Final Project Report

A. Project Description:

Our web application enables users to monetize their personal data, ensuring transparency and financial compensation when companies utilize their information; the users remain anonymous throughout the entire process. Companies can use the platform to find users with relevant personal data and offer monetary compensation for access to this data. Users can browse through a list of companies looking for specific data, view how much each company is offering per person, and consider the quality of their data as a factor. If users have relevant data to provide, they can click or tap on the listing to begin the process of uploading the required data. Once the user has sent the relevant data, the company has the opportunity to partially review the anonymized data for quality control and, if deemed sufficient, can accept it and pay the anonymized user. All users receive a transparency report after each successful data transaction, where they can see the information of the company that accepted their data, how much they were paid, what the company plans to do with the data, and any notes or feedback. Ultimately, the implemented web application provides a trustworthy platform where users and companies can sign up or log into their accounts, and manage their account settings, profile information, available personal data, data requests from companies, data transactions, and transparency reports.

B. Schema updates

Next, we discuss schema updates and the underlying reasons.

We removed the Compensation relation because it did not make much sense for Compensation to be the only child entity of DataTransaction. Also, Most, if not all, data transactions will consist of compensation procedures.

We added the Review relation because it was a useful relation to have in the implementation of the application. It enables us to maintain a unique history for any given user.

We included a foreign key specification for CategoryID in DataRequest, referencing CategoryID in DataCategory. This was not done previously, but it is a necessary step to preserve referential integrity.

C. Schema and records

Next, we list the relational schemas with the primary key attributes underlined and foreign keys bolded.

User (<u>UserID</u>, Email)

```
SQL> SELECT * FROM Users;

    USERID
----------
EMAIL
--------------------------
         1
alice@example.com

         2
bob@example.com

         3
carol@example.com


    USERID
----------
EMAIL
--------------------------
```

UserEmailUsername (**Email**, Username)

```
SQL> select * from UserEmailUsername;

EMAIL
------------------------------------
USERNAME
------------------------------------
alice@example.com
alice123

bob@example.com
bobby

carol@example.com
carol_w


EMAIL
------------------------------------
USERNAME
------------------------------------
dave@example.com
davey

eve@example.com
eve_93
```

UserEmailPassword (**Email**, Password)

```
SQL> select * from UserEmailPassword;

EMAIL
------------------------------------
PASSWORD
------------------------------------
alice@example.com
password1

bob@example.com
password2

carol@example.com
password3


EMAIL
------------------------------------
PASSWORD
------------------------------------
dave@example.com
password4

eve@example.com
password5
```

IndividualUser (**UserID**, FirstName, LastName, DateOfBirth)

```
SQL> select * from IndividualUser;

    USERID FIRSTNAME
---------- --------------------------------------------------
LASTNAME                                           DATEOFBIR
-------------------------------------------------- ---------
         1 Alice
Smith                                              01-JAN-90

         2 Bob
Johnson                                            02-FEB-85

         3 Carol
Williams                                           03-MAR-92


    USERID FIRSTNAME
---------- --------------------------------------------------
LASTNAME                                           DATEOFBIR
-------------------------------------------------- ---------
         4 Dave
Brown                                              04-APR-88

         5 Eve
Jones                                              05-MAY-95
```

IndividualUserName (FirstName, LastName, DateOfBirth, **UserID**)

```
SQL> select * from IndividualUserName;

FIRSTNAME
--------------------------------------------------
LASTNAME                                           DATEOFBIR     USERID
-------------------------------------------------- --------- ----------
Alice
Smith                                              01-JAN-90          1

Bob
Johnson                                            02-FEB-85          2

Carol
Williams                                           03-MAR-92          3


FIRSTNAME
--------------------------------------------------
LASTNAME                                           DATEOFBIR     USERID
-------------------------------------------------- --------- ----------
Dave
Brown                                              04-APR-88          4

Eve
Jones                                              05-MAY-95          5
```

CorporateUser (**UserID**, CompanyName)

```
SQL> select * from CorporateUser;

    USERID
----------
COMPANYNAME
--------------------------------------------------------------------------------
         6
TechCorp

         7
HealthInc

         8
EduSoft


    USERID
----------
COMPANYNAME
--------------------------------------------------------------------------------
         9
Tech Solutions

        10
BioLab
```

CompanyNameIndustry (**CompanyName**, Industry)

```
SQL> select * from CompanyNameIndustry;

COMPANYNAME
--------------------------------------
INDUSTRY
--------------------------------------
TechCorp
Technology

HealthInc
Healthcare

EduSoft
Education


COMPANYNAME
--------------------------------------
INDUSTRY
--------------------------------------
Tech Solutions
Finance

BioLab
Biotechnology
```

CompanyNameSize (**CompanyName**, CompanySize)

```
SQL> select * from CompanyNameSize;

COMPANYNAME
--------------------------------------
COMPANYSIZE
--------------------
TechCorp
Large

HealthInc
Medium

EduSoft
Small


COMPANYNAME
--------------------------------------
COMPANYSIZE
--------------------
Tech Solutions
Large

BioLab
Medium
```

Activity (ActivityID, **UserID**)

```
SQL> select * from Activity;

ACTIVITYID     USERID
---------- ----------
         1          1
         2          2
         3          3
         4          4
         5          5
         6          6
         7          7
         8          8
         9          9
        10         10
```

ActivityTimestamp (**ActivityID**, Timestamp)

```
SQL> select * from ActivityTimestamp;

ACTIVITYID
----------
TIMESTAMP
---------------------------------------
         1
01-JUL-24 10.00.00.000000 AM

         2
01-JUL-24 11.00.00.000000 AM

         3
01-JUL-24 12.00.00.000000 PM


ACTIVITYID
----------
TIMESTAMP
---------------------------------------
         4
01-JUL-24 01.00.00.000000 PM

         5
01-JUL-24 02.00.00.000000 PM

         6
01-JUL-24 03.00.00.000000 PM


ACTIVITYID
----------
TIMESTAMP
---------------------------------------
         7
01-JUL-24 04.00.00.000000 PM

         8
01-JUL-24 05.00.00.000000 PM

         9
```

UserActivityType (**UserID**, Timestamp, ActivityType)

```
SQL> select * from UserActivityType;

    USERID
----------
TIMESTAMP
---------------------------------------
ACTIVITYTYPE
---------------------------------------
         1
01-JUL-24 10.00.00.000000 AM
Login

         2
01-JUL-24 11.00.00.000000 AM
Data Upload

    USERID
----------
TIMESTAMP
---------------------------------------
ACTIVITYTYPE
---------------------------------------

         3
01-JUL-24 12.00.00.000000 PM
Data Download

         4
01-JUL-24 01.00.00.000000 PM

    USERID
----------
TIMESTAMP
---------------------------------------
ACTIVITYTYPE
---------------------------------------
Logout

         5
01-JUL-24 02.00.00.000000 PM
Profile Update
```

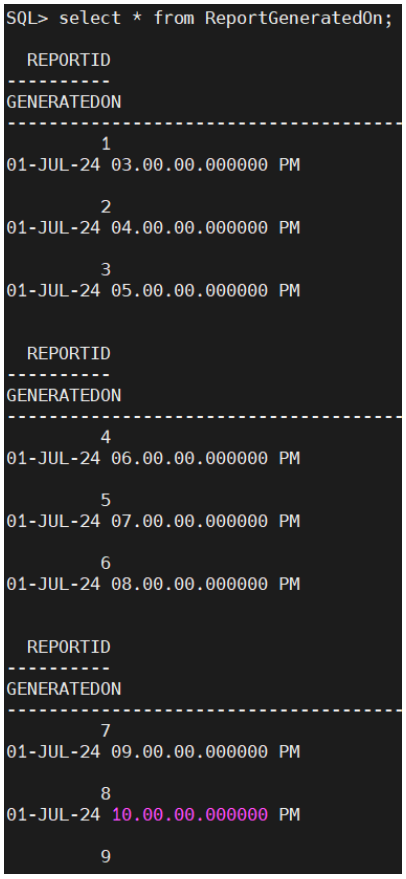
UserActivityDetails (**UserID**, Timestamp, ActivityDetails)

```
SQL> select * from UserActivityDetails;

    USERID
----------
TIMESTAMP
---------------------------------------
ACTIVITYDETAILS
---------------------------------------
         1
01-JUL-24 10.00.00.000000 AM
User logged in from IP 192.168.1.1

         2
01-JUL-24 11.00.00.000000 AM
Uploaded dataset file1.csv

    USERID
----------
TIMESTAMP
---------------------------------------
ACTIVITYDETAILS
---------------------------------------

         3
01-JUL-24 12.00.00.000000 PM
Downloaded report file2.pdf

         4
01-JUL-24 01.00.00.000000 PM

    USERID
----------
TIMESTAMP
---------------------------------------
ACTIVITYDETAILS
---------------------------------------
User logged out successfully

         5
01-JUL-24 02.00.00.000000 PM
Updated profile picture
```

TransparencyReport (ReportID, **UserID**)

```
SQL> select * from TransparencyReport;

  REPORTID     USERID
---------- ----------
         1          1
         2          2
         3          3
         4          4
         5          5
         6          6
         7          7
         8          8
         9          9
        10         10

10 rows selected.
```

ReportGeneratedOn (**ReportID**, GeneratedOn)



```
SQL> select * from ReportGeneratedOn;

  REPORTID
----------
GENERATEDON
---------------------------------------
         1
01-JUL-24 03.00.00.000000 PM

         2
01-JUL-24 04.00.00.000000 PM

         3
01-JUL-24 05.00.00.000000 PM


  REPORTID
----------
GENERATEDON
---------------------------------------
         4
01-JUL-24 06.00.00.000000 PM

         5
01-JUL-24 07.00.00.000000 PM

         6
01-JUL-24 08.00.00.000000 PM


  REPORTID
----------
GENERATEDON
---------------------------------------
         7
01-JUL-24 09.00.00.000000 PM

         8
01-JUL-24 10.00.00.000000 PM

         9
```

UserGeneratedReportDetails (**UserID**, GeneratedOn, ReportDetails)

```
SQL> select * from UserGeneratedReportDetails;

    USERID
----------
GENERATEDON
---------------------------------------------
REPORTDETAILS
---------------------------------------------
         1
01-JUL-24 03.00.00.000000 PM
Report on data usage for July 2024

         2
01-JUL-24 04.00.00.000000 PM
Report on data transactions for July 2024

    USERID
----------
GENERATEDON
---------------------------------------------
REPORTDETAILS
---------------------------------------------

         3
01-JUL-24 05.00.00.000000 PM
Report on user activity for July 2024

         4
01-JUL-24 06.00.00.000000 PM

    USERID
----------
GENERATEDON
---------------------------------------------
REPORTDETAILS
---------------------------------------------
Report on financial transactions for July 2024

         5
01-JUL-24 07.00.00.000000 PM
Report on profile updates for July 2024
```

Company (CompanyID, Name, Industry, ContactInfo)

```
SQL> select * from Company;

 COMPANYID
----------
NAME
----------------------------
INDUSTRY
----------------------------
CONTACTINFO
----------------------------
         1
TechCorp
Technology
john@techcorp.com


 COMPANYID
----------
NAME
----------------------------
INDUSTRY
----------------------------
CONTACTINFO
----------------------------
         2
HealthInc
Healthcare
mary@healthinc.com


 COMPANYID
----------
NAME
----------------------------
INDUSTRY
----------------------------
CONTACTINFO
----------------------------
         3
EduSoft
Education
```

DataCategory (CategoryID, CategoryName, Description)

```
SQL> select * from DataCategory;

CATEGORYID
----------
CATEGORYNAME
--------------------------------
DESCRIPTION
--------------------------------
         1
Demographics
Data related to population demogr

         2
Health
Health-related data

CATEGORYID
----------
CATEGORYNAME
--------------------------------
DESCRIPTION
--------------------------------

         3
Education
Educational data

         4
Finance

CATEGORYID
----------
CATEGORYNAME
--------------------------------
DESCRIPTION
--------------------------------
Financial data

         5
Environment
Environmental data
```

DataRequest (DataRequestID, **CompanyID**, Compensation, DataPurpose, **CategoryID**, Status)

```
SQL> select * from DataRequest;

DATAREQUESTID  COMPANYID COMPENSATION
------------- ---------- ------------
DATAPURPOSE
--------------------------------------
CATEGORYID STATUS
---------- ----------------------------
           1          1         1000
Market Research
         1 Pending

           2          2         1500
Clinical Study
         2 Accepted

DATAREQUESTID  COMPANYID COMPENSATION
------------- ---------- ------------
DATAPURPOSE
--------------------------------------
CATEGORYID STATUS
---------- ----------------------------

           3          3          500
Educational Analysis
         3 Accepted

           4          4         2000
Financial Forecast

DATAREQUESTID  COMPANYID COMPENSATION
------------- ---------- ------------
DATAPURPOSE
--------------------------------------
CATEGORYID STATUS
---------- ----------------------------
         4 Pending

           5          5         1200
Environmental Impact Study
         5 Accepted
```

DataBelongCategory (**CategoryID**, **DataRequestID**, **CompanyID**)

```
SQL> select * from DataBelongCategory;

CATEGORYID DATAREQUESTID  COMPANYID
---------- ------------ ----------
         1            1          1
         2            2          2
         3            3          3
         4            4          4
         5            5          5
```

TransactionIDUserID (TransactionID, **UserID**, DataText)

```
SQL> select * from TransactionIDUserID;

TRANSACTIONID     USERID
------------- ----------
DATATEXT
----------------------------------------
            1          1
Testing upload data request

            2          2
Testing upload data request

            3          3
Testing upload data request


TRANSACTIONID     USERID
------------- ----------
DATATEXT
----------------------------------------
            4          4
Testing upload data request

            5          5
Testing upload data request
```

TransactionIDDataRequestID (TransactionID, **DataRequestID**)

```
SQL> select * from TransactionIDDataRequestID;

TRANSACTIONID DATAREQUESTID
------------- -------------
            1             1
            2             2
            3             3
            4             4
            5             5
```

TransactionIDAmount (**TransactionID**, Amount)

```
SQL> select * from TransactionIDAmount;

TRANSACTIONID     AMOUNT
------------- ----------
            1        500
            2       1500
            3       2500
            4       3500
            5       4500
```

TransactionIDTimestamp (**TransactionID**, Timestamp)

```
SQL> select * from TransactionIDTimestamp;

TRANSACTIONID TIMESTAMP
------------- ---------
            1 01-JAN-24
            2 02-JAN-24
            3 03-JAN-24
            4 04-JAN-24
            5 05-JAN-24
```

TransactionIDCurrency (**TransactionID**, Currency)

```
SQL> select * from TransactionIDCurrency;

TRANSACTIONID CUR
------------- ---
            1 USD
            2 EUR
            3 GBP
            4 JPY
            5 CAD
```

TransactionIDExchangeRate (**TransactionID**, ExchangeRate)

```
SQL> select * from TransactionIDExchangeRate;

TRANSACTIONID EXCHANGERATE
------------- ------------
            1            1
            2            1
            3            1
            4          110
            5            1
```

CurrencyExchangeRate (Currency, ExchangeRate)

```
SQL> select * from CurrencyExchangeRate;

CUR EXCHANGERATE
--- ------------
USD            1
EUR            1
GBP            1
JPY          110
CAD            1
```

Review (ReviewID, **TransactionID**, **UserID**, Status, Compensation, ReviewTimestamp)

```
SQL> select * from review;

  REVIEWID TRANSACTIONID     USERID
---------- ------------- ----------
STATUS                                             COMPENSATION
-------------------------------------------------- ------------
REVIEWTIMESTAMP
---------------------------------------------------------------------------
         1             1          1
Accepted                                                    500
05-AUG-24 09.43.25.016458 PM

         2             2          2
Accepted                                                   1500
05-AUG-24 09.43.25.017541 PM

  REVIEWID TRANSACTIONID     USERID
---------- ------------- ----------
STATUS                                             COMPENSATION
-------------------------------------------------- ------------
REVIEWTIMESTAMP
---------------------------------------------------------------------------

         3             3          3
Rejected                                                      0
05-AUG-24 09.43.25.018255 PM

         4             4          4
Accepted                                                   3500

  REVIEWID TRANSACTIONID     USERID
---------- ------------- ----------
STATUS                                             COMPENSATION
-------------------------------------------------- ------------
REVIEWTIMESTAMP
---------------------------------------------------------------------------
05-AUG-24 09.43.25.018877 PM

         5             5          5
Rejected                                                      0
05-AUG-24 09.43.25.019464 PM
```

D. **List of SQL queries in the code**

INSERT Operation

- **review_data.php**
    - **Line 30: INSERT INTO Review (ReviewID, TransactionID, UserID, Status, Compensation)**
- **signup_process.php**
    - **Line 32: INSERT INTO**
- **upload_data.php**
    - **Line 32: INSERT INTO TransactionIDUserID (TransactionID, UserID, DataText) VALUES (TransactionID_seq.NEXTVAL, :userID, :data)**
    - **Line 44: INSERT INTO TransactionIDDataRequestID (TransactionID, DataRequestID) VALUES (TransactionID_seq.CURRVAL, :dataRequestID)**
    - **Line 55: INSERT INTO TransactionIDAmount (TransactionID, Amount) VALUES (TransactionID_seq.CURRVAL, 0)**
    - **Line 65: INSERT INTO TransactionIDTimestamp (TransactionID, Timestamp) VALUES (TransactionID_seq.CURRVAL, SYSDATE)**
    - **Line 75: INSERT INTO TransactionIDCurrency (TransactionID, Currency) VALUES (TransactionID_seq.CURRVAL, 'USD')**
    - **Line 85: INSERT INTO TransactionIDExchangeRate (TransactionID, ExchangeRate) VALUES (TransactionID_seq.CURRVAL, 1)**

DELETE Operation

- **delete_data_request.php**
    - **Line 21: DELETE FROM DataRequest WHERE DataRequestID = :dataRequestId**

UPDATE Operation

- **review_data.php**
    - **Line 47: UPDATE DataRequest SET Status = :status**

Selection

- **analytics_data.php**

    - **Line 28: SELECT tuu.TransactionID, tuu.UserID, tuu.DataText, dr.DataPurpose, dc.CategoryName, dr.Compensation AS RequestedCompensation, r.Status, r.Compensation AS OfferedCompensation**
    - **Line 45: SELECT**
- **companies_with_all_categories.php**
    - **Line 22: SELECT c.Name AS CompanyName**
    - **Line 26: HAVING COUNT(DISTINCT dr.CategoryID) = (SELECT COUNT(*) FROM DataCategory)**
- **company_dashboard_data.php**
    - **Line 31: SELECT dr.*, dc.CategoryName, dr.DataRequestID**
    - **Line 46: SELECT tuu.TransactionID, tuu.UserID, tuu.DataText, dr.DataPurpose, dc.CategoryName, dr.Compensation AS RequestedCompensation**
    - **Line 53: SELECT 1**
    - **Line 68: SELECT tia.*, tic.Currency, tit.Timestamp**
    - **Line 73: SELECT tuu.TransactionID**
    - **Line 88: SELECT SUM(r.Compensation) AS TotalCompensation**
- **fetch_activity_history.php**
    - **Line 22: SELECT a.ActivityID, a.UserID, at.Timestamp, uat.ActivityType, uad.ActivityDetails**
- **login_process.php**
    - **Line 26: SELECT * FROM Users u**
    - **Line 42: SELECT * FROM IndividualUser WHERE UserID = :userID**
    - **Line 55: SELECT c.CompanyID, c.Name AS CompanyName**
- **user_dashboard_data.php**
    - **Line 33: SELECT dr.*, c.Name AS CompanyName, dc.CategoryName**
    - **Line 52: SELECT tuu.TransactionID, tuu.UserID, dr.DataPurpose**
    - **Line 72: SELECT u1.*, u2.Currency, u3.Timestamp**

        - **Line 76: WHERE u1.TransactionID IN (SELECT TransactionID FROM TransactionIDUserID WHERE UserID = :userID)**
        - **Line 91: SELECT tr.*, rgo.GeneratedOn**
        - **Line 110: SELECT**
    - **users_with_complete_data.php**
        - **Line 18: SELECT UserID**
        - **Line 21: SELECT dc.CategoryID**
        - **Line 24: SELECT dr.CategoryID**
    - **view_all_data.php**
        - **Line 28: SELECT * FROM $table**
    - **view_total_requests_per_category.php**
        - **Line 17: SELECT CategoryID, COUNT(*) AS TotalRequests**

Projection

- **view_all_data Line ~28**

Join

- **analytics_data.php**
    - **Line 28: SELECT tuu.TransactionID, tuu.UserID, tuu.DataText, dr.DataPurpose, dc.CategoryName, dr.Compensation AS RequestedCompensation, r.Status, r.Compensation AS OfferedCompensation**
- **fetch_activity_history.php**
    - **Line 22: SELECT a.ActivityID, a.UserID, at.Timestamp, uat.ActivityType, uad.ActivityDetails**
- **user_dashboard_data.php**
    - **Line 33: SELECT dr.*, c.Name AS CompanyName, dc.CategoryName**
- **companies_with_all_categories.php**
    - **Line 33: SELECT c.Name AS CompanyName FROM Company c JOIN DataRequest dr ON c.CompanyID = dr.CompanyID**
- **company_dashboard _data.php**

- **Line 33: SELECT dr.*, dc.CategoryName, dr.DataRequestID FROM DataRequest dr JOIN DataCategory dc ON dr.CategoryID = dc.CategoryID**

Aggregation with Group By

- **view_total_requests_per_category.php**
  - **Line 17: SELECT CategoryID, COUNT(*) AS TotalRequests**

Aggregation with Having

- **companies_with_all_categories.php**
  - **Line 26: HAVING COUNT(DISTINCT dr.CategoryID) = (SELECT COUNT(*) FROM DataCategory)**

Nested Aggregation with Group By

- **None**

Division

- **Users_with_complete_data**
  - **Line 18: SELECT UserID FROM Users u WHERE NOT EXISTS (SELECT dc.CategoryID FROM DataCategory dc EXCEPT SELECT dr.CategoryID FROM DataRequest dr JOIN TransactionIDDataRequestID tdr ON dr.DataRequestID = tdr.DataRequestID JOIN TransactionIDUserID tuu ON tdr.TransactionID = tuu.TransactionID WHERE tuu.UserID = u.UserID**
- **company_dashboard_data.php**
  - **Line 46: SELECT UserID SELECT UserID SELECT tuu.TransactionID, tuu.UserID, tuu.DataText, dr.DataPurpose, dc.CategoryName, dr.Compensation AS RequestedCompensation FROM TransactionIDUserID tuu JOIN TransactionIDDataRequestID tddr ON tuu.TransactionID = tddr.TransactionID JOIN DataRequest dr ON tddr.DataRequestID = dr.DataRequestID JOIN DataCategory dc ON dr.CategoryID = dc.CategoryID WHERE dr.CompanyID = :company_id AND NOT EXISTS (SELECT 1 FROM Review r WHERE r.TransactionID = tuu.TransactionID)";**

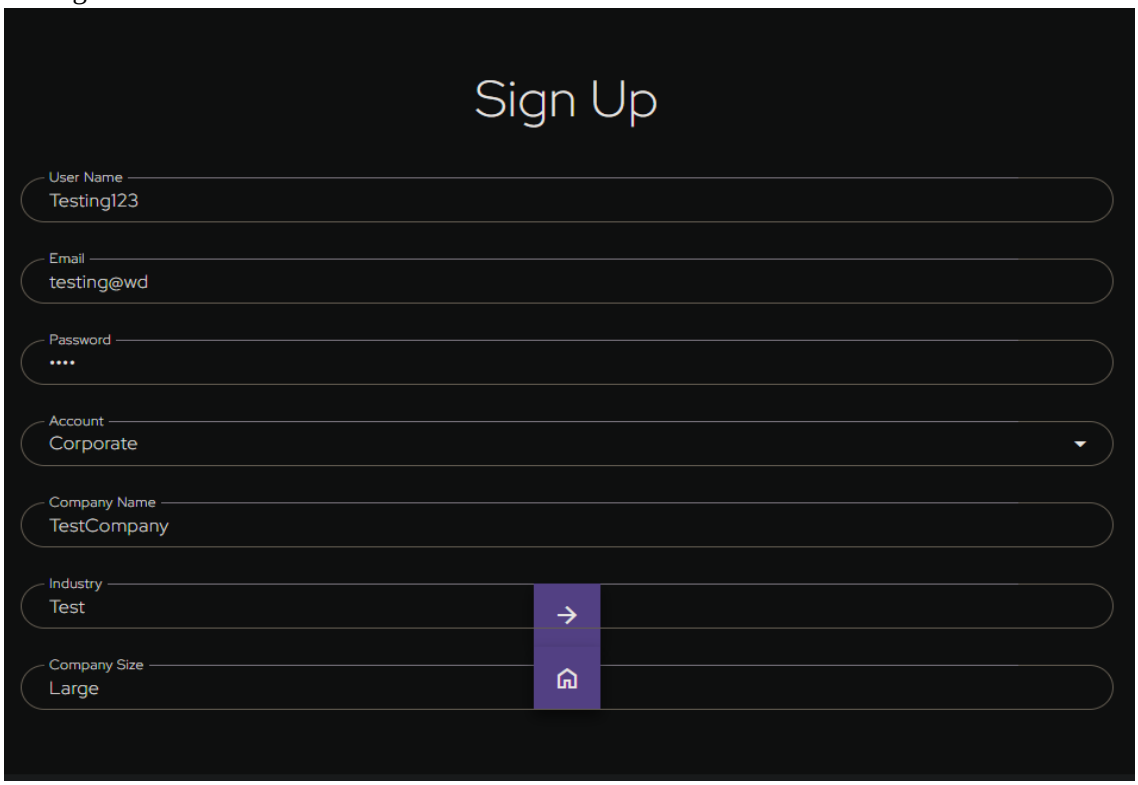
E. Screenshots demonstrating the functionality of each query

INSERT:

Before:

```
select * from USEREMAILUSERNAME;

EMAIL
--------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------------------------
USERNAME
--------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------------------------
alice@example.com
alice123

bob@example.com
bobby

carol@example.com
carol_w

dave@example.com
davey

eve@example.com
eve_93

john@techcorp.com
john_techcorp

mary@healthinc.com
mary_health

peter@edusoft.com
peter_edu

lucas@tech.com
lucas_tech

sophia@biolab.com
sophia_bio
```

During:



After:

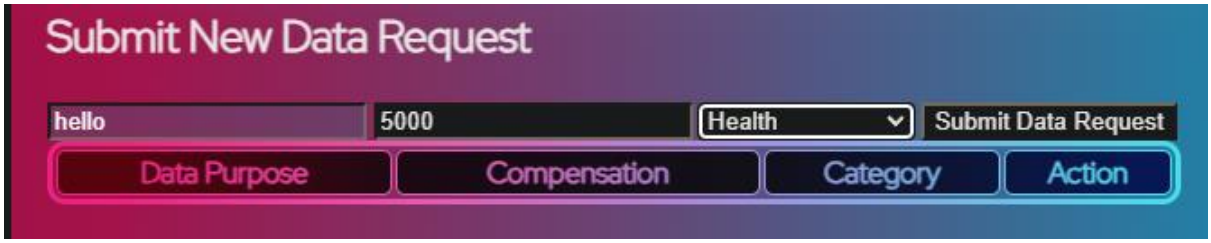
```
select * from USEREMAILUSERNAME;

EMAIL
--------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------
USERNAME
--------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------
testing@wd
Testing123

alice@example.com
alice123

bob@example.com
bobby

carol@example.com
carol_w

dave@example.com
davey

eve@example.com
eve_93

john@techcorp.com
john_techcorp

mary@healthinc.com
mary_health

peter@edusoft.com
peter_edu

lucas@tech.com
lucas_tech

sophia@biolab.com
sophia_bio


11 rows selected.
```

DELETE

Before:

```
DATAREQUESTID  COMPANYID COMPENSATION
------------- ---------- ------------
DATAPURPOSE
--------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------
CATEGORYID STATUS
---------- --------------------------------------------------
            2          2         1500
Clinical Study
         2 Accepted

            3          3          500
Educational Analysis
         3 Accepted

            4          4         2000
Financial Forecast
         4 Pending

            5          5         1200
Environmental Impact Study
         5 Accepted

            9          1         1000
Market Research
         5 Pending
```

During:



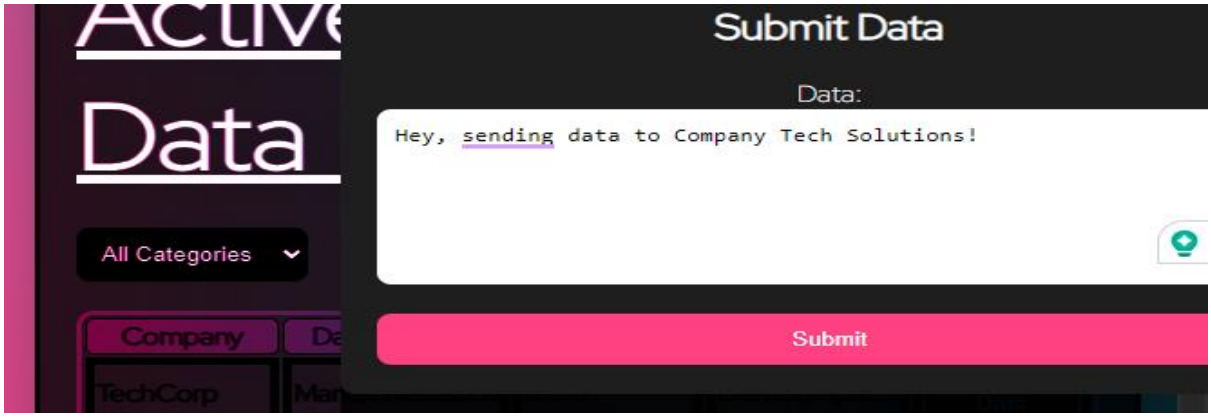
After:

```
DATAREQUESTID  COMPANYID COMPENSATION
------------- ---------- ------------
DATAPURPOSE
--------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------
CATEGORYID STATUS
---------- ------------------------------------------------------------
           12          1         5000
hello
         2 Pending

            2          2         1500
Clinical Study
         2 Accepted

            3          3          500
Educational Analysis
         3 Accepted

            4          4         2000
Financial Forecast
         4 Pending

            5          5         1200
Environmental Impact Study
         5 Accepted

            9          1         1000
Market Research
         5 Pending


6 rows selected.
```

JOIN (Not sure how to show before/after since data in tables don't get modified)

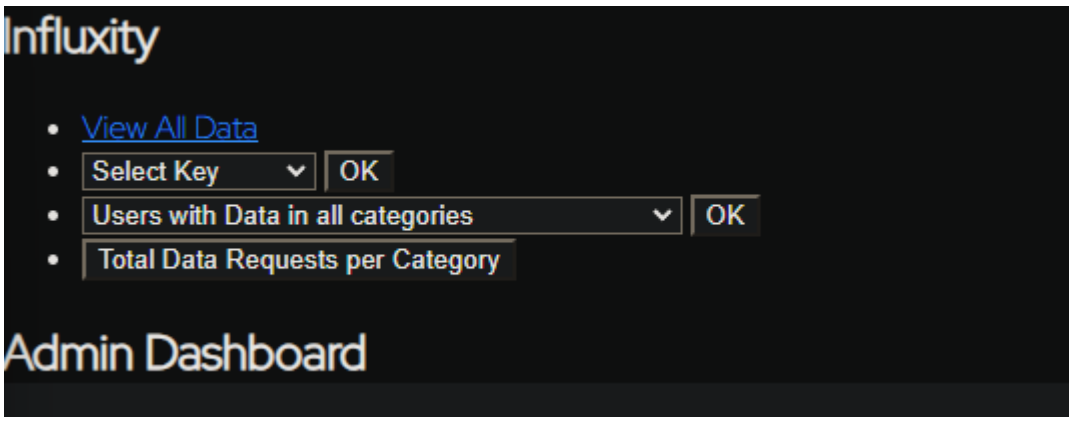
Before:

During:

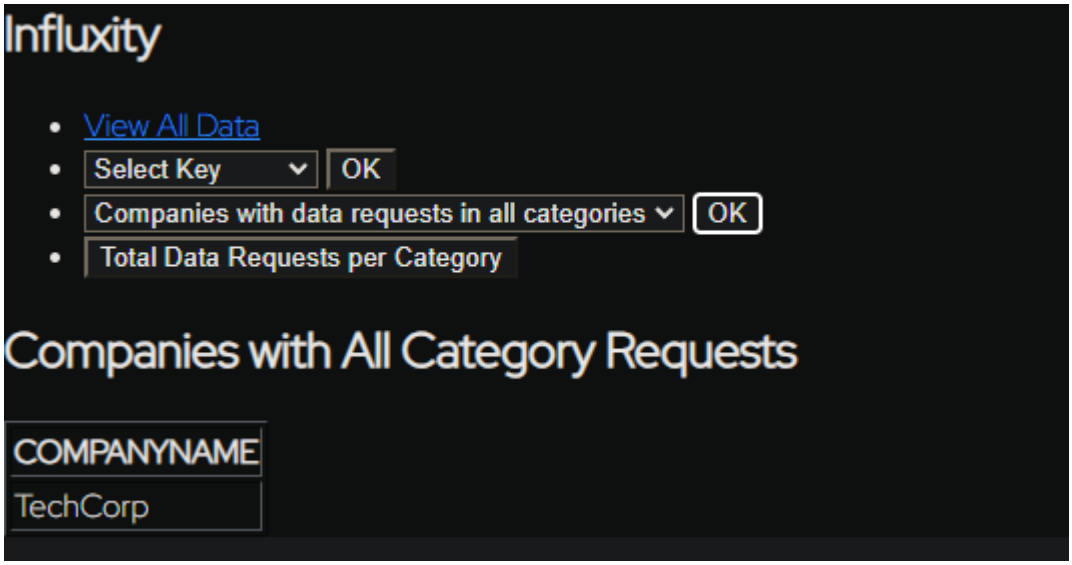


After: (Combines company review status and user transactions)

Group with Having:
Before:



After:



Database: Company ID 1 is TechCorp with data requests in all 5 categories (1 - 5)

```
DATAREQUESTID  COMPANYID COMPENSATION
------------- ---------- ------------
DATAPURPOSE
--------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------
CATEGORYID STATUS
---------- --------------------------------------------------
           1          1         1000
Market Research
         1 Pending

           2          2         1500
Clinical Study
         2 Accepted

           3          3          500
Educational Analysis
         3 Accepted

           4          4         2000
Financial Forecast
         4 Pending

           5          5         1200
Environmental Impact Study
         5 Accepted

           6          1         1000
Market Research
         2 Pending

           7          1         1000
Market Research
         3 Pending

           8          1         1000
Market Research
         4 Pending

           9          1         1000
Market Research
         5 Pending

          10          1         2000
Hey
         4 Pending
```

UPDATE

Before: User has TransactionID 10 with 0 initial amount received.

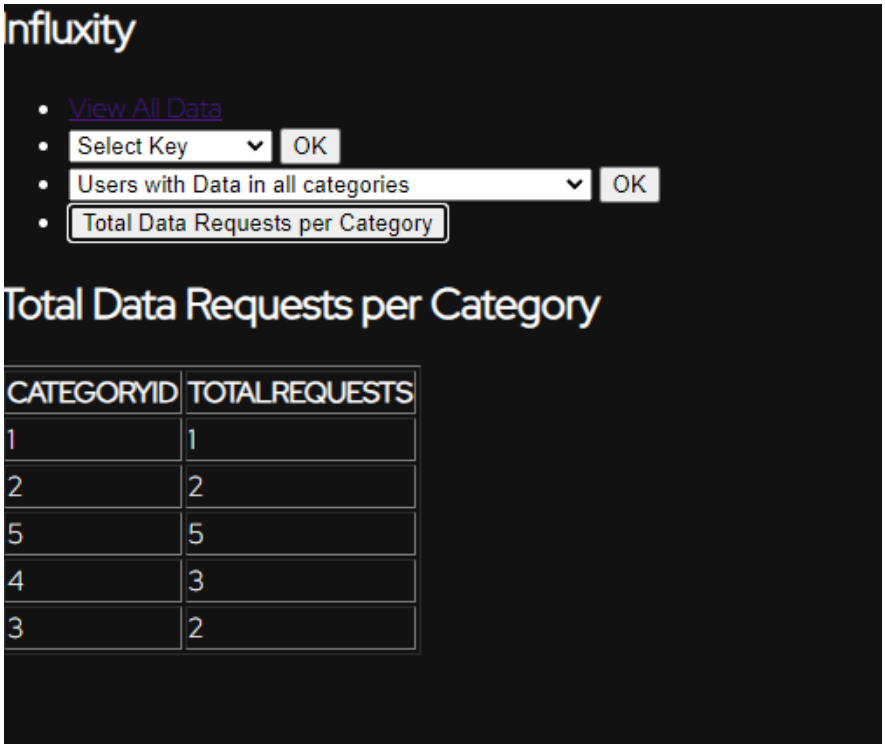
```
select * from transactionidamount;

TRANSACTIONID     AMOUNT
------------- ----------
            8          0
            9      10000
           10          0
            6          0
            1        500
            2       1500
            3       2500
            4       3500
            5       4500
            7          0

10 rows selected.
```

During: Sending $10000, which is less than original company listing.

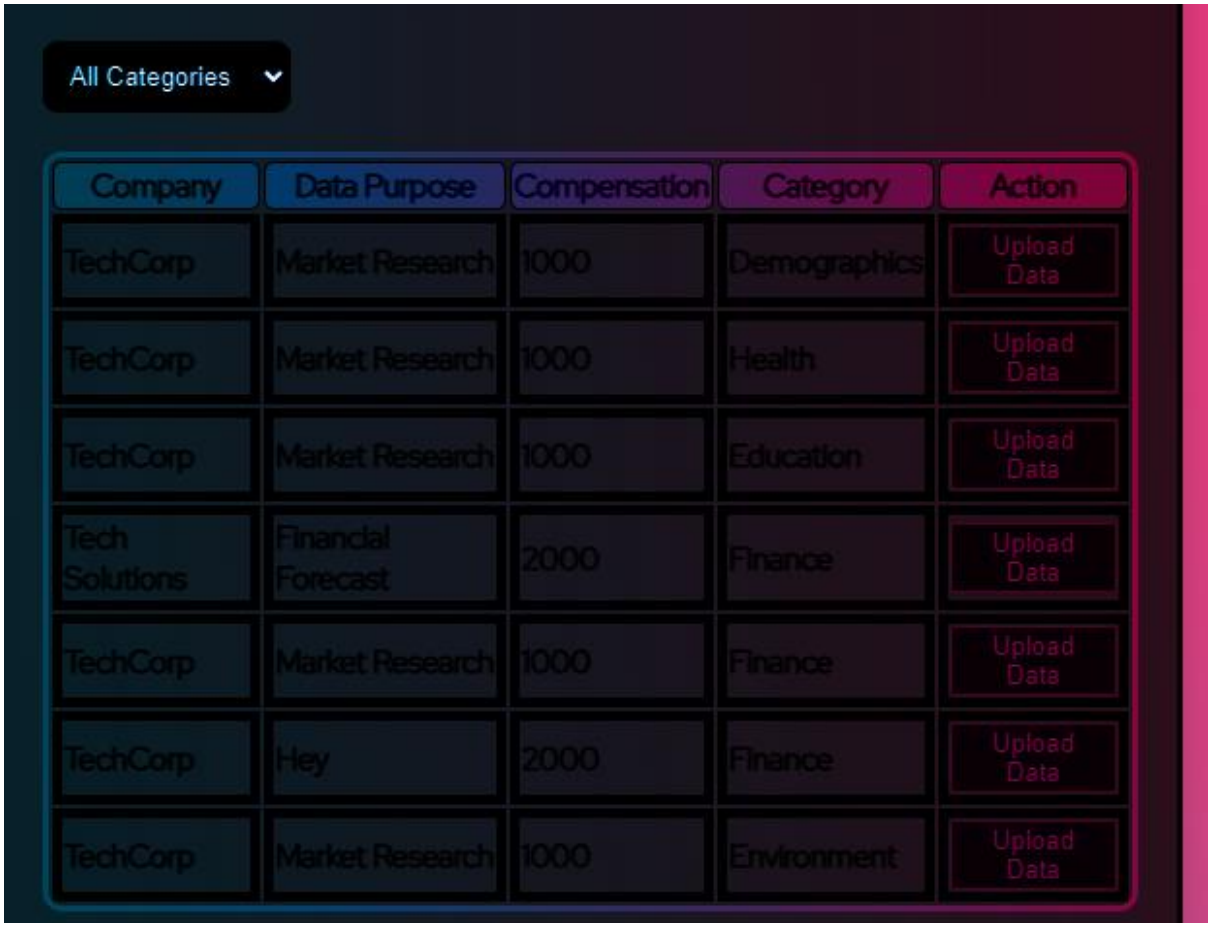
After:

```
select * from transactionidamount;

TRANSACTIONID     AMOUNT
------------- ----------
            8          0
            9      10000
           10      10000
            6          0
            1        500
            2       1500
            3       2500
            4       3500
            5       4500
            7          0

10 rows selected.
```

Aggregation with Group by: Shows grouped total requests.

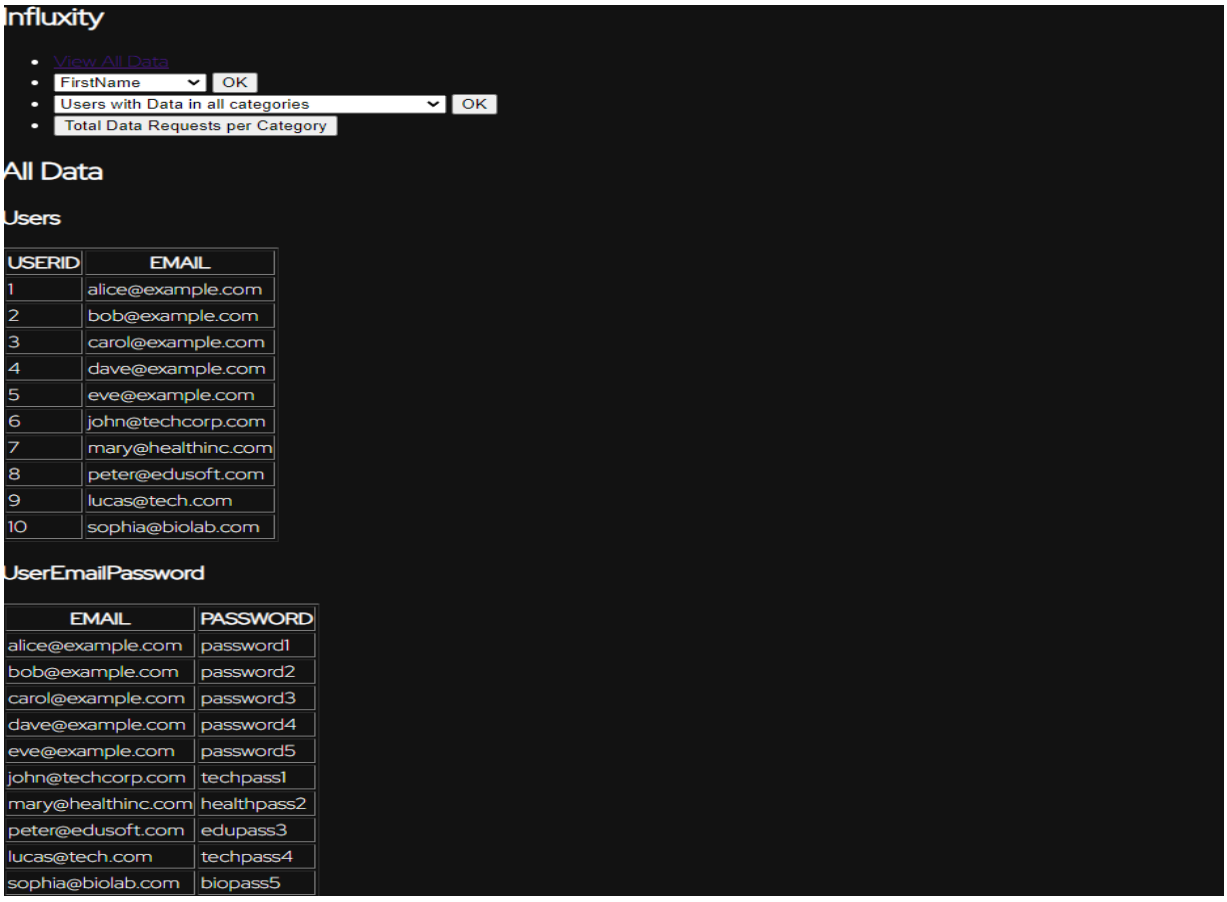


Selection:
Before:

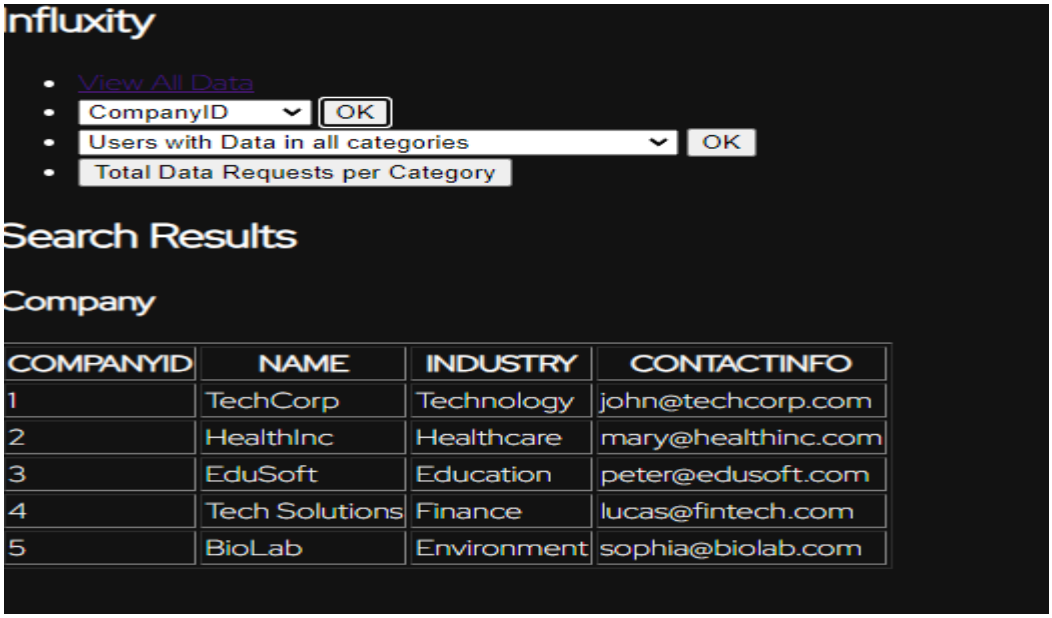


After: Filters incoming requests.

Projection:
Before:



After: Can select keys -> then view data based on it.



Division: Divides all users to find users have have sent data to all category types. Here, no users have done that for example.