

SQL Queries + Screenshots

Query 1:

```
(
  SELECT
    Paintings.Title AS Title2,
    COUNT(Paintings.Title) AS NumberOfPaintings
  FROM
    Paintings
  WHERE
    Painting_ID IN (
      SELECT
        Painting_ID
      FROM
        Buys
      WHERE
        Date BETWEEN param1
        AND param2
    )
  GROUP BY
    Paintings.Title
  ORDER BY
    COUNT(Paintings.Title) DESC
)
LIMIT 1
```

OPTIMIZATION: Replacing Inner Join with Where In

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Learning Management System | CS340 - DB - Google | Table - Attributes - Google | Mail - 20100237@kum... | CS340 - DB - Google | Final Submission | Untitled document | Bootstrap Example

localhost:3000/query1.html

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Home Portfolio Team Contact

Query 1 Query 2 Query 3 Query 4 Query 5

Start Date

2018-10-16

Date Format: "YYYY-MM-DD"

End Date

2018-11-20

Date Format: "YYYY-MM-DD"

Enter Query

(SELECT Paintings.Title AS Title2, COUNT(Paintings.Title) AS NumberOfPaintings FROM Paintings WHERE Painting_ID IN (SELECT Painting_ID FROM Buys WHERE Date BETWEEN param1 AND param2))

RUN QUERY

Customer_ID	Painting_ID	Date
5791717	6021133	Thu Oct 11 2018 00:00:00 GMT+0500 (PKT)
1068416	7294239	Fri Oct 12 2018 00:00:00 GMT+0500 (PKT)
6439825	5672446	Fri Oct 12 2018 00:00:00 GMT+0500 (PKT)
1650985	5038561	Sat Oct 13 2018 00:00:00 GMT+0500 (PKT)
1763079	2961163	Tue Oct 16 2018 00:00:00 GMT+0500 (PKT)
4753054	2961163	Wed Oct 17 2018 00:00:00 GMT+0500 (PKT)
4981843	1729937	Wed Oct 17 2018 00:00:00 GMT+0500 (PKT)

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Query 1 Query 2 Query 3 Query 4 Query 5

Start Date

Date Format: "YYYY-MM-DD"

End Date

Date Format: "YYYY-MM-DD"

Enter Query

RUN QUERY

Title2	NumberOfPaintings
title1	4

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Query 2:

```
SELECT
  Person.Name
FROM
  Person
WHERE
  Person.ID IN (
    SELECT
      T1.Customer_ID
    FROM
      (
        SELECT
          V.Customer_ID,
          COUNT(Date) AS NumVisits
        FROM
          Visits AS V
        WHERE
          V.Date BETWEEN param1
            AND param2
        GROUP BY
          V.Customer_ID
        ORDER BY
          NumVisits
        LIMIT
          1
      ) AS T1
  )
```

OPTIMIZATION: Replacing Inner Join with Where In

Applications

Google Chrome

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Query 1 Query 2 Query 3 Query 4 Query 5

Start Date

2018-10-16

Date Format: "YYYY-MM-DD"

End Date

2018-11-20

Date Format: "YYYY-MM-DD"

Enter Query

SELECT Person.Name FROM Person WHERE Person.ID IN (SELECT T1.Customer_ID FROM (SELECT V.Customer_ID, COUNT(Date) AS NumVisits FROM Visits AS V WHERE V.Date BETWEEN par

RUN QUERY

Customer_ID	Date	Time_IN	Hours
3448698	Thu Oct 11 2018 00:00:00 GMT+0500 (PKT)	Thu Oct 11 2018 11:50:29 GMT+0500 (PKT)	5
9879413	Thu Oct 11 2018 00:00:00 GMT+0500 (PKT)	Thu Oct 11 2018 12:36:13 GMT+0500 (PKT)	9
9324794	Thu Oct 11 2018 00:00:00 GMT+0500 (PKT)	Thu Oct 11 2018 10:10:29 GMT+0500 (PKT)	10
8227159	Thu Oct 11 2018 00:00:00 GMT+0500 (PKT)	Thu Oct 11 2018 11:50:28 GMT+0500 (PKT)	3
7144839	Fri Oct 12 2018 00:00:00 GMT+0500 (PKT)	Fri Oct 12 2018 10:24:52 GMT+0500 (PKT)	9
3846261	Sun Oct 14 2018 00:00:00 GMT+0500 (PKT)	Sun Oct 14 2018 12:21:29 GMT+0500 (PKT)	6
9238265	Sun Oct 14 2018 00:00:00 GMT+0500 (PKT)	Sun Oct 14 2018 12:23:53 GMT+0500 (PKT)	8

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Query 1 Query 2 Query 3 Query 4 Query 5

Start Date

Date Format: "YYYY-MM-DD"

End Date

Date Format: "YYYY-MM-DD"

Enter Query

RUN QUERY

Name

Joann Smith

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Query 3:

```
SELECT
  A.Age,
  A.Artist_ID
FROM
  Artist AS A
WHERE
  A.Artist_ID IN (
    SELECT
      Artist_ID
    FROM
      Paintings AS P
    INNER JOIN (
      SELECT
        T1.Painting_Title,
        MAX(NumRequests) AS NumRequests
      FROM
        (
          SELECT
            R.Painting_Title,
            COUNT(R.Customer_ID) AS NumRequests
          FROM
            Requests AS R
          WHERE
            R.Date BETWEEN param1
            AND param2
          GROUP BY
            R.Painting_Title
        ) AS T1
      ) AS T2 ON P.Title = T2.Painting_Title
    )
  )
```

OPTIMIZATION: Replacing Inner Join with Where In where possible

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Learning Manager CS340 - DB - Google Table - Attribute Mail - 20100237 CS340 - DB - Google Art Gallery Query Final Submission SQL Queries + O ART

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Query 1 Query 2 Query 3 Query 4 Query 5

Start Date

2018-10-16

Date Format: "YYYY-MM-DD"

End Date

2018-11-20

Date Format: "YYYY-MM-DD"

Enter Query

SELECT A.Age, A.Artist_ID FROM Artist AS A WHERE A.Artist_ID IN (SELECT Artist_ID FROM Paintings AS P INNER JOIN (SELECT T1.Painting_Title, MAX(NumRequests) AS NumRequests FROM (

RUN QUERY

Customer_ID	Painting_Title	Date
4391003	title12	Mon Oct 15 2018 00:00:00 GMT+0500 (PKT)
1169733	title7	Fri Oct 19 2018 00:00:00 GMT+0500 (PKT)
4885602	title2	Fri Oct 19 2018 00:00:00 GMT+0500 (PKT)
7836082	title13	Sat Oct 20 2018 00:00:00 GMT+0500 (PKT)
7251185	title13	Sat Oct 20 2018 00:00:00 GMT+0500 (PKT)
1171730	title19	Sat Oct 20 2018 00:00:00 GMT+0500 (PKT)
5791717	title17	Sun Oct 21 2018 00:00:00 GMT+0500 (PKT)

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localhost:3000/q3

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Query 1 Query 2 Query 3 Query 4 Query 5

Start Date

Date Format: "YYYY-MM-DD"

End Date

Date Format: "YYYY-MM-DD"

Enter Query

RUN QUERY

Age	Artist_ID
55	1979754
64	2240699
96	3498281
95	4167343
23	4729826
56	5796074
39	6188505

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Query 4:

```
SELECT
*
FROM
Customer AS C
INNER JOIN Person AS P ON C.Customer_ID = P.ID
WHERE
C.Customer_ID IN (
SELECT
Customer_ID
FROM
Paintings AS P
INNER JOIN Buys AS B ON P.Painting_ID = B.Painting_ID
WHERE
P.Title = param1
)
```

OPTIMIZATION: Replacing Inner Join with Where In

NOTE: THIS RETURNS NULL IN OUR CASE SINCE NO CUSTOMER HAS VISITED MORE THAN TWICE

The screenshot shows a web application interface for running SQL queries. The browser address bar indicates the URL is `localhost:3000/query4.html`. The application has a navigation bar with links for Home, Portfolio, Team, and Contact. Below the navigation bar, there are buttons for Query 1, Query 2, Query 3, Query 4, and Query 5. The main content area contains a form for entering a Painting ID and a query. The Painting ID field contains the value `*1108034*`. The query field contains the following SQL query:

```
SELECT * FROM Customer AS C INNER JOIN Person AS P ON C.Customer_ID = P.ID WHERE C.Customer_ID IN ( SELECT Customer_ID FROM Paintings AS P INNER JOIN Buys AS B ON P.Painting_ID = B.Painting_ID WHERE
```

Below the query field, there is a button labeled "RUN QUERY". The results of the query are displayed in a table with the following columns: Painting_ID, Artist_ID, Title, Price, Year, and Category. The table contains 14 rows of data.

Painting_ID	Artist_ID	Title	Price	Year	Category
1017722	3885440	title20	2955	Tue Jan 01 2008 00:00:00 GMT+0500 (PKT)	Post-Impressionism
1120414	8989647	title8	2215	Sat Jan 01 2000 00:00:00 GMT+0500 (PKT)	Impressionism
1127916	1914703	title4	2487	Tue Jan 01 2002 00:00:00 GMT+0500 (PKT)	Abstract art
1238750	7926158	title2	2144	Thu Jan 01 2004 00:00:00 GMT+0500 (PKT)	Photorealism
1264707	5369787	title4	2836	Sun Jan 01 2006 00:00:00 GMT+0500 (PKT)	Photorealism
1321757	9430697	title10	2624	Tue Jan 01 2008 00:00:00 GMT+0500 (PKT)	Abstract art
1392905	1322530	title9	2073	Wed Jan 01 2003 00:00:00 GMT+0500 (PKT)	Expressionism
1397008	5055415	title12	2219	Tue Jan 01 2002 00:00:00 GMT+0500 (PKT)	Expressionism
1399854	9580333	title15	2177	Sat Jan 01 2000 00:00:00 GMT+0500 (PKT)	Post-Impressionism
1431726	7905822	title6	2472	Fri Jan 01 2010 00:00:00 GMT+0500 (PKT)	Abstract art

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localhost:3000/query4.html

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Home Portfolio Team Contact

Query 1 Query 2 Query 3 Query 4 Query 5

Enter Painting ID

ID Format: "XXXXXXX"

Enter Query

RUN QUERY

Painting_ID	Artist_ID	Title	Price	Year	Category
1017722	3885440	title20	2955	Tue Jan 01 2008 00:00:00 GMT+0500 (PKT)	Post-Impressionism
1120414	8989647	title8	2215	Sat Jan 01 2000 00:00:00 GMT+0500 (PKT)	Impressionism
1127916	1914703	title4	2487	Tue Jan 01 2002 00:00:00 GMT+0500 (PKT)	Abstract art
1238750	7926158	title2	2144	Thu Jan 01 2004 00:00:00 GMT+0500 (PKT)	Photorealism
1264707	5369787	title4	2836	Sun Jan 01 2006 00:00:00 GMT+0500 (PKT)	Photorealism
1321757	9430697	title10	2624	Tue Jan 01 2008 00:00:00 GMT+0500 (PKT)	Abstract art
1392905	1322530	title9	2073	Wed Jan 01 2003 00:00:00 GMT+0500 (PKT)	Expressionism
1397008	5055415	title12	2219	Tue Jan 01 2002 00:00:00 GMT+0500 (PKT)	Expressionism
1399854	9580333	title15	2177	Sat Jan 01 2000 00:00:00 GMT+0500 (PKT)	Post-Impressionism
1431726	7905822	title6	2472	Fri Jan 01 2010 00:00:00 GMT+0500 (PKT)	Abstract art

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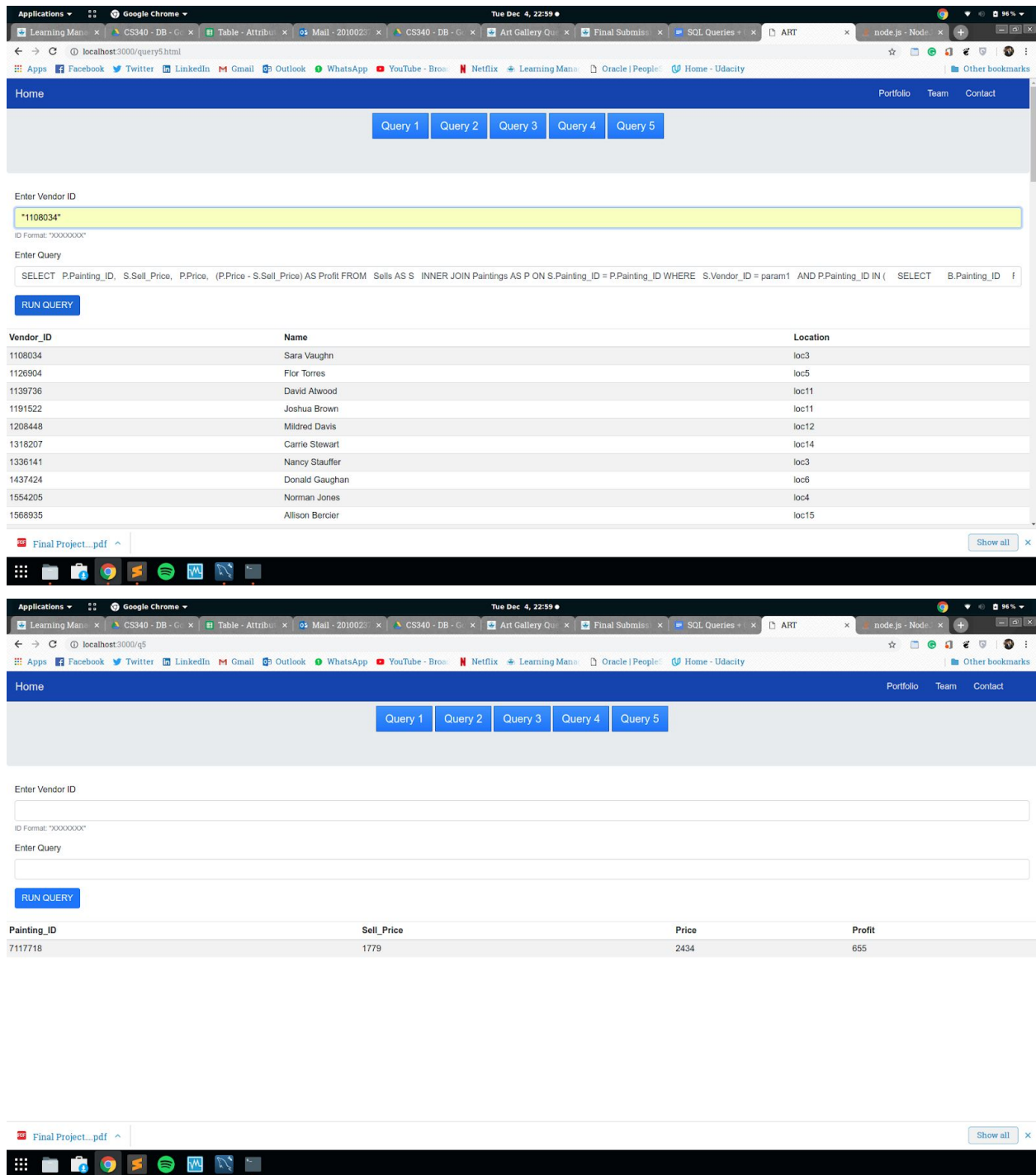
Query 5:

```

SELECT
  P.Painting_ID,
  S.Sell_Price,
  P.Price,
  (P.Price - S.Sell_Price) AS Profit
FROM
  Sells AS S
  INNER JOIN Paintings AS P ON S.Painting_ID = P.Painting_ID
WHERE
  S.Vendor_ID = param1
  AND P.Painting_ID IN (
    SELECT
      B.Painting_ID
    FROM
      Buys AS B )
ORDER BY Profit
LIMIT 1

```


OPTIMIZATION: Replacing Inner Join with Where In where possible



The screenshot shows a web application interface for executing SQL queries. The interface is divided into several sections:

- Header:** Contains navigation links: Home, Portfolio, Team, Contact.
- Query Buttons:** A row of buttons labeled Query 1, Query 2, Query 3, Query 4, and Query 5.
- Form Section:**
 - Enter Vendor ID:** A text input field containing the value "1108034". Below it, a label indicates "ID Format: '00000000'".
 - Enter Query:** A text area containing the SQL query:

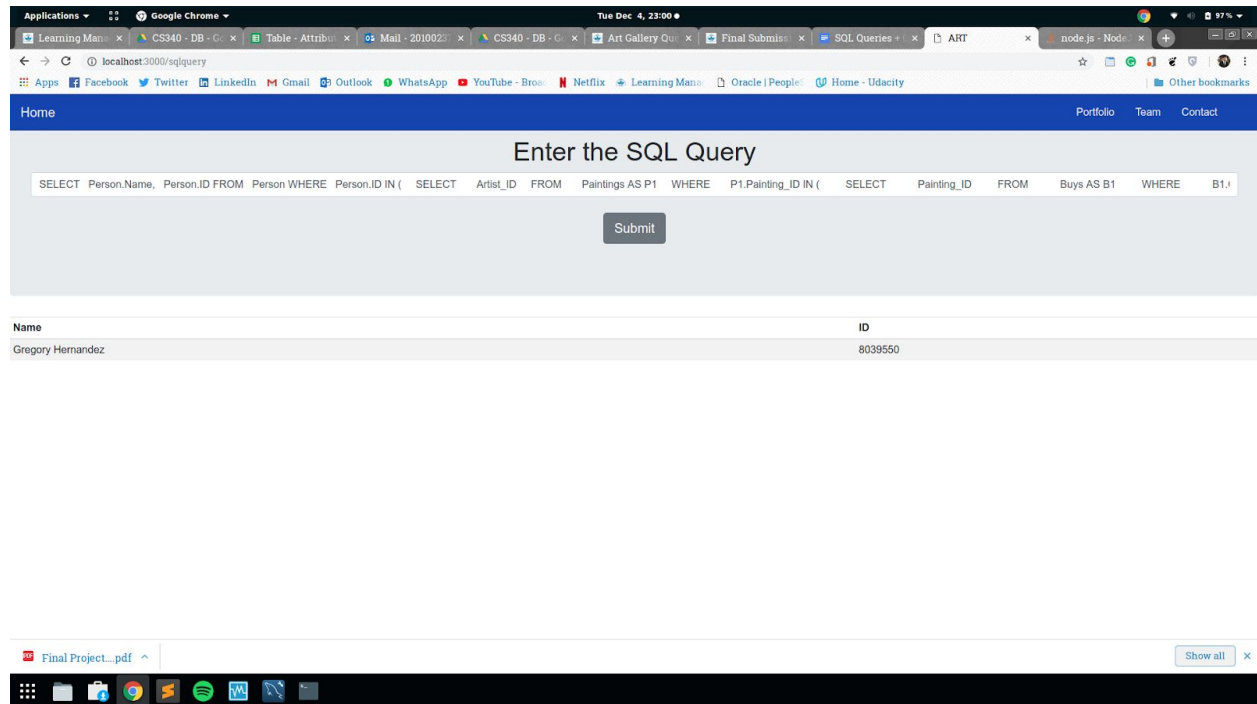
```
SELECT P.Painting_ID, S.Sell_Price, P.Price, (P.Price - S.Sell_Price) AS Profit FROM Sells AS S INNER JOIN Paintings AS P ON S.Painting_ID = P.Painting_ID WHERE S.Vendor_ID = param1 AND P.Painting_ID IN ( SELECT B.Painting_ID FROM Paintings AS B WHERE B.Vendor_ID = param2 )
```
 - RUN QUERY:** A blue button to execute the query.
- Results Table:** A table with the following columns: Vendor_ID, Name, Location. The data is as follows:

Vendor_ID	Name	Location
1108034	Sara Vaughn	loc3
1126904	Flor Torres	loc5
1139736	David Atwood	loc11
1191522	Joshua Brown	loc11
1208448	Mildred Davis	loc12
1318207	Carrie Stewart	loc14
1336141	Nancy Stauffer	loc3
1437424	Donald Gaughan	loc6
1554205	Norman Jones	loc4
1568935	Allison Bercier	loc15

Query 6:

```
SELECT
  Person.Name,
  Person.ID
FROM
  Person
WHERE
  Person.ID IN (
    SELECT
      Artist_ID
    FROM
      Paintings AS P1
    WHERE
      P1.Painting_ID IN (
        SELECT
          Painting_ID
        FROM
          Buys AS B1
        WHERE
          B1.Customer_ID IN(
            SELECT
              T1.Customer_ID
            FROM
              (
                SELECT
                  B.Customer_ID,
                  SUM(Price) AS TotAmount
                FROM
                  Buys AS B
                  INNER JOIN Paintings As P ON B.Painting_ID = P.Painting_ID
                GROUP BY
                  B.Customer_ID
                ORDER BY
                  TotAmount DESC
                LIMIT
                  1
              ) AS T1
            )
          )
  )
```

OPTIMIZATION: Replacing Inner Join with Where In



Query 7:

```
SELECT
  COUNT(Painting_Title) AS NumRequests
FROM
  Requests
WHERE
  Painting_Title in (
    SELECT
      Title
    FROM
      Paintings
  WHERE
    Painting_ID in (
      SELECT
        Painting_ID
      FROM
        Stocks
    WHERE
      Auction_ID in (
        SELECT
          Auction_ID
        FROM
          Auction
```


Query 8:

```
SELECT
  COUNT(DISTINCT Customer_ID) AS NumVisitors
FROM
  Visits AS V
WHERE
  V.Date IN (
    SELECT
      T3.Date
    FROM
      (
        SELECT
          T2.Date,
          MAX(T2.DayProfit) AS DayProfit
        FROM
          (
            SELECT
              B.Date,
              SUM(Profit) AS DayProfit
            FROM
              Buys AS B
            INNER JOIN (
              SELECT
                P.Painting_ID,
                (Price - Sell_Price) AS Profit
              FROM
                Paintings AS P
                INNER JOIN Sells AS S ON P.Painting_ID = S.Painting_ID
            ) AS T1 ON B.Painting_ID = T1.Painting_ID
            GROUP BY
              DATE
          ) AS T2
        ) AS T3
      )
  )
```


Query 9:

```
SELECT
  P.Name
FROM
  Person AS P
WHERE
  P.ID IN (
    SELECT
      T2.Customer_ID
    FROM
      ( SELECT
        T1.Customer_ID,
        T1.NumVisits
      FROM
        (
          SELECT
            V.Customer_ID,
            COUNT(Date) AS NumVisits
          FROM
            Visits AS V
          GROUP BY
            Customer_ID
        ) AS T1
      WHERE
        T1.NumVisits >= 1
      ) AS T2
    WHERE
      T2.Customer_ID NOT IN (
        SELECT
          B.Customer_ID
        FROM
          Buys AS B
      )
    )
  )
```

NOTE: THIS DOES NOT GIVE ANY OUTPUT ON OUR DATABASE SINCE NO VALUE HAS ALL THESE CONSTRAINTS

Query 10:

```
Select
  S.Vendor_ID,
  Table2.Date
from
  Sells as S
  INNER JOIN (
    SELECT
      B1.Painting_ID as PID,
      B1.Date
    FROM
      Buys AS B1
      INNER JOIN Paintings AS P1 ON P1.Painting_ID = B1.Painting_ID
    WHERE
      B1.Date IN (
        SELECT
          Best_date.Date
        FROM
          ( SELECT
              B.Date,
              COUNT(DISTINCT Title) AS NumUniqueTitles
            FROM
              Buys As B
              INNER JOIN Paintings AS P ON P.Painting_ID = B.Painting_ID
            GROUP BY
              Date
            ORDER BY
              NumUniqueTitles DESC
            LIMIT
              1
          ) AS Best_date
        )
      )
  ) as Table2 on S.Painting_ID = Table2.PID
```


Applications

Google Chrome

Tue Dec 4, 23:06

Learning Man... x

CS340 - DB - G... x

Table - Attribut... x

Os Mail - 2010023... x

CS340 - DB - G... x

Art Gallery Que... x

Final Submissi... x

SQL Queries x

ART x

node.js - Node... x

localhost:3000/sqlquery

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Other bookmarks

Home

Portfolio Team Contact

Enter the SQL Query

B INNER JOIN Paintings AS P ON P.Painting_ID = B.Painting_ID GROUP BY Date ORDER BY NumUniqueTitles DESC LIMIT 1) AS Best_date) as Table2 on S.Painting_ID = Table2.PID

Select S.Vendor_ID, Table2.Date from Sells as S IN...

Submit

Vendor_ID	Date
4842876	Tue Nov 13 2018 00:00:00 GMT+0500 (PKT)
1191522	Tue Nov 13 2018 00:00:00 GMT+0500 (PKT)
3454431	Tue Nov 13 2018 00:00:00 GMT+0500 (PKT)
2539426	Tue Nov 13 2018 00:00:00 GMT+0500 (PKT)
9563431	Tue Nov 13 2018 00:00:00 GMT+0500 (PKT)

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