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By K B Hemanth Raj

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DBMS LABORATORY WITH MINI PROJECT

[As per Choice Based Credit System (CBCS) scheme] (Effective from the academic year 2017-2018)

SEMESTER - V

Subject Code: 17CSL58 IA Marks: 40

Exam Marks: **60** Exam Hours: **03**

Program - 4

Consider the schema for College Database:

STUDENT(USN, SName, Address, Phone, Gender)

SEMSEC(SSID, Sem, Sec)

CLASS(USN, SSID)

SUBJECT(Subcode, Title, Sem, Credits)

IAMARKS(USN, Subcode, SSID, Test1, Test2, Test3, FinalIA)

Write SQL queries to

- 1. List all the student details studying in fourth semester 'C' section.
- 2. Compute the total number of male and female students in each semester and in each section.
- 3. Create a view of Test1 marks of student USN '1BI17CS101' in all subjects.
- 4. Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students.
- 5. Categorize students based on the following criterion:

If FinalIA = 17 to 20 then CAT = 'Outstanding'

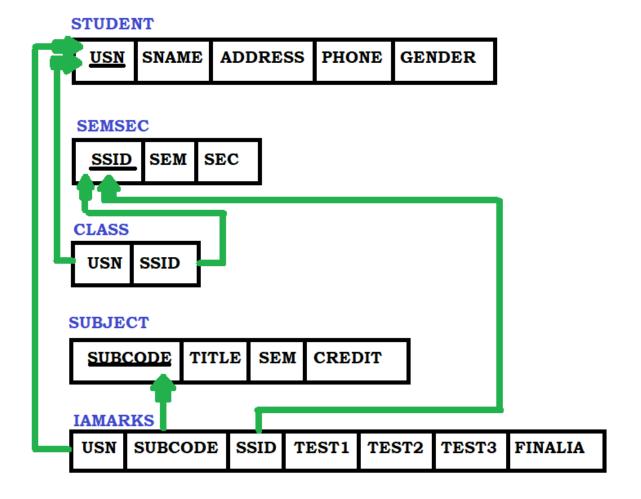
If FinalIA = 12 to 16 then CAT = 'Average'

If FinalIA< 12 then CAT = 'Weak'

Give these details only for 8th semester A, B, and C section students.

SCHEMA DIAGRAM:

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STEPS TO OPEN THE ORACLE DATABASE – 10G EXPRESS EDITION

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Step 1: Open the Browser (Preferred Chrome).

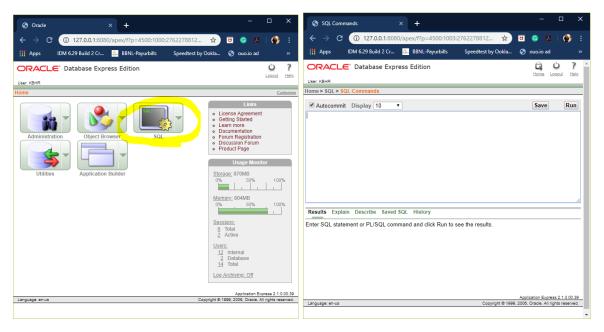
Step 2: http://127.0.0.1:8080/apex/ Enter the link on the browser.

Step 3: login with your id and password (finding difficulty in login in go to the link to know in-depth details

https://hemanthrajhemu.github.io/FutureVisionBIE/WP/5CSE/DBMS_LAB_INFO.html

(Note Username is the system by default & Password is the passkey you entered in the installation)

Step 4: Now click on SQL->SQL Commands. This is the place where we execute the SQL Commands.



Step 5: you are in SQL Command Now you can Create table, create view, Run Queries here & lot more.

Or Method -2 using Command Prompt

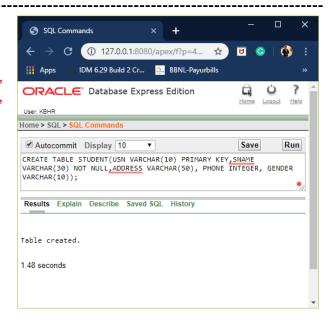
https://hemanthrajhemu.github.io/FutureVisionBIE/WP/5CSE/DBMS_LAB_METHOD_2.html

Create Table: (Follow the Schema Diagram in Creating the Data Base)

1. Create Table for STUDENT

CREATE TABLE STUDENT(
USN VARCHAR(10) PRIMARY KEY,
SNAME VARCHAR(30) NOT NULL,
ADDRESS VARCHAR(50),
PHONE INTEGER,
GENDER VARCHAR(10));

NOW RUN.



2. Create Table for SEMSEC

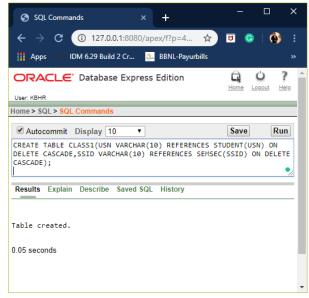
CREATE TABLE SEMSEC(SSID VARCHAR(10) PRIMARY KEY, SEM INTEGER NOT NULL, SEC VARCHAR(2) NOT NULL);

NOW RUN.

3. Create Table for CLASS1

CREATE TABLE CLASS1(
USN VARCHAR(10) REFERENCES
STUDENT(USN) ON DELETE CASCADE
,SSID VARCHAR(10) REFERENCES
SEMSEC(SSID) ON DELETE CASCADE);

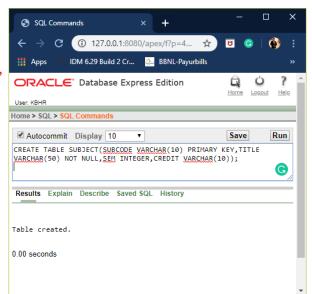
NOW RUN.



4. Create Table for SUBJECT

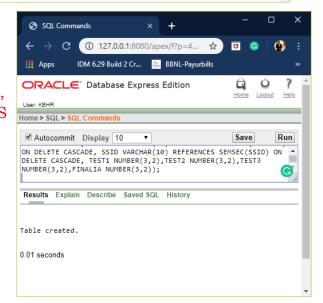
CREATE TABLE SUBJECT(SUBCODE VARCHAR(10) PRIMARY KEY, TITLE VARCHAR(50) NOT NULL, SEM INTEGER, CREDIT VARCHAR(10));

NOW RUN.



5. Create Table for IAMARKS

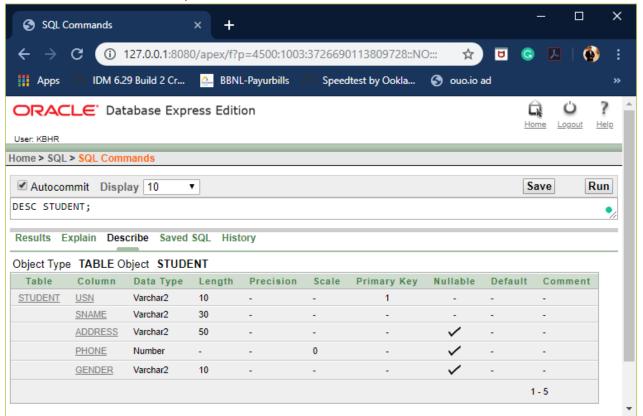
CREATE TABLE IAMARKS(
USN VARCHAR(10) REFERENCES
STUDENT(USN) ON DELETE CASCADE,
SUBCODE VARCHAR(10) REFERENCES
SUBJECT(SUBCODE)
ON DELETE CASCADE,
SSID VARCHAR(10) REFERENCES
SEMSEC(SSID) ON DELETE CASCADE,
TEST1 NUMBER(3,2),
TEST2 NUMBER(3,2),
TEST3 NUMBER(3,2),
FINALIA NUMBER(3,2));



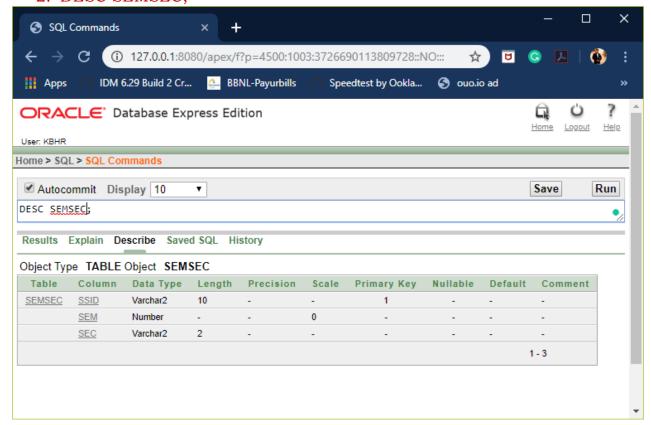
NOW RUN.

TABLE DESCRIPTION

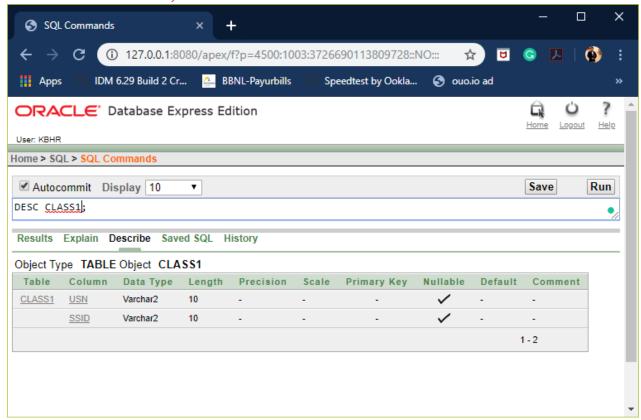
1. DESC STUDENT;



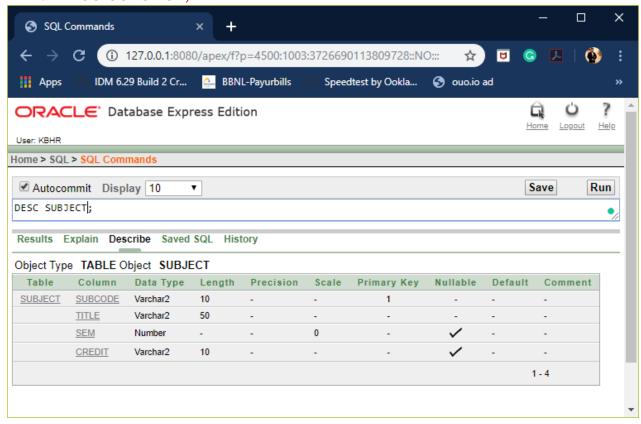
2. DESC SEMSEC:



3. DESC CLASS1;

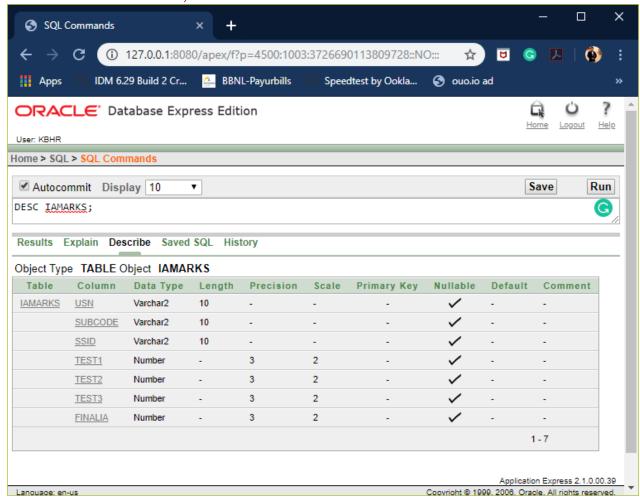


4. DESC SUBJECT;



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5. DESC IAMARKS;



INSERTION OF VALUES TO TABLE

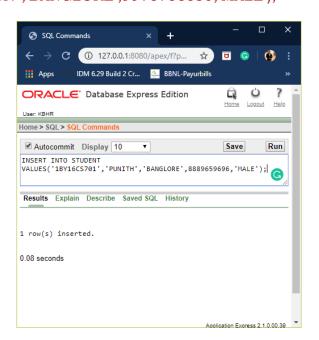
1. VALUES INTO STUDENT:

INSERT INTO STUDENT(<USN>,<SNAME>,<ADDRESS>,<PHONE>,<GENDER>);

INSERT INTO STUDENT VALUES ('1BY16CS701','PUNITH','BANGLORE',8889659696,'MALE');
INSERT INTO STUDENT('1BY16CS702','ABDUL','BANGLORE',8866352000,'MALE');
INSERT INTO STUDENT('1BY16CS703','NOOR','BANGLORE',8111200320,'FEMALE');
INSERT INTO STUDENT('1BY16CS704','HEMANTH','BANGLORE',9869655510,'MALE');
INSERT INTO STUDENT('1BY16CS704','RAHUL','BANGLORE',9965238410,'MALE');

INSERT INTO STUDENT VALUES
('1BY17CS501','JYOTHI','BANGLORE',8875452200,'FEMALE');
INSERT INTO STUDENT VALUES
('1BY17CS502','SPOORTHI','BANGLORE',9956541203,'FEMALE');
INSERT INTO STUDENT VALUES
('1BY17CS503','SNEHA','BANGLORE',9966552200,'FEMALE');
INSERT INTO STUDENT VALUES
('1BY17CS504','RAJKUMAR','BANGLORE',7799553265,'MALE');
INSERT INTO STUDENT VALUES
('1BY17CS505','HIMANSHU','BANGLORE',7755221025,'FEMALE');

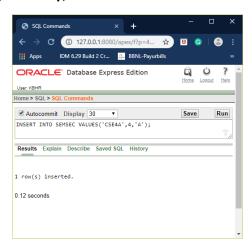
INSERT INTO STUDENT VALUES
('1BY18CS301','RAKSHITHA','BANGLORE',9685774120,'FEMALE');
INSERT INTO STUDENT VALUES
('1BY18CS302','VARSHA','BANGLORE',9933526874,'FEMALE');
INSERT INTO STUDENT VALUES
('1BY18CS303','RAHUL','BANGLORE',9955522210,'MALE');
INSERT INTO STUDENT VALUES
('1BY18CS304','RAAFAY','BANGLORE',9966551100,'MALE');
INSERT INTO STUDENT VALUES
('1BY18CS305','PRANAV','BANGLORE',9975756630,'MALE');



2. VALUES INTO SEMSEC:

INSERT INTO SEMSEC VALUES(<SSID>,<SEM>,<SEC>);

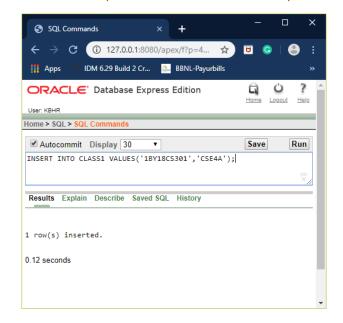
```
INSERT INTO SEMSEC VALUES('CSE4A',4,'A');
INSERT INTO SEMSEC VALUES('CSE4B',4,'B');
INSERT INTO SEMSEC VALUES('CSE4C',4,'C');
INSERT INTO SEMSEC VALUES('CSE6A',6,'A');
INSERT INTO SEMSEC VALUES('CSE6B',6,'B');
INSERT INTO SEMSEC VALUES('CSE6C',6,'C');
INSERT INTO SEMSEC VALUES('CSE8A',8,'A');
INSERT INTO SEMSEC VALUES('CSE8B',8,'B');
INSERT INTO SEMSEC VALUES('CSE8B',8,'C');
```



3. VALUES INTO CLASS1:

INSERT INTO CLASS1 VALUES(<USN>,<SSID>);

```
INSERT INTO CLASS1 VALUES('1BY18CS301','CSE4A');
INSERT INTO CLASS1 VALUES('1BY18CS302','CSE4A');
INSERT INTO CLASS1 VALUES('1BY18CS303','CSE4B');
INSERT INTO CLASS1 VALUES('1BY18CS304','CSE4B');
INSERT INTO CLASS1 VALUES('1BY18CS305','CSE4C');
INSERT INTO CLASS1 VALUES('1BY17CS501','CSE6A');
INSERT INTO CLASS1 VALUES('1BY17CS502','CSE6A');
INSERT INTO CLASS1 VALUES('1BY17CS503','CSE6B');
INSERT INTO CLASS1 VALUES('1BY17CS504','CSE6C');
INSERT INTO CLASS1 VALUES('1BY17CS505','CSE6C');
INSERT INTO CLASS1 VALUES('1BY16CS701','CSE8A');
INSERT INTO CLASS1 VALUES('1BY16CS702','CSE8A');
INSERT INTO CLASS1 VALUES('1BY16CS703','CSE8B');
INSERT INTO CLASS1 VALUES('1BY16CS704','CSE8B');
INSERT INTO CLASS1 VALUES('1BY16CS704','CSE8B');
INSERT INTO CLASS1 VALUES('1BY16CS704','CSE8B');
INSERT INTO CLASS1 VALUES('1BY16CS705','CSE8C');
```



4. VALUES INTO SUBJECT:

INSERT INTO SUBJECT(<SUBCODE>,<TITLE>,<SEM>,<CREDIT>);

INSERT INTO SUBJECT VALUES ('18CS01', 'MATHS-4', '4', '4');

INSERT INTO SUBJECT VALUES ('18CS02','DMS','4','3');

INSERT INTO SUBJECT VALUES ('18CS03','OOC','4','3');

INSERT INTO SUBJECT VALUES ('18CS04', 'DAA', '4', '3');

INSERT INTO SUBJECT VALUES ('17CS01','COMPUTER GRAPHICS AND VISUALIZATION','6','4');

INSERT INTO SUBJECT VALUES ('17CS02','SYSTEM SOFTWARE AND COMPILER DESIGN','6','4');

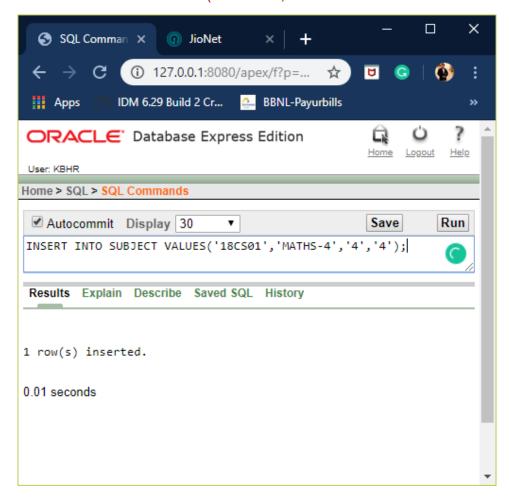
INSERT INTO SUBJECT VALUES ('17CS03','OPERATING SYSTEMS','6','4');

INSERT INTO SUBJECT VALUES ('17CS04','DATA MINING AND DATA WAREHOUSING','6','3');

INSERT INTO SUBJECT VALUES ('16CS03','INTERNET OF THINGS TECHNOLOGY','8','4');

INSERT INTO SUBJECT VALUES ('16CS03','BIG DATA ANALYTICS','8','4'); INSERT INTO SUBJECT VALUES ('16CS03','HIGH PERFORMANCE COMPUTING','8','3');

INSERT INTO SUBJECT VALUES ('16CS03', 'USER INTERFACE DESIGN', '8', '3');



5. VALUES INTO IAMARKS:

```
INSERT INTO IAMARKS VALUES(<USN>,
<SUBCODE>,<SSID>,<TEST1>,<TEST2>,<TEST3>,<FINALIA>);
INSERT INTO IAMARKS
VALUES('1BY18CS301','18CS01','CSE4A',22,15,20,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS302','18CS01','CSE4A',20,12,28,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS303','18CS01','CSE4B',30,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS304','18CS01','CSE4B',10,12,19,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS305','18CS01','CSE4C',08,15,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS301','18CS02','CSE4A',5,15,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS302','18CS02','CSE4A',20,12,28,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS303','18CS02','CSE4B',15,05,25,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS304', '18CS02', 'CSE4B', 25, 20, 19, NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS305','18CS02','CSE4C',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS301','18CS03','CSE4A',30,10,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS302', '18CS03', 'CSE4A', 27, 15, 10, NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS303','18CS03','CSE4B',15,20,25,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS304','18CS03','CSE4B',15,20,10,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS305', '18CS03', 'CSE4C', 17, 18, 19, NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS301','18CS04','CSE4A',30,5,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS302','18CS04','CSE4A',8,16,11,NULL);
INSERT INTO IAMARKS VALUES('1BY18CS303','18CS04','CSE4B',4,7,25,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS304','18CS04','CSE4B',29,30,29,NULL);
INSERT INTO IAMARKS
VALUES('1BY18CS305', '18CS04', 'CSE4C', 30, 29, 30, NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS501','17CS01','CSE6A',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS502','17CS01','CSE6A',30,29,30,NULL);
```

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```
INSERT INTO IAMARKS
VALUES('1BY17CS503','17CS01','CSE6B',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS504','17CS01','CSE6C',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS505','17CS01','CSE6C',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS501','17CS02','CSE6A',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS502','17CS02','CSE6A',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS503','17CS02','CSE6B',17,18,19,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS504','17CS02','CSE6C',30,29,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS505','17CS02','CSE6C',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS501','17CS03','CSE6A',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS502','17CS03','CSE6A',17,18,19,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS503','17CS03','CSE6B',30,29,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS504','17CS03','CSE6C',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS505','17CS03','CSE6C',14,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS501','17CS04','CSE6A',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS502','17CS04','CSE6A',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS503','17CS04','CSE6B',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS504','17CS04','CSE6C',17,18,19,NULL);
INSERT INTO IAMARKS
VALUES('1BY17CS505','17CS04','CSE6C',08,11,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY16CS701','16CS01','CSE8A',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY16CS702','16CS01','CSE8A',8,25,30,NULL);
INSERT INTO IAMARKS
VALUES('1BY16CS703','16CS01','CSE8B',17,18,19,NULL);
INSERT INTO IAMARKS
VALUES('1BY16CS704','16CS01','CSE8B',25,10,15,NULL);
INSERT INTO IAMARKS
VALUES('1BY16CS705','16CS01','CSE8C',8,25,30,NULL);
```

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INSERT INTO IAMARKS

VALUES('1BY16CS701','16CS02','CSE8A',25,10,15,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS702','16CS02','CSE8A',8,25,30,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS703','16CS02','CSE8B',17,18,19,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS704','16CS02','CSE8B',25,10,15,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS705','16CS02','CSE8C',5,15,30,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS701','16CS03','CSE8A',25,10,15,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS702','16CS03','CSE8A',8,25,30,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS703','16CS03','CSE8B',15,15,30,NULL);

INSERT INTO IAMARKS VALUES('1BY16CS704','16CS03','CSE8B',4,7,25,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS705','16CS03','CSE8C',8,25,30,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS701','16CS04','CSE8A',5,15,30,NULL);

INSERT INTO IAMARKS

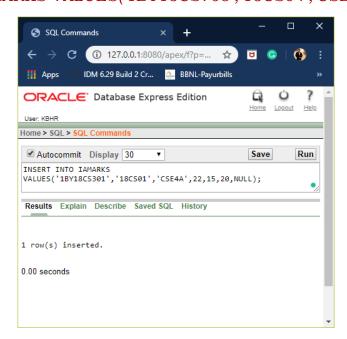
VALUES('1BY16CS702','16CS04','CSE8A',8,25,30,NULL);

INSERT INTO IAMARKS VALUES('1BY16CS703','16CS04','CSE8B',4,7,25,NULL);

INSERT INTO IAMARKS

VALUES('1BY16CS704','16CS04','CSE8B',25,10,15,NULL);

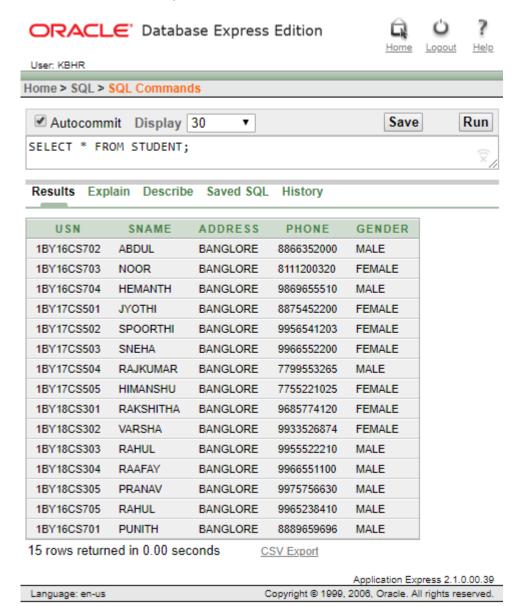
INSERT INTO IAMARKS VALUES('1BY16CS705','16CS04','CSE8C',4,7,25,NULL);



RETRIEVAL OF INSERTED VALUES

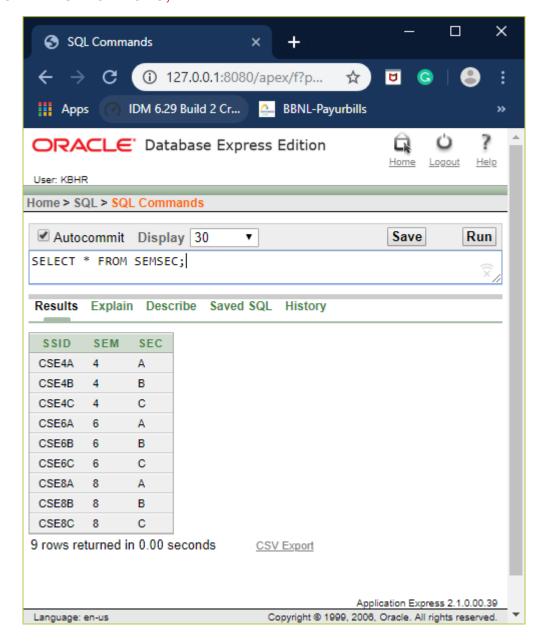
1. STUDENT

SELECT * FROM STUDENTS;



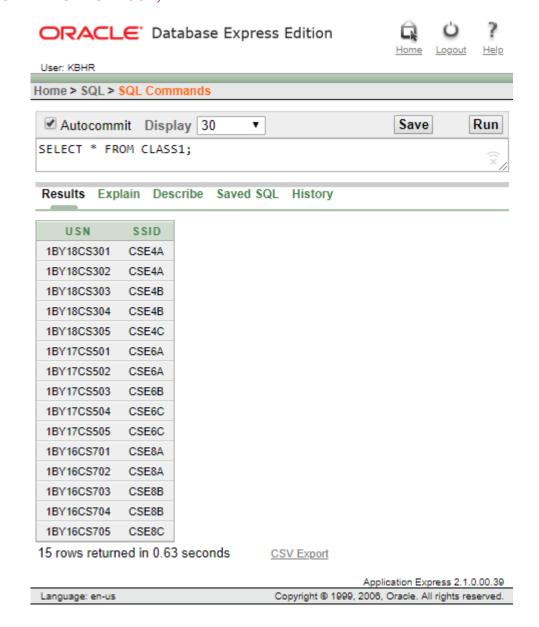
2. SEMSEC

SELECT * FROM SEMSEC;



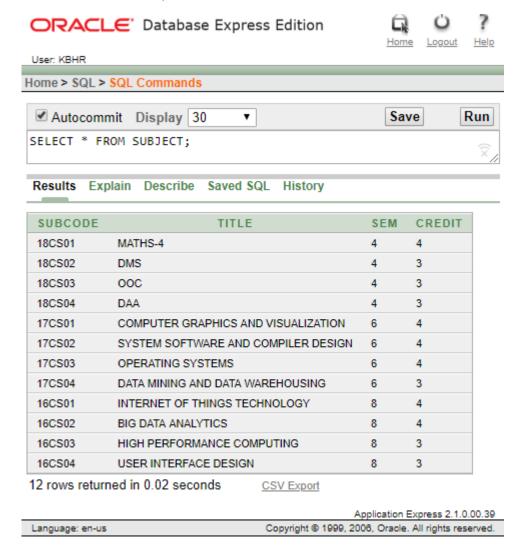
3. CLASS1

SELECT * FROM CLASS1;



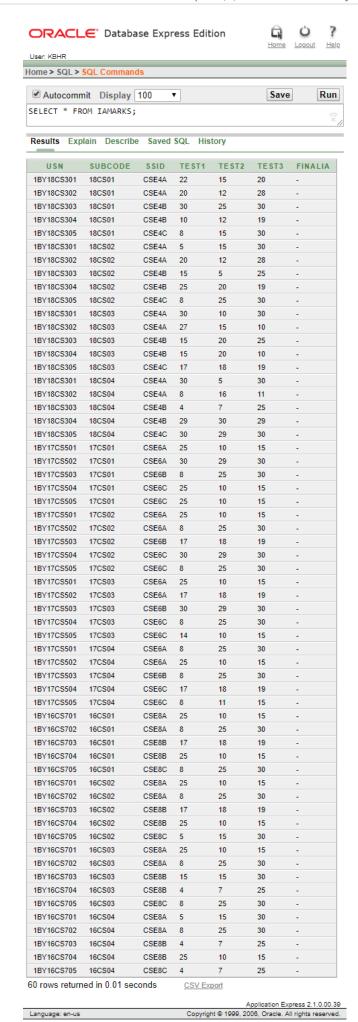
4. SUBJECT

SELECT * FROM SUBJECT;



5. IAMARKS

SELECT * FROM IAMARKS;



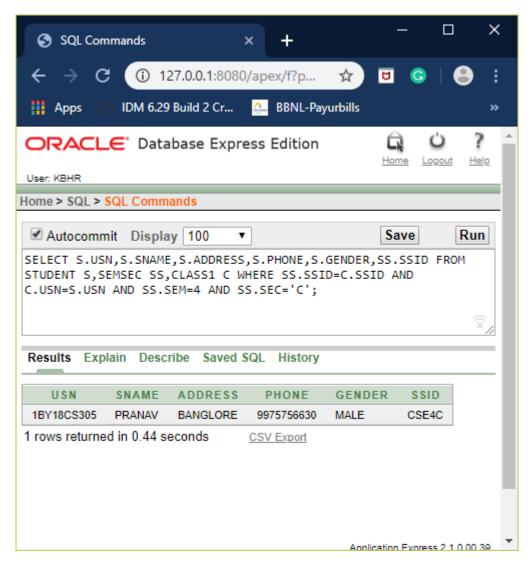
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QUERIES

1. List all the student details studying in fourth semester 'C' section.

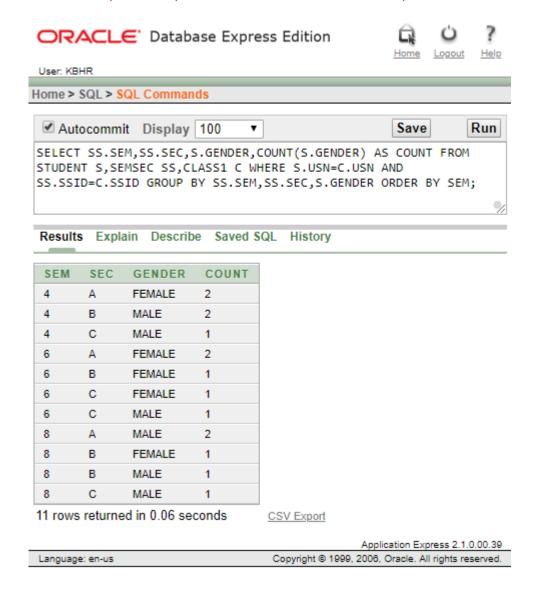
SELECT S.USN,S.SNAME,S.ADDRESS,S.PHONE,S.GENDER,SS.SSID FROM STUDENT S,SEMSEC SS,CLASS1 C

WHERE SS.SSID=C.SSID AND C.USN=S.USN AND SS.SEM=4 AND SS.SEC='C';



2. Compute the total number of male and female students in each semester and in each section.

SELECT SS.SEM,SS.SEC,S.GENDER,COUNT(S.GENDER) AS COUNT FROM STUDENT S,SEMSEC SS,CLASS1 C
WHERE S.USN=C.USN AND SS.SSID=C.SSID
GROUP BY SS.SEM,SS.SEC,S.GENDER ORDER BY SEM;



3. Create a view of Test1 marks of student USN '1BY17CS501' in all subjects.

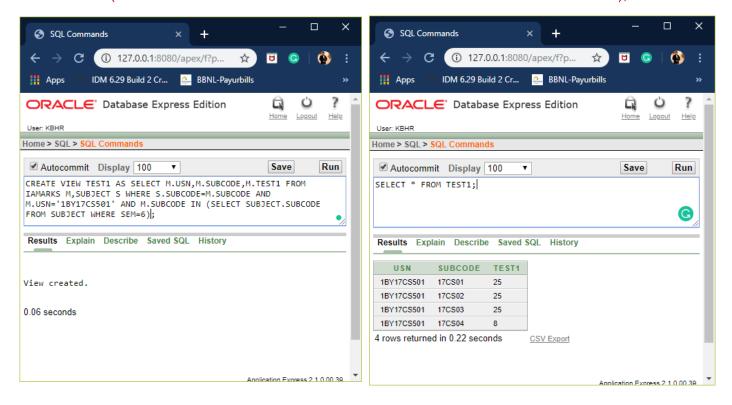
CREATE VIEW TEST1 AS

SELECT M.USN,M.SUBCODE,M.TEST1

FROM IAMARKS M, SUBJECT S

WHERE S.SUBCODE=M.SUBCODE AND M.USN='1BY17CS501' AND M.SUBCODE IN

(SELECT SUBJECT.SUBCODE FROM SUBJECT WHERE SEM=6);



SELECT * FROM TEST1;

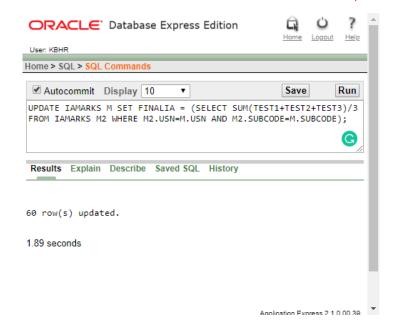
4. Calculate the FinalIA (average of THREE test marks) and update the corresponding table for all students.

SELECT * FROM IAMARKS:

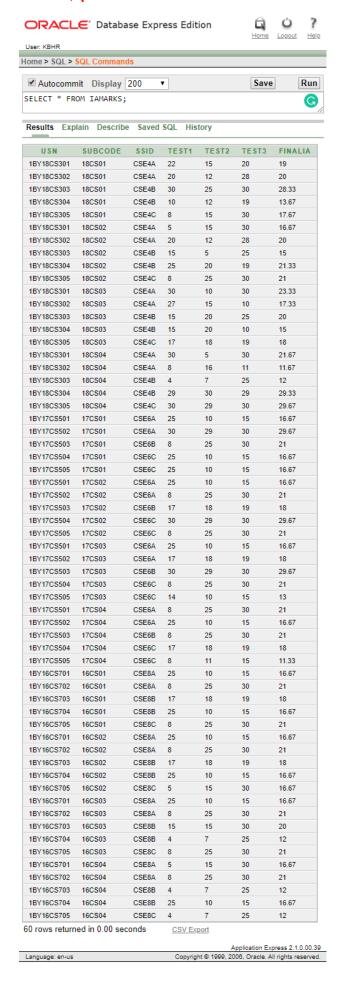


UPDATE IAMARKS M

SET FINALIA = (SELECT SUM(TEST1+TEST2+TEST3)/3 FROM IAMARKS M2 WHERE M2.USN=M.USN AND M2.SUBCODE=M.SUBCODE);



SELECT * FROM IAMARKS; (AFTER THE UPDATE COMMAND)



5. Categorize students based on the following criterion:

If FinalIA = 17 to 20 then CAT = 'Outstanding'

If FinalIA = 12 to 16 then CAT = 'Average'

If FinalIA< 12 then CAT = 'Weak'

Give these details only for 8th semester A, B, and C section students.

SELECT S.USN,S.SNAME,IA.FINALIA,IA.SUBCODE, (CASE

WHEN IA.FINALIA BETWEEN 17 AND 30 THEN 'OUTSTANDING'

WHEN IA.FINALIA BETWEEN 12 AND 17 THEN 'AVERAGE'

WHEN IA.FINALIA < 12 THEN 'WEAK'

ELSE 'NO_DATA'

END) AS RESULTS

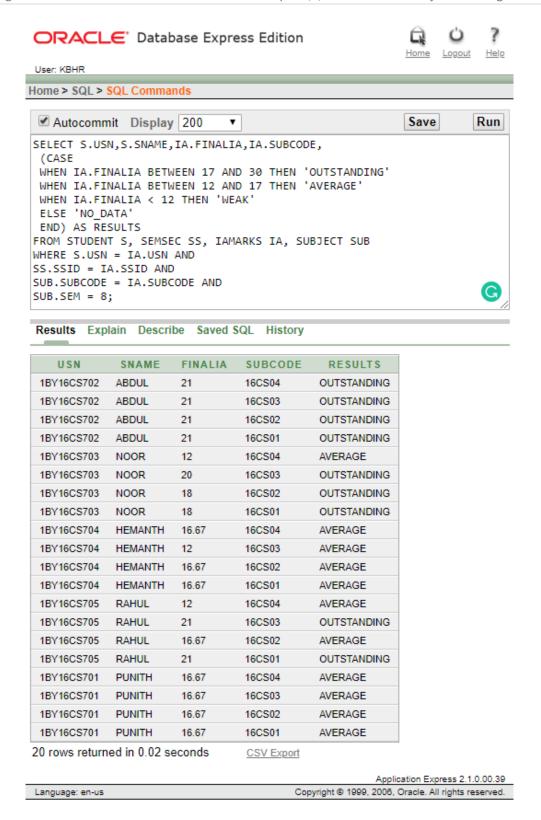
FROM STUDENT S, SEMSEC SS, IAMARKS IA, SUBJECT SUB

WHERE S.USN = IA.USN AND

SS.SSID = IA.SSID AND

SUB.SUBCODE = IA.SUBCODE AND

SUB.SEM = 8;



THE END