14	Bob Williams	1000	111-222-3333	Canada
15	Eva Brown	200	777-888-9999	USA
16	Billy Bob	64000000	473-928-7782	USA
17	Jim Jones	109000000	110-273-6271	Mexico
18	Harry Dewit	1112000	182-999-9085	Canada
19	Gustavo Fring	810200000	111-521-1829	USA
20	Jonas Cruz	7718000	902-892-7782	Mexico

Exhibition:

EXHIBITIONID	TITLE	STARTDATE	ENDDATE	VISITORCOUNT	LOCATION	CURATORID	RATING
301	Emerging Echoes: New Artists Unveiled	25/10/22	9/8/23	966178	room 15	2000	
302	Urban Odyssey: Cityscape Creations	15/7/15	18/8/17	67551092	Bianca Ballroom	2004	
303	3D Art Extravaganza	18/2/18	19/5/20	11000000	Ferguson Garden	2003	
304	Echoes of the Past: Historical Art Revival	19/4/20	20/7/25	73827361	room 209	2002	
305	Art for Environmental Change	23/12/9	15/6/17	161657192	room 112	2001	

EXHIBITIONID	TITLE	STARTDATE	ENDDATE	VISITORCOUNT	LOCATION	CURATORID	RATING
301	Emerging Echoes: New Artists Unveiled	25/10/22	9/8/23	966178	room 15	2000	67
302	Urban Odyssey: Cityscape Creations	15/7/15	18/8/17	67551092	Bianca Ballroom	2004	89
303	3D Art Extravaganza	18/2/18	19/5/20	11000000	Ferguson Garden	2003	99
304	Echoes of the Past: Historical Art Revival	19/4/20	20/7/25	73827361	room 209	2002	78
305	Art for Environmental Change	23/12/9	15/6/17	161657192	room 112	2001	92

Employees(employeeID: integer, phoneNum: varchar, name: varchar)

EMPLOYEEID	PHONENUM	NAME
2000	111-222-333	John Smith
2001	111-222-334	Daniel Lee
2002	111-222-335	Mary Jane
2003	111-222-336	Jordan Johnson
2004	111-222-337	Sarah Jones
2005	111-222-338	Michael Kim
2006	111-222-339	Bianca Ng
2007	111-222-340	Emma Watson
2008	111-222-341	Emma Stone
2009	111-222-342	Margot Robbie
2010	111-222-343	Chris Hemsworth
2011	111-222-344	Chris Pratt
2012	111-222-345	Chris Pine
2013	111-222-346	Chris Brown
2014	111-222-347	Chris Paul

Curator(**employeeID**: integer, specialization: varchar)

EMPLOYEEID	SPECIALIZATION
2000	Contemporary
2001	Modernism
2002	Post Impressionism
2003	Naturalism
2004	Renaissance

EventStaffSupervises(**employeeID**: integer, department: varchar, **eventID**: integer)

EMPLOYEEID	DEPARTMENT	EVENTID
2005	Education	101
2006	Marketing	101
2007	Marketing	102
2008	Finance	102
2009	Communications	103

Researcher(**employeeID**: integer, researchInterest: varchar)

EMPLOYEEID	RESEARCHINTEREST
2010	Art History
2011	Collection Studies
2012	Cultural Context
2013	Market and Value
2014	Conservation

worksOn(**employeeID**: integer, **projectID**: varchar)

EMPLOYEEID	PROJECTID
2010	1000
2011	1001
2012	1002
2013	1003
2014	1004

Project(projectID: integer, title: varchar(50), budget: integer, status: varchar(50), startDate: varchar(50), endDate: varchar(50))

PROJECTID	TITLE	BUDGET	STATUS	STARTDATE	ENDDATE
1000	Women artists in 19C	100	ongoing	2021-12-23	2024-11-11
1001	Asian Contemporary Art	200	completed	2020-02-01	2022-04-03
1002	Evolution of Printmaking Techniques	300	not started	2024-06-20	2026-11-03
1003	Digital Evolution in Conservation	300	completed	2022-05-04	2023-02-02
1004	Cultural Heritage Preservation	400	not started	2026-01-01	2029-04-04

Funds(**donorID**: integer, **projectID**: integer, amountgiven: double)

DONORID	PROJECTID	AMOUNTGIVEN
11	1000	500
12	1001	750
13	1002	300
14	1003	1000
15	1004	200

Visitor(name: varchar, phoneNum: integer, visitorID: integer)

VISITORID	NAME	PHONENUM
1	John Smith	123-456-7890
2	Alice Johnson	987-654-3210
3	Bob Davis	555-111-2222

Event(ticketsSold: integer, location: varchar, date: varchar, capacity: integer, title: varchar, eventID: integer, **employeeID**: integer)

EVENTID	TICKETSSOLD	LOCATION	EVENTDATE	CAPACITY	TITLE	EMPLOYEEID
101	100	Venue A	15/05/23	150	Art Show A	2001
102	200	Venue B	20/06/23	250	Concert B	2002
103	50	Venue C	10/07/23	100	Exhibition C	2003

ParticipateIn(**eventID: integer, visitorID: integer**)

EVENTID	VISITORID
101	1
101	2
101	3
102	3
103	1

Host(**eventID: integer, artistID: integer**)

EVENTID	ARTISTID
101	51
101	52
101	53

Visit(**visitorID: integer, exhibitionID: integer**)

VISITORID	EXHIBITIONID
1	301
1	302
1	303
1	304
1	305
2	301
2	302
2	303
2	304
2	305

d)
A list of all SQL queries used and where it can be found in the code (i.e., file name and line number(s)).For SQL query requirements, check the rubric listed on Canvas for Milestone 4.

// Add

update:
controller.java line 188

```
String query = "UPDATE artwork SET " + attr + " = '" + newAttr + "' WHERE
title = '" + title + "'";
```

Division:
controller.java line 206

```
String query = "SELECT name FROM visitor V WHERE NOT EXISTS (" +
       "SELECT exhibitionID FROM Exhibition E WHERE NOT EXISTS (" +
       "SELECT visitorID FROM Visit I WHERE E.exhibitionID = I.exhibitionID
AND V.visitorID = I.visitorID))";
```

aggregation with HAVING:
controller.java line 256

```
String query = "SELECT country FROM Donor GROUP BY country HAVING
sum(totalDonationValue) " + op
       + " " + value + " ORDER BY sum(totalDonationValue) DESC";
```

Join:
controller.java line 232

```
String query = "SELECT UNIQUE name FROM Artist INNER JOIN " +
       "Artwork ON Artist.ArtistID = Artwork.artistID WHERE Artwork.value " +
op + " " + Value;
```

Insert
Query: INSERT INTO EVENT VALUES (?,?,?,?,?,?,?) (Values specified by user)
Location: Line 99 in DatabaseConnectionHandler.java
Query :INSERT INTO Artwork VALUES (?,?,?,?,?,?,?,?,?) (Values specified by user)
Location: Line 150 in DatabaseConnectionHandler.java

Delete
Query: DELETE FROM Artist WHERE artistID = ?
Location: Line 170 in DatabaseConnectionHandler.java
Query: DELETE FROM Event WHERE EVENTID = ?
Location:Line 180   in DatabaseConnectionHandler.java

Aggregation with Group By
Query: SELECT DONORID, AVG(VALUE) as average_value " +
            "FROM ARTWORK " +
            "GROUP BY DONORID
Location: lines 216 - 218 in DatabaseConnectionHandler.java

Query: SELECT DONORID, MIN(VALUE) as min_value " +

     "FROM ARTWORK " +
     "GROUP BY DONORID

Location: lines 221 - 223 in DatabaseConnectionHandler.java

Query: SELECT DONORID, MAX(VALUE) as max_value " +
     "FROM ARTWORK " +
     "GROUP BY DONORID

Location: Lines 226 - 228 in DatabaseConnectionHandler.java

Query: SELECT DONORID,COUNT(VALUE) as count_value " +
     "FROM ARTWORK " +
     "GROUP BY DONORID

Location: Lines 231 - 233 in DatabaseConnectionHandler.java

Selection

Query: SELECT * FROM Project WHERE ? (WHERE clause is specified by user)
Location: Lines 333 - 340 in DatabaseConnectionHandler.java

Projection

Query: SELECT ? FROM Project (SELECT clause is specified by user)
Location: Lines 122 - 140 in Projection.java

Nested Aggregation with Group By

Query: SELECT AVG(average_budget_per_status) FROM (SELECT status, AVG(budget)
AS average)budget_per_status) FROM Project WHERE budget > ? GROUP BY status)
Location: Lines 284 - 285 in DatabaseConnectionHandler.java

e)
Screenshots demonstrating the functionality of each query using the GUI. We
want to see a before/during/after progression of events. For example,the before

// Add

DIVISION:
instructions: click "see every loyal customer" from the main menu
the query is executed and this should be the result with the default data (from the visited table and visitors table above) in the table:

JOIN:
instructions: click "search the value of artists" on the main menu. Enter which type of operator you want to use and what value you want to check, then hit the submit button. The screen should list the names of the artists who have made an artwork over/under/equal to that value.
The query is visible in the screenshot and what was returned when ran with the default values (from the artworks and artists table above) in the table.

```
find the artists          ∨ ∧ ⊗

show artists that have made an artwork

   over      ▼    50,000,000 ▲▼


            names:
```

Andy Warhol
Leonardo Da Vinci
Vincent van Gogh

```
                    Success!
```
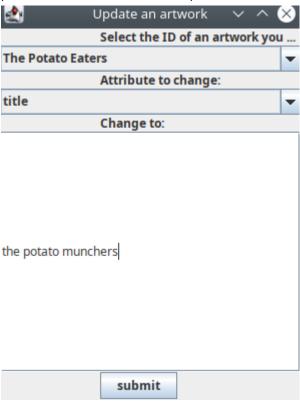
AGGREGATION WITH HAVING:

instructions: click "get country by donations" in the main menu. Enter an operator which you want to check with the value, and then enter a value you want to check with that operator, then hit the submit button. The returned country names should appear on the page.
This screenshot demonstrates the query as shown using the default values of the database:


```
get countries          ∨ ∧ ⊗

show the countries of donors that have donated

   over      ▼    50,000,000 ▲▼


            names:
```

USA
Mexico

```
                    Success!
```

UPDATE:

instructions: click the "update an artwork" button from the main menu. select the name of an artwork you wish to update as well as the attribute you want to change. You must then enter the value you want to change the artwork to in the textbox under that.

this is a screenshot of an update before hitting the submit button, ran with the default values (from the artwork table above):

after hitting the submit button, you can see that the title (in the select area) is changed to the correct value. This is because a query is ran every time the submit button is pressed that gets the current titles in the artwork table.

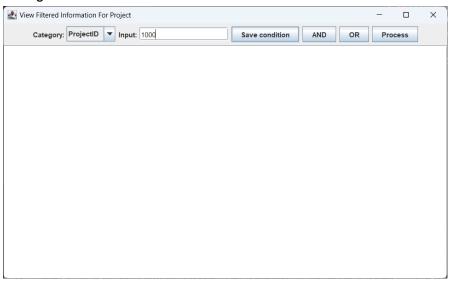**Selection Operation (Press 'Get Project Information' Button)**
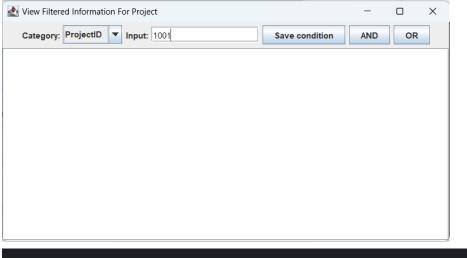
Instructions:
1. Choose a category from the drop down box
2. Input a corresponding value for the chosen category
3. Press 'Save condition' button to save where clause
4. Optionally press the AND or OR button to add more conditions
5. Repeat steps 1-4 as needed
6. Press 'Process' button to get information based on the conditions specified by user

Before:

During:

```
Connected to Oracle!
Running Query: SELECT * FROM Project WHERE ProjectID = 1000 OR ProjectID = 1001
```

After:

Projection Operation (Press 'Access Information Across All Categories' Button)

Instructions:
1. Choose a category from the drop down menu
2. Check all of the respective attributes you would like to view
3. Press the 'Display' button

Before:

During:

Generated SQL Query: SELECT ARTISTID, NAME FROM ARTIST
Running Query: SELECT ARTISTID, NAME FROM ARTIST

After:

Nested Aggregation with GroupBy (Press 'Average Project Budget' Button)

Instructions:
1. Enter a whole number for the threshold
2. Press 'Calculate Average Budget Over Status' button

Before:

During:

After:

Insertion Operation

Before:

ARTWORKID	ARTISTID	TITLE	DIMENSIONS	DATECREATED	DISPLAYMEDIUM	DONORID	FEATUREID	VALUE
91	51	Green Coca-Cola Bottles	82.8 in by 57.1 in	1962	painting	14	302	78000000
92	52	The Virgin and Child with Saint Anne	51 in by 66.3 in	1510	painting	13	301	5780000000
93	51	Big Campbells Soup Can 19c (Beef Noodle)	8.3 x 4.3 in.	1962	painting	11	303	88000000
94	55	Two Candles (Zwei Kerzen)	47 1/4 × 39 1/2 in.	1982	painting	12	305	9000000
95	54	The Potato Eaters	82 x 114 cm	1885	painting	14	304	54000000

During:

After:

	ARTWORKID	ARTISTID	TITLE	DIMENSIONS	DATECREATED	DISPLAYMEDIUM	DONORID	FEATUREID	VALUE
1	91	51	Green Coca-Cola Bottles	82.8 in by 57.1 in	1962	painting	14	302	78000000
2	92	52	The Virgin and Child with Saint Anne	51 in by 66.3 in	1510	painting	13	301	5780000000
3	93	51	Big Campbells Soup Can 19c (Beef Noodle)	8.3 x 4.3 in.	1962	painting	11	303	88000000
4	94	55	Two Candles (Zwei Kerzen)	47 1/4 × 39 1/2 in.	1982	painting	12	305	9000000
5	95	54	The Potato Eaters	82 x 114 cm	1885	painting	14	304	54000000
6	110	53	The Persistence of Memory	28 X 53 inches	1988-06-01	Painting	11	305	5000000

General Art Gallery Options — □ ×

Event | Artist | **Artwork**

Insert Artwork:

ARTWORKID	ARTISTID	TITLE	DIMENSIONS	DATECREAT...	DISPLAYMEDI...	DONORID	FEATUREID	VALUE
91	51	Green Coca-C...	82.8 in by 57.1 i..	1962	painting	14	302	78000000
92	52	The Virgin and ...	51 in by 66.3 in	1510	painting	13	301	5780000000
93	51	Big Campbells ..	8.3 x 4.3 in.	1962	painting	11	303	88000000
94	55	Two Candles (...	47 1/4 × 39 1/2 ..	1982	painting	12	305	9000000
95	54	The Potato Eat..				14	304	54000000

Success ×

(i) **Event inserted successfully!**

OK

Deletion Operation

Before:

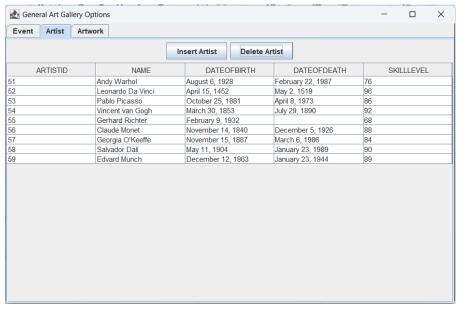|	ARTISTID	NAME	DATEOFBIRTH	DATEOFDEATH	SKILLLEVEL
1	51	Andy Warhol	August 6, 1928	February 22, 1987	76
2	52	Leonardo Da Vinci	April 15, 1452	May 2, 1519	96
3	53	Pablo Picasso	October 25, 1881	April 8, 1973	86
4	54	Vincent van Gogh	March 30, 1853	July 29, 1890	92
5	55	Gerhard Richter	February 9, 1932	<null>	68
6	56	Claude Monet	November 14, 1840	December 5, 1926	88
7	57	Georgia O'Keeffe	November 15, 1887	March 6, 1986	84
8	58	Salvador Dalí	May 11, 1904	January 23, 1989	90
9	59	Edvard Munch	December 12, 1863	January 23, 1944	89
10	60	Frida Kahlo	July 6, 1907	July 13, 1954	86

During:


```
Connected to Oracle!
Running Query: SELECT * FROM Event
Running Query: SELECT * FROM ARTIST
Running Query: SELECT * FROM ARTWORK
Running Query: DELETE FROM Artist WHERE artistID = 60
Running Query: SELECT * FROM ARTIST

Process finished with exit code 0
```
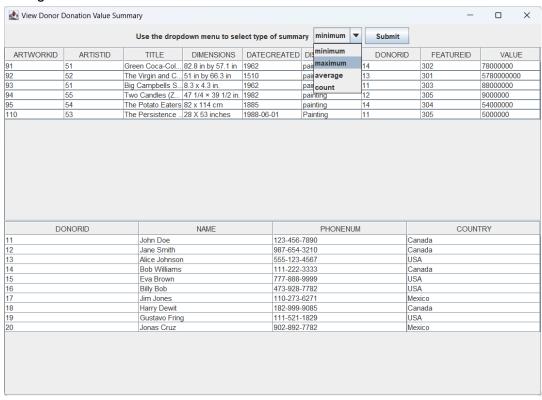
After:

ARTISTID	NAME	DATEOFBIRTH	DATEOFDEATH	SKILLLEVEL
51	Andy Warhol	August 6, 1928	February 22, 1987	76
52	Leonardo Da Vinci	April 15, 1452	May 2, 1519	96
53	Pablo Picasso	October 25, 1881	April 8, 1973	86
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	ARTISTID	NAME	DATEOFBIRTH	DATEOFDEATH	SKILLLEVEL
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8	58	Salvador Dali	May 11, 1904	January 23, 1989	90
9	59	Edvard Munch	December 12, 1863	January 23, 1944	89

View Donor Donation Value Summary (WHAT OPERATION IS THIS?)

Before:

During:

```
Connected to Oracle!
Running Query: SELECT * FROM ARTWORK
Running Query: SELECT * FROM DONOR
Running Query: SELECT DONORID, MIN(VALUE) as min_value FROM ARTWORK GROUP BY DONORID
Running Query: SELECT * FROM ARTWORK
Running Query: SELECT * FROM DONOR
```

After:

View Donor Donation Value Summary   —   □   ✕

Use the dropdown menu to select type of summary   minimum ▼   Submit

DONORID	MIN_VALUE
14	54000000
11	5000000
12	9000000
13	5780000000

DONORID	NAME	PHONENUM	COUNTRY
11	John Doe	123-456-7890	Canada
12	Jane Smith	987-654-3210	Canada
13	Alice Johnson	555-123-4567	USA
14	Bob Williams	111-222-3333	Canada
15	Eva Brown	777-888-9999	USA
16	Billy Bob	473-928-7782	USA
17	Jim Jones	110-273-6271	Mexico
18	Harry Dewit	182-999-9085	Canada
19	Gustavo Fring	111-521-1829	USA
20	Jonas Cruz	902-892-7782	Mexico