Sequences, Triggers, Procedures and Cursors

Name: Pushkaraj Yadav

Roll No.: BTB43

PRN: 2122000755

Subject: Advanced Database Systems Labs

Experiment No.: 6

Problem Statement

Oracle Sequences:

Consider table customer with primary key(cus_code))

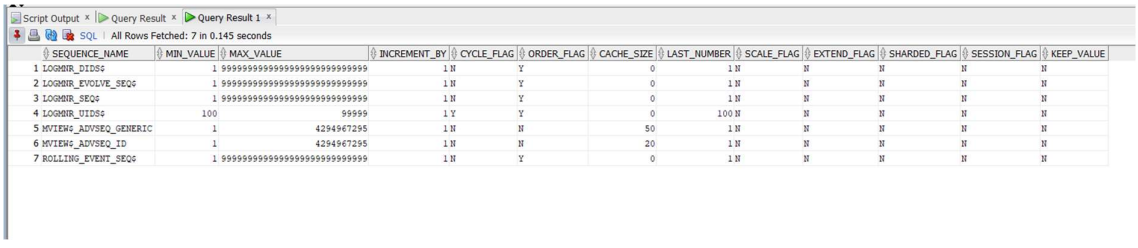
Field Type	Data Type
cus_code	Integer
cus_lname	varchar2(10)
cus_fname	varchar2(10)
cus_initial	varchar2(1)
cus_areacode	INTEGER
cus_phone	INTEGER
cus_balance)	number(10,2

i) **Create sequence on cus_code**

ANS:CREATE SEQUENCE CUS_SEQUENCES
START WITH 500 noCache;
drop sequence CUS_SEQUENCES;
select * from USER_SEQUENCES;

ii) Display user sequences

ANS:



Script Output | Query Result | Query Result 1

SQL | All Rows Fetched: 7 in 0.145 seconds

	SEQUENCE_NAME	MIN_VALUE	MAX_VALUE	INCREMENT_BY	CYCLE_FLAG	ORDER_FLAG	CACHE_SIZE	LAST_NUMBER	SCALE_FLAG	EXTEND_FLAG	SHARDED_FLAG	SESSION_FLAG	KEEP_VALUE
1	LOGMNR_DIDS$	1	9999999999999999999999999999	1	N	Y	0	1	N	N	N	N	N
2	LOGMNR_EVOLVE_SEQ$	1	9999999999999999999999999999	1	N	Y	0	1	N	N	N	N	N
3	LOGMNR_SEQ$	1	9999999999999999999999999999	1	N	Y	0	1	N	N	N	N	N
4	LOGMNR_UIDS$	100	99999	1	Y	Y	0	100	N	N	N	N	N
5	MVIEW$_ADVSEQ_GENERIC	1	4294967295	1	N	N	50	1	N	N	N	N	N
6	MVIEW$_ADVSEQ_ID	1	4294967295	1	N	N	20	1	N	N	N	N	N
7	ROLLING_EVENT_SEQ$	1	9999999999999999999999999999	1	N	Y	0	1	N	N	N	N	N

iii) Insert values into customer using created sequence

ANS:

```
insert into customer values(CUS_SEQUENCES.nextval,'Sujay','Gagan',null,'615','7878448841',1000.00);
insert into customer values(CUS_SEQUENCES.nextval,'Ram','Patil',null,'616','8956231245',1100.00);
insert into customer values(CUS_SEQUENCES.nextval,'Sham','Jadhav',null,'617','9865451283',600.00);
insert into customer values(CUS_SEQUENCES.nextval,'Rohan','Yadav',null,'618','9235628945',1100.00);
insert into customer values(CUS_SEQUENCES.nextval,'Pushkaraj','Yadav',null,'619','897844884',1800.00
);
```

```
select *from customer;
```

iv) Display customer records

v) **ANS:s**

Script Output × | Query Result × | Query Result 1 × | Query Result 2 ×

SQL | All Rows Fetched: 5 in 0.027 seconds

	CUS_CODE	CUS_LNAME	CUS_FNAME	CUS_INITIAL	CUS_AREACODE	CUS_PHONE	CUS_BALANCE
1	505	Sujay	Gagan	(null)	615	7878448841	1000
2	506	Ram	Patil	(null)	616	8956231245	1100
3	507	Sham	Jadhav	(null)	617	9865451283	600
4	508	Rohan	Yadav	(null)	618	9235628945	1100
5	509	Pushkaraj	Yadav	(null)	619	897844884	1800

Trigger:

Consider Student Report table, in which student marks assessment is recorded. In such schema, create a trigger so that the total and percentage of specified marks is automatically inserted whenever a record is inserting. Initial insert 0 for total and per attributes. Maximum marks should be 20 for each subject

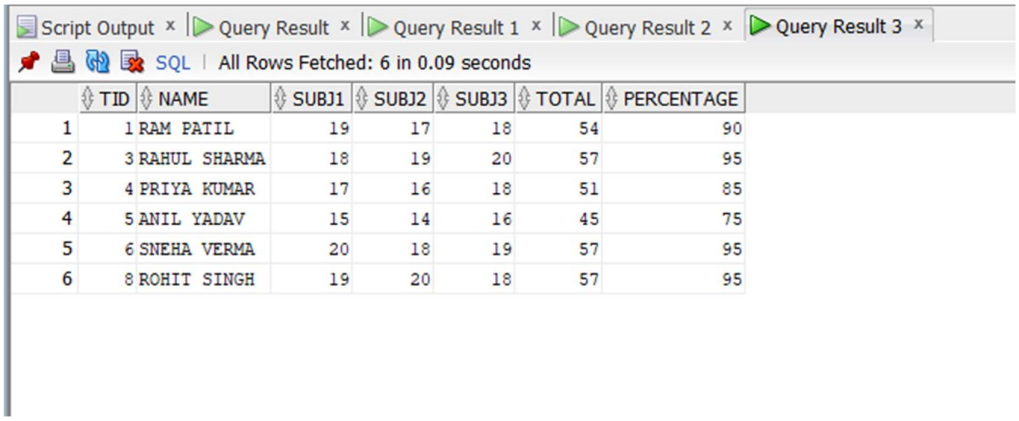
```
Field | Type        | Null | Key |
+------+-----+---------+----------------+
| tid   | int(4)      | NO   | PRI |
| name  | varchar(30) | YES  |
| subj1 | int(2)      | YES  |
| subj2 | int(2)      | YES  |
```

subj3	int(2)	YES
total	int(3)	YES
per	int(3)	YES

```
-- Creating the trigger to calculate total and percentage before insert
CREATE OR REPLACE TRIGGER calc_total_perc
BEFORE INSERT ON student_report
FOR EACH ROW
BEGIN

   :NEW.total := NVL(:NEW.subj1, 0) + NVL(:NEW.subj2, 0) + NVL(:NEW.subj3, 0);



   :NEW.percentage := (:NEW.total * 100) / 60;
END;
/

INSERT INTO student_report (tid, name, subj1, subj2, subj3)
VALUES (1, 'RAM PATIL', 19, 17, 18);

INSERT INTO student_report (tid, name, subj1, subj2, subj3)
VALUES (2, 'SHAM PATIL', 20, 19, 21);

INSERT INTO student_report (tid, name, subj1, subj2, subj3)
VALUES (3, 'RAHUL SHARMA', 18, 19, 20);

INSERT INTO student_report (tid, name, subj1, subj2, subj3)
VALUES (4, 'PRIYA KUMAR', 17, 16, 18);

INSERT INTO student_report (tid, name, subj1, subj2, subj3)
VALUES (5, 'ANIL YADAV', 15, 14, 16);
```

```
INSERT INTO student_report (tid, name, subj1, subj2, subj3)
VALUES (6, 'SNEHA VERMA', 20, 18, 19);

INSERT INTO student_report (tid, name, subj1, subj2, subj3)
VALUES (8, 'ROHIT SINGH', 19, 20, 18);

SELECT * FROM student_report;
```

ANS:



	TID	NAME	SUBJ1	SUBJ2	SUBJ3	TOTAL	PERCENTAGE
1	1	RAM PATIL	19	17	18	54	90
2	3	RAHUL SHARMA	18	19	20	57	95
3	4	PRIYA KUMAR	17	16	18	51	85
4	5	ANIL YADAV	15	14	16	45	75
5	6	SNEHA VERMA	20	18	19	57	95
6	8	ROHIT SINGH	19	20	18	57	95

Procedure and Cursor:

Consider Course Table with course_num as primary key.

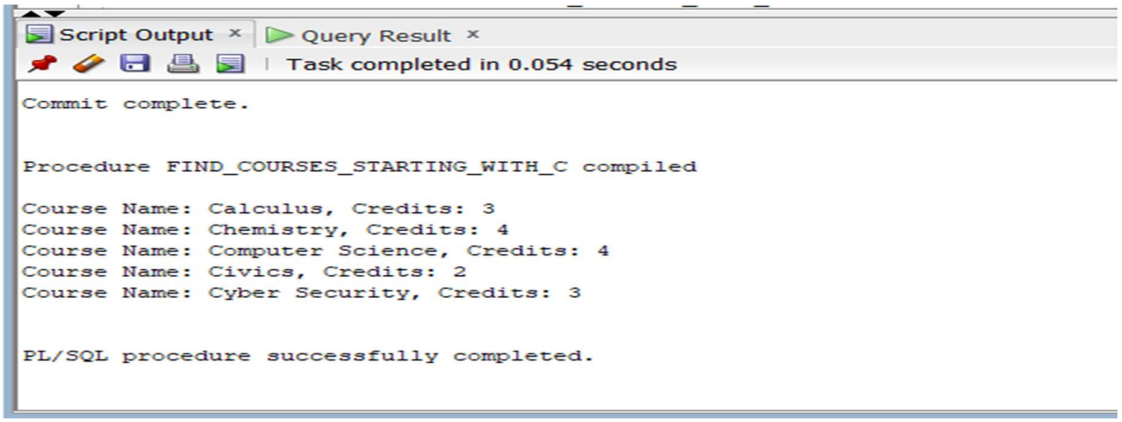
Field Type	Data Type
course_num	Integer
course_name	varchar2(20)
dept_name	varchar2(15)
credits	Integer

1.)Write a procedure which includes cursors: Find course_name and credits where course name starts with 'C'

```
create table Course(
course_num integer primary key,
course_name    varchar2(20),
```

```
dept_name varchar2(15),

credits integer

)

drop table course;

INSERT INTO Course (course_num, course_name, dept_name, credits) VALUES (101, 'Calculus', 'MATH', 3);

INSERT INTO Course (course_num, course_name, dept_name, credits) VALUES (102, 'Chemistry', 'SCIENCE', 4);

INSERT INTO Course (course_num, course_name, dept_name, credits) VALUES (103, 'Computer Science', 'CSE', 4);

INSERT INTO Course (course_num, course_name, dept_name, credits) VALUES (104, 'Biology', 'SCIENCE', 3);

INSERT INTO Course (course_num, course_name, dept_name, credits) VALUES (105, 'Civics', 'ARTS', 2);

INSERT INTO Course (course_num, course_name, dept_name, credits) VALUES (106, 'Physics', 'SCIENCE', 4);

INSERT INTO Course (course_num, course_name, dept_name, credits) VALUES (107, 'Cyber Security', 'CSE', 3);

CREATE OR REPLACE PROCEDURE find_courses_start_with_C

IS

   CURSOR c_courses IS

      SELECT course_name, credits

      FROM Course

      WHERE course_name LIKE 'C%';


   v_course_name Course.course_name%TYPE;

   v_credits Course.credits%TYPE;

BEGIN

   -- Opening and fetching cursor data

   OPEN c_courses;


   LOOP

      FETCH c_courses INTO v_course_name, v_credits;
```

```
        EXIT WHEN c_courses%NOTFOUND;

        DBMS_OUTPUT.PUT_LINE('Course Name: ' || v_course_name || ', Credits: ' || v_credits);
    END LOOP;

    CLOSE c_courses;
END;
SET SERVEROUTPUT ON;

BEGIN
    find_courses_starting_with_C;
END;
```



2.) Write a procedure which includes cursors: Find course names from 'CSE' department

```
CREATE OR REPLACE PROCEDURE find_courses_from_CSE
IS
    CURSOR c_courses_cse IS
        SELECT course_name
        FROM Course
        WHERE dept_name = 'CSE';
```

```
  v_course_name Course.course_name%TYPE;
BEGIN
  OPEN c_courses_cse;

  LOOP
    -- Fetch data from the cursor into variable
    FETCH c_courses_cse INTO v_course_name;

    EXIT WHEN c_courses_cse%NOTFOUND;

    DBMS_OUTPUT.PUT_LINE('Course Name: ' || v_course_name);
  END LOOP;

  CLOSE c_courses_cse;
END;

SET SERVEROUTPUT ON;

BEGIN
  find_courses_from_CSE;
END;
```

ANS: