

Project Report

(CSED)

A report submitted in part fulfilment of

EST Lab Evaluation

of course

Database Management System, UCS310

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Submitted to: -

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Declaration:

This report has been prepared on the basis of our own work. Where other published and unpublished source materials have been used, these have been acknowledged.

Submitted by:

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Date of Submission:

10th May, 2019

Signature of Instructor:

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Background of the Area:

Millions of users use social networking sites daily and a lot of them are progressively becoming connected to it with each passing day. We often see the end result of these sites and they seem relatively simple to use but seldom do we think of the working behind this huge idea that took years to implement on a massive scale. This led us to exploring the huge databases that make this network web possible and made us familiar with the ideas that would lead to its proper management and scope of improvement in this field.

Need of this project:

- For keeping record of the users and their activities.
- .For keeping track of the posts and comments by various people.
- For keeping the track of the messages sent/received.

Objectives of this project:

- Tracking of all users and their respective activity.
- Enabling users to converse with one another.
- Posting and sharing media.

Project Outcomes:

- Every person's ID will be stored along with some specific attributes.
- Each User will be able to create his own post and see other's post.
- Each user will be able to react/comment on any post.
- Each user will be able to send/receive messages.

PL/SQL

PL/SQL is a block structured language that enables developers to combine the power of SQL with procedural statements. All the statements of a block are passed to oracle engine all at once which increases processing speed and decreases the traffic.

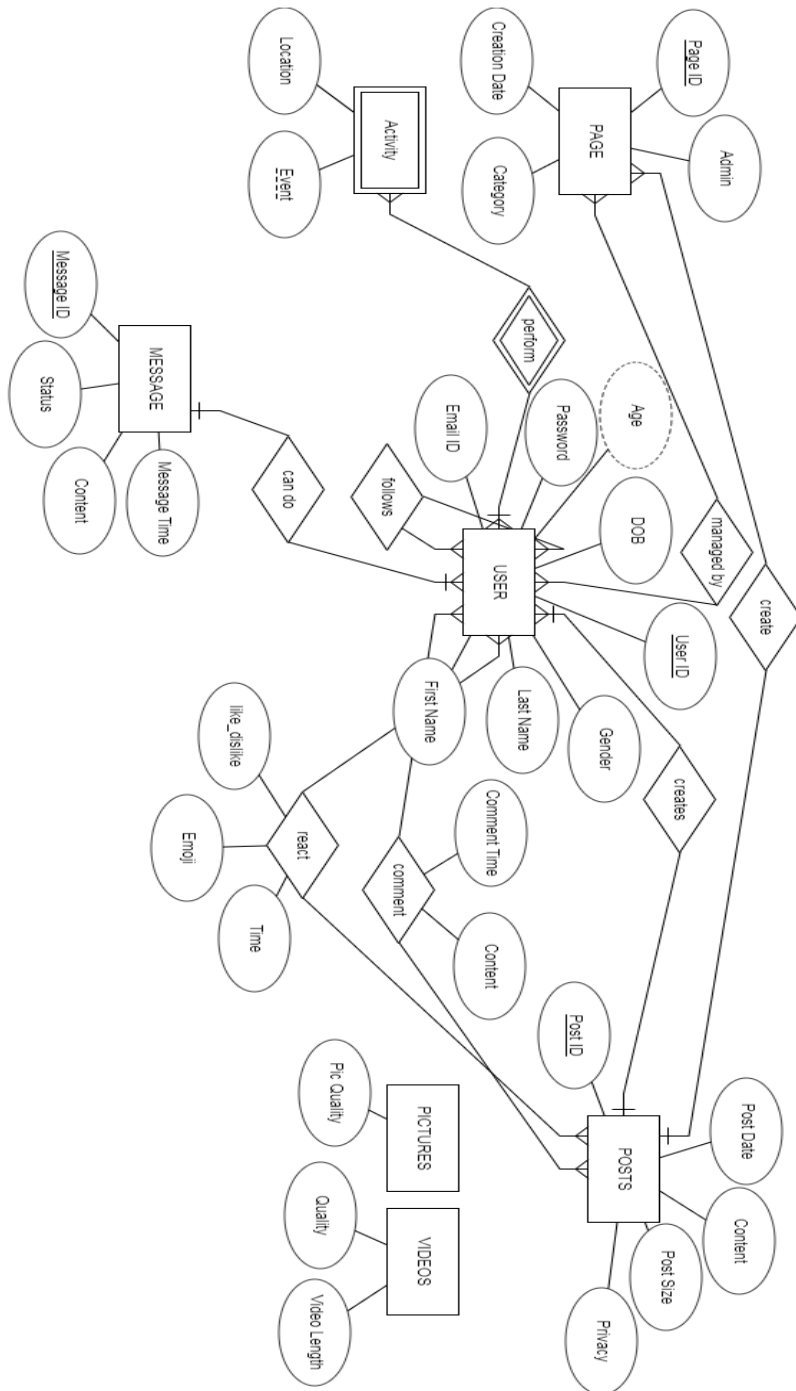
Disadvantages of SQL:

- SQL doesn't provide the programmers with a technique of condition checking, looping and branching.
- SQL statements are passed to Oracle engine one at a time which increases traffic and decreases speed.
- SQL has no facility of error checking during manipulation of data.

Features of PL/SQL:

1. PL/SQL is basically a procedural language, which provides the functionality of decision making, iteration and many more features of procedural programming languages.
2. PL/SQL can execute a number of queries in one block using single command.
3. One can create a PL/SQL unit such as procedures, functions, packages, triggers, and types, which are stored in the database for reuse by applications.
4. PL/SQL provides a feature to handle the exception which occurs in PL/SQL block known as exception handling block.
5. Applications written in PL/SQL are portable to computer hardware or operating system where Oracle is operational.
6. PL/SQL Offers extensive error checking

ER-DIAGRAM



PL/SQL CODES

Trigger to check if a new profile is created:

```
1 create or replace trigger trig1
2 after
3 insert on user_table
4 declare
5 begin
6 dbms_output.put_line('Record inserted successfully');
7* end;
8 /
```

Trigger to check a valid email address:

```
1 CREATE OR REPLACE TRIGGER TRIGEMAIL
2 BEFORE UPDATE OR INSERT OF EMAIL_ID ON USER_TABLE
3 FOR EACH ROW
4 BEGIN
5 IF :NEW.EMAIL_ID NOT LIKE '%@%.%' THEN
6 RAISE_APPLICATION_ERROR(-20000,'INVALID EMAIL ID!!');
7 END IF;
8* END;
SQL> /
```

Trigger created.

Trigger to deny updating of user id:

```
1 CREATE OR REPLACE TRIGGER TRIGUSER
2 BEFORE UPDATE OF USER_ID ON USER_TABLE
3 FOR EACH ROW
4 BEGIN
5 RAISE_APPLICATION_ERROR(-20002,'CANNOT UPDATE USER ID!!');
6* END;
7 /
```

Trigger created.

Procedure for creating a new profile:

```
1 CREATE OR REPLACE PROCEDURE INS1 (  
2 first_name USER_TABLE.FIRST_NAME%TYPE,  
3 last_name USER_TABLE.LAST_NAME%TYPE,  
4 gender USER_TABLE.GENDER%TYPE,  
5 user_id USER_TABLE.USER_ID%TYPE,  
6 dob USER_TABLE.DOB%TYPE,  
7 password USER_TABLE.PASSWORD%TYPE,  
8 email_id USER_TABLE.EMAIL_ID%TYPE)  
9 IS  
10 BEGIN  
11 INSERT INTO USER_TABLE (FIRST_NAME, LAST_NAME, GENDER, USER_ID, DOB,  
PASSWORD, EMAIL_ID)  
12 VALUES (first_name, last_name, gender, user_id, dob, password, email_id);  
13 COMMIT;  
14* END;  
SQL> /
```

Procedure created.

Procedure for creating a new page:

```
1 CREATE OR REPLACE PROCEDURE INS2 (  
2 page_id PAGE_TABLE.PAGE_ID%TYPE,  
3 admin PAGE_TABLE.ADMIN%TYPE,  
4 creation_date PAGE_TABLE.CREATION_DATE%TYPE,  
5 category PAGE_TABLE.CATEGORY%TYPE)  
6 IS  
7 BEGIN  
8 INSERT INTO PAGE_TABLE (PAGE_ID, ADMIN, CREATION_DATE, CATEGORY)  
9 VALUES (page_id, admin, creation_date, category);  
10 COMMIT;  
11* END;  
  
SQL> /
```

Procedure created.

Trigger to limit the length of a video:

```
1 CREATE OR REPLACE TRIGGER VIDEOLength
2 BEFORE INSERT OR UPDATE OF LENGTH ON VIDEO_TABLE
3 FOR EACH ROW
4 BEGIN
5 IF :NEW.LENGTH>5 THEN
6 RAISE_APPLICATION_ERROR(-20008,'VIDEO LENGTH EXCEEDS LIMIT!!');
7 END IF;
8* END;
SQL> /
```

Trigger to stop underage children from making account:

```
1 CREATE OR REPLACE TRIGGER VALIDITY
2 BEFORE INSERT ON USER_TABLE
3 FOR EACH ROW
4 BEGIN
5 IF (TRUNC(MONTHS_BETWEEN(SYSDATE, :NEW.DOB))/12)<15 THEN
6 RAISE_APPLICATION_ERROR(-20010,'AGE LESS THAN 15 YEARS!!');
7 END IF;
8* END;
SQL> /
```

SNAPSHOTS

```
Command Prompt - sqlplus
5 IF :NEW.EMAIL_ID NOT LIKE '%0%' THEN
6 RAISE_APPLICATION_ERROR(-20000,'INVALID EMAIL ID!!');
7 END IF;
8* END;
SQL> /

Trigger created.

SQL> update user_table set email_id='njeh72' where first_name='Vatsal';
update user_table set email_id='njeh72' where first_name='Vatsal'
*
ERROR at line 1:
ORA-20000: INVALID EMAIL ID!!
ORA-06512: at "SYSTEM.TRIGEMAIL", line 3
ORA-04088: error during execution of trigger 'SYSTEM.TRIGEMAIL'

SQL> EDIT
Wrote file afiedt.buf

1 CREATE OR REPLACE TRIGGER TRIGUSER
2 BEFORE UPDATE OF USER_ID ON USER_TABLE
3 FOR EACH ROW
4 BEGIN
5 RAISE_APPLICATION_ERROR(-20002,'CANNOT UPDATE USER ID!!');
6* END;
7 /

Trigger created.

SQL> EDIT
Wrote file afiedt.buf

1 CREATE OR REPLACE TRIGGER TRIGPAGE
2 BEFORE UPDATE OF PAGE_ID ON PAGE_TABLE
3 FOR EACH ROW
4 BEGIN
5 RAISE_APPLICATION_ERROR(-20002,'CANNOT UPDATE PAGE ID!!');
6* END;
SQL> /

Trigger created.

SQL>
```

Activate Windows
Go to Settings to activate Windows.

```
Command Prompt - sqlplus
update user_table set email_id='njeh72' where first_name='Vatsal'
*
ERROR at line 1:
ORA-20000: INVALID EMAIL ID!!
ORA-06512: at "SYSTEM.TRIGEMAIL", line 3
ORA-04088: error during execution of trigger 'SYSTEM.TRIGEMAIL'

SQL> EDIT
Wrote file afiedt.buf

1 CREATE OR REPLACE TRIGGER TRIGUSER
2 BEFORE UPDATE OF USER_ID ON USER_TABLE
3 FOR EACH ROW
4 BEGIN
5 RAISE_APPLICATION_ERROR(-20002,'CANNOT UPDATE USER ID!!');
6* END;
7 /

Trigger created.

SQL> EDIT
Wrote file afiedt.buf

1 CREATE OR REPLACE TRIGGER TRIGPAGE
2 BEFORE UPDATE OF PAGE_ID ON PAGE_TABLE
3 FOR EACH ROW
4 BEGIN
5 RAISE_APPLICATION_ERROR(-20002,'CANNOT UPDATE PAGE ID!!');
6* END;
SQL> /

Trigger created.

SQL> update user_table set user_id=234 where first_name='Vatsal';
update user_table set user_id=234 where first_name='Vatsal'
*
ERROR at line 1:
ORA-20002: CANNOT UPDATE USER ID!!
ORA-06512: at "SYSTEM.TRIGUSER", line 2
ORA-04088: error during execution of trigger 'SYSTEM.TRIGUSER'

SQL>
```

Activate Windows
Go to Settings to activate Windows.

```

Command Prompt - sqlplus
1 CREATE OR REPLACE TRIGGER TRIGUSER
2 BEFORE UPDATE OF USER_ID ON USER_TABLE
3 FOR EACH ROW
4 BEGIN
5 RAISE_APPLICATION_ERROR(-20002,'CANNOT UPDATE USER ID!!');
6* END;
7 /

Trigger created.

SQL> EDIT
Write file afiedt.buf

1 CREATE OR REPLACE TRIGGER TRIGPAGE
2 BEFORE UPDATE OF PAGE_ID ON PAGE_TABLE
3 FOR EACH ROW
4 BEGIN
5 RAISE_APPLICATION_ERROR(-20002,'CANNOT UPDATE PAGE ID!!');
6* END;
SQL> /

Trigger created.

SQL> update user_table set user_id=234 where first_name='Vatsal';
update user_table set user_id=234 where first_name='Vatsal'
*
ERROR at line 1:
ORA-20002: CANNOT UPDATE USER ID!!
ORA-06512: at "SYSTEM.TRIGUSER", line 2
ORA-04088: error during execution of trigger 'SYSTEM.TRIGUSER'

SQL> desc user_table;
Name Null? Type
-----
FIRST_NAME NOT NULL VARCHAR2(10)
LAST_NAME VARCHAR2(10)
GENDER VARCHAR2(6)
USER_ID NOT NULL NUMBER(10)
DOB DATE
PASSWORD NOT NULL VARCHAR2(15)
EMAIL_ID VARCHAR2(15)

SQL>

```

```

C:\Program Files\Microsoft SQL Server\110\Tools\Binn>sqlplus /nolog

SQL> connect system/manager as sysdba
Connected to Oracle Database 11g Enterprise Edition (11.2.0.4.0)
SQL> create trigger TRIGUSER after insert on user_table
2   *
3   /
Trigger created.

SQL> update user_table set user_id=234 where first_name='Vatsal';
update user_table set user_id=234 where first_name='Vatsal'
*
ERROR at line 1:
ORA-20002: CANNOT UPDATE USER ID!!
ORA-06512: at "SYSTEM.TRIGUSER", line 2
ORA-04088: error during execution of trigger 'SYSTEM.TRIGUSER'

SQL> desc user_table;
   Name                          Null?    Type
-----
FIRST_NAME                      NOT NULL VARCHAR2(10)
LAST_NAME                      NOT NULL VARCHAR2(10)
GENDER                          NOT NULL VARCHAR2(6)
USER_ID                         NOT NULL NUMBER(10)
DOB                             NOT NULL DATE
PASSWORD                        NOT NULL VARCHAR2(15)
EMAIL_ID                       NOT NULL VARCHAR2(15)

SQL> desc page_table;
   Name                          Null?    Type
-----
PAGE_ID                        NOT NULL NUMBER(10)
ADMIN                          NOT NULL VARCHAR2(10)
CREATION_DATE                  NOT NULL DATE
CATEGORY                       NOT NULL VARCHAR2(15)

SQL> desc post_table;
   Name                          Null?    Type
-----
POST_ID                        NOT NULL NUMBER(10)
POST_DATE                      NOT NULL DATE
CONTENT                        NOT NULL VARCHAR2(30)
PAGE_ID                       NOT NULL NUMBER(10)
PRIVACY                        NOT NULL VARCHAR2(15)
USER_ID                       NOT NULL NUMBER(10)

```

```
Command Prompt - sqlplus
ORA-20002: CANNOT UPDATE USER ID!!
ORA-06512: at "SYSTEM.TRIGUSER", line 2
ORA-04088: error during execution of trigger 'SYSTEM.TRIGUSER'

SQL> desc user_table;
Name                               Null?    Type
-----
FIRST_NAME                         NOT NULL VARCHAR2(10)
LAST_NAME                         NOT NULL VARCHAR2(10)
GENDER                             VARCHAR2(6)
USER_ID                            NOT NULL NUMBER(10)
DOB                                DATE
PASSWORD                           NOT NULL VARCHAR2(15)
EMAIL_ID                           VARCHAR2(15)

SQL> desc page_table;
Name                               Null?    Type
-----
PAGE_ID                            NOT NULL NUMBER(10)
ADMIN                              NOT NULL VARCHAR2(10)
CREATION_DATE                      DATE
CATEGORY                           VARCHAR2(15)

SQL> desc post_table
Name                               Null?    Type
-----
POST_ID                            NOT NULL NUMBER(10)
POST_DATE                          DATE
CONTENT                            VARCHAR2(30)
PAGE_ID                            NUMBER(10)
PRIVACY                            VARCHAR2(15)
USER_ID                            NOT NULL NUMBER(10)

SQL> desc reaction_table;
Name                               Null?    Type
-----
LIKE_DISLIKE                       VARCHAR2(5)
EMOJI                              VARCHAR2(6)
TIME                                DATE
USER_ID                            NOT NULL NUMBER(10)
POST_ID                            NOT NULL NUMBER(10)

SQL>
```

```
Command Prompt - sqlplus
TIME                                DATE
USER_ID                            NOT NULL NUMBER(10)
POST_ID                            NOT NULL NUMBER(10)

SQL> edit
Wrote file afiedt.buf

1 CREATE OR REPLACE TRIGGER VIDEOLength
2 BEFORE INSERT OR UPDATE OF LENGTH ON VIDEO_TABLE
3 FOR EACH ROW
4 BEGIN
5 IF (NEW.LENGTH>5) THEN
6 RAISE_APPLICATION_ERROR(-20008,'VIDEO LENGTH EXCEEDS LIMIT!!');
7 END IF;
8* END;
SQL> /

Warning: Trigger created with compilation errors.

SQL> edit
Wrote file afiedt.buf

1 CREATE OR REPLACE TRIGGER VIDEOLength
2 BEFORE INSERT OR UPDATE OF LENGTH ON VIDEO_TABLE
3 FOR EACH ROW
4 BEGIN
5 IF :NEW.LENGTH>5 THEN
6 RAISE_APPLICATION_ERROR(-20008,'VIDEO LENGTH EXCEEDS LIMIT!!');
7 END IF;
8* END;
SQL> /

Trigger created.

SQL> insert into video_table values(345,'good',10);
insert into video_table values(345,'good',10)

ERROR at line 1:
ORA-20008: VIDEO LENGTH EXCEEDS LIMIT!!
ORA-06512: at "SYSTEM.VIDEOLength", line 3
ORA-04088: error during execution of trigger 'SYSTEM.VIDEOLength'

SQL>
```

```
Command Prompt - sqlplus
ORA-04073: column list not valid for this trigger type

SQL> edit
Wrote file afiedt.buf

 1 CREATE OR REPLACE TRIGGER VALIDITY
 2 BEFORE INSERT OF DOB ON USER_TABLE
 3 FOR EACH ROW
 4 BEGIN
 5 IF : (TRUNC(MONTHS_BETWEEN(SYSDATE, NEW.DOB))/12)<15 THEN
 6 RAISE_APPLICATION_ERROR(-20005,'AGE LESS THAN 15 YEARS!!');
 7 END IF;
 8* END;
SQL> /
BEFORE INSERT OF DOB ON USER_TABLE
*
ERROR at line 2:
ORA-04073: column list not valid for this trigger type

SQL> EDIT
Wrote file afiedt.buf

 1 CREATE OR REPLACE TRIGGER VALIDITY
 2 BEFORE INSERT ON USER_TABLE
 3 FOR EACH ROW
 4 BEGIN
 5 IF (TRUNC(MONTHS_BETWEEN(SYSDATE, :NEW.DOB))/12)<15 THEN
 6 RAISE_APPLICATION_ERROR(-20010,'AGE LESS THAN 15 YEARS!!');
 7 END IF;
 8* END;
SQL> /

Trigger created.

SQL>
```

```
Command Prompt - sqlplus

SQL> edit
Wrote file afiedt.buf

 1 CREATE OR REPLACE TRIGGER VALIDITY
 2 BEFORE INSERT OF DOB ON USER_TABLE
 3 FOR EACH ROW
 4 BEGIN
 5 IF : (TRUNC(MONTHS_BETWEEN(SYSDATE, NEW.DOB))/12)<15 THEN
 6 RAISE_APPLICATION_ERROR(-20005,'AGE LESS THAN 15 YEARS!!');
 7 END IF;
 8* END;
SQL> /
BEFORE INSERT OF DOB ON USER_TABLE
*
ERROR at line 2:
ORA-04073: column list not valid for this trigger type

SQL> EDIT
Wrote file afiedt.buf

 1 CREATE OR REPLACE TRIGGER VALIDITY
 2 BEFORE INSERT ON USER_TABLE
 3 FOR EACH ROW
 4 BEGIN
 5 IF (TRUNC(MONTHS_BETWEEN(SYSDATE, :NEW.DOB))/12)<15 THEN
 6 RAISE_APPLICATION_ERROR(-20010,'AGE LESS THAN 15 YEARS!!');
 7 END IF;
 8* END;
SQL> /

Trigger created.

SQL> insert into user_table values('yogesh','singla','male',234,'23-JAN-2007','hwhdi','yogesh@ie.vom');
insert into user_table values('yogesh','singla','male',234,'23-JAN-2007','hwhdi','yogesh@ie.vom')
*
ERROR at line 1:
ORA-20010: AGE LESS THAN 15 YEARS!!
ORA-06512: at "SYSTEM.VALIDITY", line 3
ORA-04088: error during execution of trigger 'SYSTEM.VALIDITY'

SQL>
```

REFERENCES

- GEEKS FOR GEEKS
- ORACLE 9I SQL+ BOOK
- WIKIPEDIA