**Assignment**

**[Total Marks: 100]**

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| **Instructor:** | Jigisha Patel |
| **Class:** | CSD3204 Fall 2017  Relational Databases and SQL |
| **Evaluation:** | 20% |

Assume the following database design.

**AC\_MAST**

ac\_type Account Type VARCHAR(3) Primary Key(1)

ac\_no Account Number INTEGER(4) Primary Key(2)

cust\_no Customer Number INTEGER(5)

bal Current Balance INTEGER(10,2)

od\_limit Overdraft Limit INTEGER(10,2)

**CUST\_MAST**

cust\_no Customer Number INTEGER(5) Primary Key

name Customer Name VARCHAR(50)

addr1 Address Line 1 VARCHAR(50)

addr2 Address Line 2 VARCHAR(50)

addr3 Address Line 3 VARCHAR(50)

city City VARCHAR(30)

state State VARCHAR(20)

**TRANS**

ac\_type Account Type VARCHAR(3) Primary Key(1)

ac\_no Account Number INTEGER(4) Primary Key(2)

tdate Transaction Date DATE Primary Key(3)

counter Counter number INTEGER(2)

amount Transaction Amount INTEGER(10,2)

desc Description VARCHAR(30)

**DEPT**

dno Department Number INTEGER(3) Primary Key

name Department Name VARCHAR(15)

loc Department Location VARCHAR(20)

**EMP**

empno Employee Number INTEGER(5) Primary Key

name Employee Name VARCHAR(50)

jdate Joining Date DATE

dept Department Number INTEGER(3)

desig Designation VARCHAR(20)

basic Basic Pay INTEGER(10,2)

da Dearness Allowance INTEGER(10,2)

hra House Rent Allow. INTEGER(10,2)

pf Provident Fund INTEGER(10,2)

it Income Tax INTEGER(10,2)

**Queries:**

1. Write CREATE TABLE statements for the above tables with all appropriate constraints. Enter a broad range of data in the tables.

* create table AC\_MAST( ac\_type VARCHAR(3), ac\_no INTEGER(4), cust\_no INTEGER(5), bal DECIMAL(10,2), od\_limit DECIMAL(10,2), CONSTRAINT primary key ( ac\_type , ac\_no));

insert into  AC\_MAST values('savings',2983,34551,10000,1000);

insert into  AC\_MAST values('current',2984,34552,00,100);

insert into AC\_MAST values('Money Market',2985,200,10000,999);

insert into AC\_MAST values('Transactional',2986,34554,3200,10);

insert into  AC\_MAST values('chequing',2987,34555,295,500);

insert into  AC\_MAST values('CD',2988,34556,1100,1000.7);

insert into  AC\_MAST values('savings',2989,34557,4500,800);

insert into  AC\_MAST values('deposit',2990,34558,770,2000);

insert into  AC\_MAST values('Money Market',2991,34559,1900,1500);

insert into  AC\_MAST values('IRA',2992,34560,3300,2500);

* create table CUST\_MAST(cust\_no INTEGER(5) Primary Key, name VARCHAR(50), addr1 VARCHAR(50), addr2 VARCHAR(50), addr3 VARCHAR(50), city VARCHAR(30), state VARCHAR(20));

insert into  cust\_mast values(34551,'steven','[23 hollybush st](https://maps.google.com/?q=23+hollybush+st&entry=gmail&source=g)','29 patric ave','100 smith rd',' the pas','MT');

insert into  cust\_mast values(34552,'james','177 hillcrest ave','[22 twain ave](https://maps.google.com/?q=22+twain+ave&entry=gmail&source=g)','[52 raylawson rd](https://maps.google.com/?q=52+raylawson+rd','brampton','ON&entry=gmail&source=g)'[,](https://maps.google.com/?q=52+raylawson+rd','brampton','ON&entry=gmail&source=g)'[brampton](https://maps.google.com/?q=52+raylawson+rd','brampton','ON&entry=gmail&source=g)'[,](https://maps.google.com/?q=52+raylawson+rd','brampton','ON&entry=gmail&source=g)'[ON](https://maps.google.com/?q=52+raylawson+rd','brampton','ON&entry=gmail&source=g)');

insert into  cust\_mast values(34553[,](https://maps.google.com/?q=52+raylawson+rd',+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E'brampton+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E',+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E'ON+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E&entry=gmail&source=g)'stark'[,](https://maps.google.com/?q=52+raylawson+rd',+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E'brampton+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E',+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E'ON+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E&entry=gmail&source=g)'[169 timberlane dr](https://maps.google.com/?q=169+timberlane+dr&entry=gmail&source=g)','[1772 dixie rd](https://maps.google.com/?q=1772+dixie+rd&entry=gmail&source=g)','[11 mcknight blvd](https://maps.google.com/?q=11+mcknight+blvd','calgary','AB&entry=gmail&source=g)'[,](https://maps.google.com/?q=11+mcknight+blvd','calgary','AB&entry=gmail&source=g)'[calgary](https://maps.google.com/?q=11+mcknight+blvd','calgary','AB&entry=gmail&source=g)'[,](https://maps.google.com/?q=11+mcknight+blvd','calgary','AB&entry=gmail&source=g)'[AB](https://maps.google.com/?q=11+mcknight+blvd','calgary','AB&entry=gmail&source=g)');

insert into  cust\_mast values(34554,'banner','23 roselini dr','99 mazda rd','[65 barlow trail](https://maps.google.com/?q=65+barlow+trail&entry=gmail&source=g)','toronto','[ON](https://maps.google.com/?q=52+raylawson+rd',+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E'brampton+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E',+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E'ON+%3Chttps://maps.google.com/?q%3D52%2Braylawson%2Brd','brampton','ON%26entry%3Dgmail%26source%3Dg%3E&entry=gmail&source=g)');

insert into  cust\_mast values(34555,'harry','[44 queen st](https://maps.google.com/?q=44+queen+st&entry=gmail&source=g)',' 43 skreeper dr',' 886 elizabeth st','orange ville','ON');

insert into  cust\_mast values(34556,'tony','77 railway road ','5586 pembina','32 11th ave','edminton','AB');

insert into  cust\_mast values(34557,'loggi','045 zira road','884 [river st](https://maps.google.com/?q=river+st','33&entry=gmail&source=g)'[,](https://maps.google.com/?q=river+st','33&entry=gmail&source=g)'[33](https://maps.google.com/?q=river+st','33&entry=gmail&source=g) ragnorock rd','prince alberta','SK');

insert into  cust\_mast values(34558,'ben','275 botian wala','98 colebrook','22 landner trunk','surry','BC');

insert into  cust\_mast values(34559,'ledger ','47 crential rd','[84 mccallum rd](https://maps.google.com/?q=84+mccallum+rd&entry=gmail&source=g)','45 hillcerst','abbotsford','BC');

insert into  cust\_mast values(34560,'bane','65 khalsa dr','[17 station rd](https://maps.google.com/?q=17+station+rd&entry=gmail&source=g)','66 churchill rd','thompson','MB');

* create table TRANS(ac\_type VARCHAR(3), ac\_no INTEGER(4), tdate DATE, counter INTEGER(2), amount DECIMAL(10,2), despt VARCHAR(30), constraint primary key ( ac\_type, ac\_no, tdate ));

insert into trans values('savings',2983, ‘2015/10/12’,2,2540.50,’trans01’);

insert into  trans values('current',2984, ‘2013/02/15’,4,4040.40,’trans03’);

insert into trans values('Money Market',2985, ‘2017/05/03’,2,2434.53,’trans04’);

insert into trans values('Transactional',2986, ‘2013/09/03’,5,3498.60,’trans07’);

insert into  trans values('chequing',2987, ‘2012/04/28’,1,4567.80,’trans11’);

insert into  trans values('CD',2988,‘2015/01/30’,3,5005.45, ‘trans05’);

insert into  trans values('savings',2989, ‘2010/12/06’,2,2098.60, ‘trans06’);

insert into  trans values('deposit',2990, ‘2016/08/04’,1,4558.70, ‘trans15’);

insert into  trans values('Money Market',2991, ‘2007/09/21’,2,3355.77, ‘trans18’);

insert into  trans values('IRA',2992, ‘2009/09/09’,4,4560.20, ‘trans13’);

* create table DEPT(dno INTEGER(3) Primary Key, name VARCHAR(15), loc VARCHAR(20));
* insert into dept values(10,’ Administration ‘,’Building 1’);
* insert into dept values( 20,’ Marketing’, ’Building 2’);
* insert into dept values( 30,’Purchasing’, ‘Building 3’);
* insert into dept values( 40,’Human Resources’, ’Building 1’);
* insert into dept values( 50,’ Shipping’, ’Building 3’);
* insert into dept values( 60,’IT’, ’Building 1’);
* insert into dept values( 70,’Public Relations’, ’Building 2’);
* insert into dept values( 80,’ Sales’, ’Building 4’ );
* insert into dept values( 90,’Executive’, ’Building 4’);
* insert into dept values( 100,’ Finance’, ’Building 1’);
* insert into dept values( 110,’Accounting’, ’Building 2’);
* CREATE TABLE EMP(emp\_no INTEGER(5)Primary Key, emp\_name VARCHAR(50), jdate DATE, dept INTEGER(3), desig VARCHAR(20), basic DECIMAL(10,2), da DECIMAL(10,2), hra DECIMAL(10,2), pf DECIMAL(10,2), it DECIMAL(10,2));
* insert into EMP VALUES (101, ’Jacob’, ‘2010/10/12’, 10, ’manager’, 15000.20, 5000.50, 20000.00, 6000.00, 3000.00);
* insert into EMP VALUES (102,’john’,’2012/12/20’, 20, ’manager’, 13000.40, 3000.50, 10000.00, 4000.00, 2000.00);
* insert into EMP VALUES (103, ’angel’, ‘2011/12/11’, 30, ’administrator’, 10000.40, 1000.50, 8000.00, 2000.00, 1000.00);
* insert into EMP VALUES (104, ’Mack’, ‘2010/01/07’, 40, ’financer’, 5000.40, 800.0, 5000.00, 1000.00, 700.00);
* insert into EMP VALUES (105, ’Alice’, ‘2015/04/27’, 50, ’cashier’, 4000.40, 700.0, 4000.00, 1000.00, 500.00);
* Insert into EMP values (106, ’jigisha’, ‘2013/10/13’, 60, ’MKTG’, 10000.34, 6000.54, 25000.76, 5000.87, 2200.76);
* Insert into EMP values (107, ’robin’, ‘2013/09/18’, 70, ’employee’, 15000.74, 5500.34, 21000.76, 4000.82, 1200.44);
* Insert into EMP values (108, ’sharmin’, ‘2012/05/11’, 80, ’receptionsit’, 12000.22, 45000.54, 23000.55, 3000.20, 3300.77);
* Insert into EMP values (109, ’sami’, ‘2007/12/09’, 90, ’it department’, 11000.39, 5000.19, 3000.76, 5500.87, 1200.76);
* Insert into EMP values (110, ’ali’, ‘2009/02/15’, 100, ’marketig manager’, 20000.34, 6500.54, 25000.76, 7000.87, 4200.76);

2. Write a SELECT statement to display employee number, name, department number, designation, basic for all employees.

-Select emp\_no, emp\_name, dept, desig, basic from emp;

3. Write a SELECT statement to display employee number, name, department number, designation, salary(basic+da+hra-pf-it) for all employees.

-select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp;

4. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees in order of employee number.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp order by emp\_no;

5. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees in order of department number, employee number.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp order by emp\_no, dept;

6. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees in descending order of salary.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp order by salary desc;

7. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees in order of joining year.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp order by jdate desc;

8. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees of department number 50 in order of employee number.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp where dept =50 order by emp\_no;

9. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees drawing salary > 10000 in order of employee number.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp where basic+da+hra-pf-it >10000 order by emp\_no;

10. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees whose names begin with ‘J’ in order of employee number.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp where name like 'j%' order by emp\_no;

11. Write a SELECT statement to display employee number, name, department number, department name, location, designation, salary in order of employee number.

- select emp\_no, emp\_name, dept, d.name, d.loc, desig, basic+da+hra-pf-it as “salary” from emp where dept IN (select dno, from dept d) order by emp\_no;

12. Write a SELECT statement to display employee number, name, department number, designation, salary for all employees in location ‘Building 1’ in order of employee number.

- select emp\_no,emp\_name,dept,desig,basic+da+hra+pf+it as "salary" from emp where

dept IN (select dno from dept where loc='Building 1') order by emp\_no;

13. Write a SELECT statement to display department number, department name, location, average, minimum and maximum salary given for that department in order of department number.

Select dno, name, loc from dept where dno IN (select dept , basic+da+hra-pf-it as “salary” from emp ( select avg(basic+da+hra-pf-it), min(basic+da+hra-pf-it) ,max(basic+da+hra-pf-it) from emp )) order by dno;

14. Write a SELECT statement to display the number, name, department, designation, salary for the employee getting maximum salary.

- select emp\_no, emp\_name, dept, desig, basic+da+hra-pf-it as “salary” from emp where basic+da+hra-pf-it =(select MAX(basic+da+hra-pf-it) from emp);

15. Write a SELECT statement to display account type, account number, customer name for all accounts in which there has been a transaction today.

- Select ac\_type, ac\_no, cust\_no from ac\_mast where ac\_no in(select ac\_no from trans where tdate= “CURRENTDATE”);

16. Write a SELECT statement to display account type, account number, customer name for all accounts in which there has not been a transaction today.

- Select ac\_type, ac\_no, cust\_no from ac\_mast where ac\_no in(select ac\_no from trans where tdate != “CURRENTDATE”);

17. Write a SELECT statement to display customer number, name, address for all customers having no accounts.

-Select cust\_no, name, city , state from cust\_mast where cust\_no IN(select cust\_no from ac\_mast where ac\_no IN( select ac\_no from trans where counter = 0));

18. Write a SELECT statement to display customer number, name, address for all customers having more than one accounts.

- Select cust\_no, name, city , state from cust\_mast where cust\_no IN(select cust\_no from ac\_mast where ac\_no IN( select ac\_no from trans where counter = 1));

19. Write a SELECT statement to display customer number, name, number of accounts, address for all customers having more than one accounts.

- Select cust\_no, name, city , state from cust\_mast where cust\_no IN(select cust\_no from ac\_mast where ac\_no IN( select ac\_no from trans where counter > 1));

20. Write a SELECT statement to display name, department, designation, account type, account number for all employees having an account with the bank.

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21. Write a SELECT statement to display names of all people who are either an employee of the organization or have an account with the bank.

22. Write a SELECT statement to display the names and type (Account Holder / Employee) of all people who are either an employee of the organization or have an account with the bank in ascending order of name.

23. Write a SQL statement to increase the basic of employee ‘Master’ by 1000.

- update emp set basic = basic+1000;

24. Write a SQL statement to increase the basic of all employees of department ‘MKTG’ by 500.

- update emp set basic = basic+500 where desig =’MKTG’;

25. Write a SQL statement to increase the basic of all employees of department ‘MKTG’ And ‘FINANCE’ by 500.

- update emp set basic = basic+500 where desig =’MKTG’ AND desig=’ financer’;

26. Write a SQL statement to increase the basic of all employees of all departments whose name begins with ‘M’ by 300.

- update emp set basic = basic + 300 where emp\_name like “M%”;

27. Write a SQL statement to increase the basic of all employees by 10%.

- update emp set basic = basic + (basic\* 10/100);

28. Write a SQL statement to modify basics so that all managers get atleast as much basic as the clerk with highest basic.

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29. Write a SQL statement to delete all salesmen in the MKTG department.

- delete from emp where dept in (select dept from dept where name=”MKTG”);

30. Write a SQL statement to remove all employees who are in service for less than a year.

- delete from emp where jdate < “2016/11/22”;

31. Write a SQL statement to delete all employees who are in service for more than 30 years.

- delete from emp where jdate >”1987/11/22”;

32. Create a table EMP2 with same structure as the EMP table but no data.

- Create table EMP2 like emp;

33. Change the type of employee number from INTEGER(5) to VARCHAR(6) in EMP2.

- alter table EMP2 modify column emp\_no VARCHAR(6);

34. Bring only employee number, name, department number and designation into EMP2 from EMP.

- Insert into emp2 (emp\_no, emp\_name, dept, desig) select emp\_no, emp\_name, dept, desig from emp ;

35. Insert suitable data in the rest of the columns of EMP2.

- insert into emp2

36. Add a column status char (P or T only) to EMP2.

- alter table emp2 add column status char(p or t);

37. Make employee name the primary key of EMP2 (delete duplicate names first).

-alter table emp2 add constraint primary key(emp\_name);

38. Set foreign key in EMP2.

-alter table emp2 add constraint foreign key(dept) references dept(dno);

39. Make employee number unique in EMP2.

- alter table emp2 add constraint unique(emp\_no);

40. Set the joining date of all employees whose joining date is not known to 01/01/70 in EMP2.

- Update emp set jdate = “1970/01/01”where jdate = “null”;

41. Remove table EMP2.

- Drop table emp2;

42. Create an index on column name in the table EMP.

- create index i\_emp on emp(emp\_name);

43. Create an index on columns name, city in CUST\_MAST.

- create index i\_cust on cust\_mast (name, city);

44. Remove the index created in Q. 43.

- drop index i\_cust;

**Note:**

1. Perform each SQL statement as required.
2. Write your queries in a file named as **CollegeID\_FirstName\_Assignment.docx**.
3. Also copy your MySQL command prompt content into file named as **CollegeID\_FirstName\_Assignment\_mySQL.docx.**
4. Create a .zip file containing both the .docx files and upload it on moodle for submission.