DBMS

*Lab*

**PART- A**

1 Create a table EMPLOYEE using SQL command to store details of employees such as EMPNO, NAME, DESIGNATION, DEPARTMENT, GENDER and SALARY. Specify Primary Key and NOT NULL constraints on the table Allow only ‘M’ or ‘F’ for the column GENDER. DEPARTMENT can be SALES, ACCOUNTS, IT Choose DESIGNATION as CLERK, ANALYST, MANAGER, ACCOUNTANT and SUPERVISOR that depends on department.

create table employee(

emp\_num number(10) primary key,

name varchar(10) not null,

designation varchar(10) check(designation in('clerk','analyst','manager','accountant','supervisor')),

department varchar(15) check(department in('sales','accounts','it')),

gender char(10) check(gender in('m','f')),

salary number(10) not null);

Table created.

desc employee;

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [EMPLOYEE](javascript:ret_Column('SYSTEM.EMPLOYEE');) | [EMP\_NUM](javascript:ret_Column('EMP_NUM');) | Number | - | 10 | 0 | 1 | - | - | - |
|  | [NAME](javascript:ret_Column('NAME');) | Varchar2 | 10 | - | - | - | - | - | - |
|  | [DESIGNATION](javascript:ret_Column('DESIGNATION');) | Varchar2 | 10 | - | - | - | nullable | - | - |
|  | [DEPARTMENT](javascript:ret_Column('DEPARTMENT');) | Varchar2 | 15 | - | - | - | nullable | - | - |
|  | [GENDER](javascript:ret_Column('GENDER');) | Char | 10 | - | - | - | nullable | - | - |
|  | [SALARY](javascript:ret_Column('SALARY');) | Number | - | 10 | 0 | - | - | - | - |
| |  |  |  | | --- | --- | --- | |  |  | 1 - 6 | | | | | | | | | | |

select\*from employee;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EMP\_NUM** | **NAME** | **DESIGNATION** | **DEPARTMENT** | **GENDER** | **SALARY** |
| 1001 | vignesh | manager | sales | m | 60000 |
| 1002 | ritheesh | accountant | it | m | 25000 |
| 1003 | basavaraj | manager | it | m | 28000 |
| 1004 | vidya | accountant | sales | f | 28000 |
| 1005 | pallavi | analyst | sales | f | 22000 |
| 1006 | rashmita | supervisor | it | f | 25000 |
| 1007 | suraj | clerk | accounts | m | 12000 |
| 1008 | sultan | clerk | sales | m | 32000 |
| 1009 | mahesh | supervisor | accounts | m | 40000 |
| 1010 | sameer | analyst | accounts | m | 27000 |

Write the following SQL queries:

1. Display EMPNO, NAME and DESIGNATION of all employees whose name ends with RAJ.

select emp\_num,name,designation from employee where name like '%raj';

|  |  |  |
| --- | --- | --- |
| **EMP\_NUM** | **NAME** | **DESIGNATION** |
| 1003 | basavaraj | manager |
| 1007 | suraj | clerk |

1. Display the details of all female employees who is earning salary within the range 20000 to 40000 in SALES or IT departments

select\*from employee where gender='f' and salary between 20000 and 40000 and department in('sales','it');

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EMP\_NUM** | **NAME** | **DESIGNATION** | **DEPARTMENT** | **GENDER** | **SALARY** |
| 1004 | vidya | accountant | sales | f | 28000 |
| 1005 | pallavi | analyst | sales | f | 22000 |
| 1006 | rashmita | supervisor | it | f | 25000 |

1. List the different DEPARTMENTs with the DESIGNATIONs in that department

select distinct DEPARTMENT,DESIGNATION from employee;

|  |  |
| --- | --- |
| **DEPARTMENT** | **DESIGNATION** |
| sales | accountant |
| it | manager |
| sales | clerk |
| sales | analyst |
| it | supervisor |
| accounts | analyst |
| accounts | supervisor |
| it | accountant |
| accounts | clerk |
| sales | manager |

1. Display the department name, total, average, maximum, minimum salary of the DEPARTMENT only if the total salary given in that department is more than 30000.

select DEPARTMENT,sum(SALARY)"total",avg(SALARY)"average",min(SALARY)"minimum" from employee group by DEPARTMENT having sum(SALARY)>30000;

|  |  |  |  |
| --- | --- | --- | --- |
| **DEPARTMENT** | **total** | **average** | **minimum** |
| accounts | 79000 | 26333.3333333333333333333333333333333333 | 12000 |
| it | 78000 | 26000 | 25000 |
| sales | 142000 | 35500 | 22000 |

1. List the departments which have more than two employees.

select DEPARTMENT,count(\*)"number of employees"from employee group by DEPARTMENT having count(\*)>2;

|  |  |
| --- | --- |
| **DEPARTMENT** | **number of employees** |
| accounts | 3 |
| it | 3 |
| sales | 4 |

2 Create a table CLIENT to store CLIENT\_NO, NAME, ADDRESS, STATE, BAL\_DUE. Client no must start with ‘C’. Apply the suitable structure for the columns. Specify Primary Key and NOT NULL constraints on the table Insert 10 records.

Write the following SQL queries:

a) From the table CLIENT, create a new table CLIENT1 that contains only CLIENT\_NO and NAME, BAL\_DUE from specified STATE. Accept the state during run time.

b) Create a new table CLIENT2 that has the same structure as CLIENT but with no records. Display the structure and records.

c) Add a new column by name PENALTY number (10, 2) to table CLIENT.

d) Assign Penalty as 10% of BAL\_DUE for the clients C1002, C1005, C1009 and for others 8%. Display records.

e) Change the name of CLIENT1 as NEW\_CLIENT.

f) Delete the table CLIENT2.

create table CLIENT(

CLIENT\_NO varchar(10)primary key,

NAME varchar(15) not null,

ADDRESS varchar(20) not null,

STATE char(10) not null,

BAL\_DUE number(10) not null);

Table created.

insert into CLIENT(CLIENT\_NO,NAME,ADDRESS,STATE,BAL\_DUE)VALUES('C1001','vignesh','Nittur','Karnataka','2000');

1 row(s) inserted.

select \* from client

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CLIENT\_NO** | **NAME** | **ADDRESS** | **STATE** | **BAL\_DUE** |
| C1001 | vignesh | Nittur | Karnataka | 2000 |
| C1002 | Akash | udupi | Karnataka | 1000 |
| C1003 | Nagaraja | Nittur | Karnataka | 2000 |
| C1004 | Vijay | kiriyur | goa | 1000 |
| C1005 | Ravija | manchi | Karnataka | 3000 |
| C1006 | Ritheesh | byndoor | Karnataka | 9000 |
| C1007 | Prsanna | parkala | panjab | 8000 |
| C1008 | Ithish | dayana | Karnataka | 5000 |
| C1009 | sukeertha | sirsi | Kerala | 12000 |
| C1010 | varuna | mangloe | Karnataka | 2500 |

a) From the table CLIENT, create a new table CLIENT1 that contains only CLIENT\_NO and NAME, BAL\_DUE from specified STATE. Accept the state during run time.

create table CLIENT1(CLIENT\_N0,NAME,BAL\_DUE)as select CLIENT\_NO,NAME,BAL\_DUE from CLIENT WHERE STATE='KARNATAKA';

Table created.

select \*from CLIENT1;

|  |  |  |
| --- | --- | --- |
| **CLIENT\_N0** | **NAME** | **BAL\_DUE** |
| C1001 | vignesh | 2000 |
| C1002 | Akash | 1000 |
| C1003 | Nagaraja | 2000 |
| C1005 | Ravija | 3000 |
| C1006 | Ritheesh | 9000 |
| C1008 | Ithish | 5000 |
| C1010 | varuna | 2500 |

b) Create a new table CLIENT2 that has the same structure as CLIENT but with no records. Display the structure and records.

create table CLIENT2 as select\*from CLIENT WHERE 1=2;

Table created.

desc client2;

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [Object Type](javascript:popupFieldHelp('22156222310565561','4135271203056489','Close')) | **TABLE** | [Object](javascript:popupFieldHelp('22174606305655533','4135271203056489','Close')) | **CLIENT2** |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [CLIENT2](javascript:ret_Column('SYSTEM.CLIENT2');) | [CLIENT\_NO](javascript:ret_Column('CLIENT_NO');) | Varchar2 | 10 | - | - | - | nullable | - | - |
|  | [NAME](javascript:ret_Column('NAME');) | Varchar2 | 15 | - | - | - | - | - | - |
|  | [ADDRESS](javascript:ret_Column('ADDRESS');) | Varchar2 | 20 | - | - | - | - | - | - |
|  | [STATE](javascript:ret_Column('STATE');) | Char | 10 | - | - | - | - | - | - |
|  | [BAL\_DUE](javascript:ret_Column('BAL_DUE');) | Number | - | 10 | 0 | - | - | - | - |
| |  |  |  |  | | --- | --- | --- | --- | |  |  | 1 - 5 |  | | | | | | | | | | |

select \* from CLIENT2;

no data found

c) Add a new column by name PENALTY number (10, 2) to table CLIENT.

alter table CLIENT add PENALTY number(10,2);

Table altered.

desc client;

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [Object Type](javascript:popupFieldHelp('22156222310565561','4135271203056489','Close')) | **TABLE** | [Object](javascript:popupFieldHelp('22174606305655533','4135271203056489','Close')) | **CLIENT** |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [CLIENT](javascript:ret_Column('SYSTEM.CLIENT');) | [CLIENT\_NO](javascript:ret_Column('CLIENT_NO');) | Varchar2 | 10 | - | - | 1 | - | - | - |
|  | [NAME](javascript:ret_Column('NAME');) | Varchar2 | 15 | - | - | - | - | - | - |
|  | [ADDRESS](javascript:ret_Column('ADDRESS');) | Varchar2 | 20 | - | - | - | - | - | - |
|  | [STATE](javascript:ret_Column('STATE');) | Char | 10 | - | - | - | - | - | - |
|  | [BAL\_DUE](javascript:ret_Column('BAL_DUE');) | Number | - | 10 | 0 | - | - | - | - |
|  | [PENALTY](javascript:ret_Column('PENALTY');) | Number | - | 10 | 2 | - | nullable | - | - |

d) Assign Penalty as 10% of BAL\_DUE for the clients C1002, C1005, C1009 and for others 8%. Display records.

UPDATE CLIENT SET PENALTY=0.1\*BAL\_DUE where CLIENT\_NO IN ('C1002','C1005','C1009');

3 row(s) updated.

UPDATE CLIENT SET PENALTY=0.08\*BAL\_DUE where CLIENT\_NO NOT IN ('C1002','C1005','C1009');

7 row(s) updated.

select\*from CLIENT;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CLIENT\_NO** | **NAME** | **ADDRESS** | **STATE** | **BAL\_DUE** | **PENALTY** |
| C1001 | vignesh | Nittur | Karnataka | 2000 | 160 |
| C1002 | Akash | udupi | Karnataka | 1000 | 100 |
| C1003 | Nagaraja | Nittur | Karnataka | 2000 | 160 |
| C1004 | Vijay | kiriyur | goa | 1000 | 80 |
| C1005 | Ravija | manchi | Karnataka | 3000 | 300 |
| C1006 | Ritheesh | byndoor | Karnataka | 9000 | 720 |
| C1007 | Prsanna | parkala | panjab | 8000 | 640 |
| C1008 | Ithish | dayana | Karnataka | 5000 | 400 |
| C1009 | sukeertha | sirsi | Kerala | 12000 | 1200 |
| C1010 | varuna | mangloe | Karnataka | 2500 | 200 |

e) Change the name of CLIENT1 as NEW\_CLIENT.

RENAME CLIENT1 to NEW\_CLIENT;

Statement processed.

desc new\_client;

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [Object Type](javascript:popupFieldHelp('22156222310565561','4135271203056489','Close')) | **TABLE** | [Object](javascript:popupFieldHelp('22174606305655533','4135271203056489','Close')) | **NEW\_CLIENT** |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [NEW\_CLIENT](javascript:ret_Column('SYSTEM.NEW_CLIENT');) | [CLIENT\_N0](javascript:ret_Column('CLIENT_N0');) | Varchar2 | 10 | - | - | - | nullable | - | - |
|  | [NAME](javascript:ret_Column('NAME');) | Varchar2 | 15 | - | - | - | - | - | - |
|  | [BAL\_DUE](javascript:ret_Column('BAL_DUE');) | Number | - | 10 | 0 | - | - | - | - |
| |  |  |  | | --- | --- | --- | |  |  | 1 - 3 | | | | | | | | | | |

f) Delete the table CLIENT2.

DROP table CLIENT2;

Table dropped.

3 Create a table BOOK using SQL command to store Accession No, TITLE, AUTHOR, PUBLISHER, YEAR, PRICE. Apply the suitable structure for the columns. Specify Primary Key and NOT NULL constraints on the table. Insert 10 records.

Write the following SQL queries:

a) List the details of publishers having ‘a’ as the second character in their names.

b) Display Accession No., TITLE, PUBLISHER and YEAR of the books published by the specified author before 2010 in the descending order of YEAR. Accept author during run time.

c) Modify the size of TITLE to increase the size by 5 characters.

d) Display the details of all books other than Microsoft press publishers.

e) Remove the records of the books published before 1990.

create table book

(

ACCESSION\_NO number(10) primary key,

TITLE varchar(20) not null,

AUTHOR varchar(20) not null,

PUBLISHER varchar(30) not null,

YEAR number(10) not null,

PRICE number(10) not null);

Table created.

insert into book(ACCESSION\_NO,TITLE,AUTHOR,PUBLISHER,YEAR,PRICE)values(101,'geetanjali','rabindranath\_tagore','tagore',2005,2300);

1 row(s) inserted.

select \* from book;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ACCESSION\_NO** | **TITLE** | **AUTHOR** | **PUBLISHER** | **YEAR** | **PRICE** |
| 101 | geetanjali | rabindranath\_tagore | tagore | 2005 | 2300 |
| 102 | programing in c | balaguruswamy | banglore | 1984 | 950 |
| 103 | programming in c++ | balaguruswamy | banglore | 2008 | 1250 |
| 104 | COA | surendranath | Microsoft press publishers | 2010 | 2500 |
| 105 | english | narayan rao | trient press | 2014 | 1535 |
| 108 | html | mahalacs | dukket | 2005 | 5300 |
| 107 | Java | narayan rao | trient press | 2020 | 2100 |
| 109 | malegalali madu.. | kuvempu | prakash | 1980 | 1300 |
| 110 | mukazzi kanasu | da ra bendre | sushan | 1780 | 2000 |
| 106 | FIT | Surendranath | Microsoft press publishers | 2011 | 1584 |

a) List the details of publishers having ‘a’ as the second character in their names.

select\*from book where PUBLISHER LIKE'\_a%';

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ACCESSION\_NO** | **TITLE** | **AUTHOR** | **PUBLISHER** | **YEAR** | **PRICE** |
| 101 | geetanjali | rabindranath\_tagore | tagore | 2005 | 2300 |
| 102 | programing in c | balaguruswamy | banglore | 1984 | 950 |
| 103 | programming in c++ | balaguruswamy | banglore | 2008 | 1250 |

b) Display Accession No., TITLE, PUBLISHER and YEAR of the books published by the specified author before 2010 in the descending order of YEAR. Accept author during run time.

select ACCESSION\_NO,TITLE,AUTHOR,YEAR from book WHERE AUTHOR=AUTHOR AND YEAR<2010 ORDER by YEAR desc;

|  |  |  |  |
| --- | --- | --- | --- |
| **ACCESSION\_NO** | **TITLE** | **AUTHOR** | **YEAR** |
| 103 | programming in c++ | balaguruswamy | 2008 |
| 108 | html | mahalacs | 2005 |
| 101 | geetanjali | rabindranath\_tagore | 2005 |
| 102 | programing in c | balaguruswamy | 1984 |
| 109 | malegalali madu.. | kuvempu | 1980 |
| 110 | mukazzi kanasu | da ra bendre | 1780 |

c) Modify the size of TITLE to increase the size by 5 characters.

ALTER table book MODIFY TITLE varchar(25);

Table altered.

desc book;

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [Object Type](javascript:popupFieldHelp('22156222310565561','7938596655908447','Close')) | **TABLE** | [Object](javascript:popupFieldHelp('22174606305655533','7938596655908447','Close')) | **BOOK** |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [BOOK](javascript:ret_Column('SYSTEM.BOOK');) | [ACCESSION\_NO](javascript:ret_Column('ACCESSION_NO');) | Number | - | 10 | 0 | 1 | - | - | - |
|  | [TITLE](javascript:ret_Column('TITLE');) | Varchar2 | 25 | - | - | - | - | - | - |
|  | [AUTHOR](javascript:ret_Column('AUTHOR');) | Varchar2 | 20 | - | - | - | - | - | - |
|  | [PUBLISHER](javascript:ret_Column('PUBLISHER');) | Varchar2 | 30 | - | - | - | - | - | - |
|  | [YEAR](javascript:ret_Column('YEAR');) | Number | - | 10 | 0 | - | - | - | - |
|  | [PRICE](javascript:ret_Column('PRICE');) | Number | - | 10 | 0 | - | - | - | - |
| |  |  |  | | --- | --- | --- | |  |  | 1 - 6 | | | | | | | | | | |

d) Display the details of all books other than Microsoft press publishers.

select \* from book where publisher not in ('Microsoft press publishers');

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ACCESSION\_NO** | **TITLE** | **AUTHOR** | **PUBLISHER** | **YEAR** | **PRICE** |
| 101 | geetanjali | rabindranath\_tagore | tagore | 2005 | 2300 |
| 102 | programing in c | balaguruswamy | banglore | 1984 | 950 |
| 103 | programming in c++ | balaguruswamy | banglore | 2008 | 1250 |
| 105 | english | narayan rao | trient press | 2014 | 1535 |
| 108 | html | mahalacs | dukket | 2005 | 5300 |
| 107 | Java | narayan rao | trient press | 2020 | 2100 |
| 109 | malegalali madu.. | kuvempu | prakash | 1980 | 1300 |
| 110 | mukazzi kanasu | da ra bendre | sushan | 1780 | 2000 |

e) Remove the records of the books published before 1990.

delete from book where year<1990;

3 row(s) deleted.

select \* from book;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ACCESSION\_NO** | **TITLE** | **AUTHOR** | **PUBLISHER** | **YEAR** | **PRICE** |
| 101 | geetanjali | rabindranath\_tagore | tagore | 2005 | 2300 |
| 103 | programming in c++ | balaguruswamy | banglore | 2008 | 1250 |
| 104 | COA | surendranath | Microsoft press publishers | 2010 | 2500 |
| 105 | english | narayan rao | trient press | 2014 | 1535 |
| 108 | html | mahalacs | dukket | 2005 | 5300 |
| 107 | Java | narayan rao | trient press | 2020 | 2100 |
| 106 | FIT | Surendranath | Microsoft press publishers | 2011 | 1584 |

4 Create a table SALES with columns SNO, SNAME, MANAGER\_NAME, JOIN\_DATE, DATE\_BIRTH, SALARY, SALES\_AMOUNT and COMMISSION. Minimum Age for joining the company must be 18 Yrs. Default value for Commission should be 0. Apply the suitable structure for the columns. Specify Primary Key and NOT NULL constraints on the table. Insert 10 records with data except commission. Manager of Manager can be Null.

Write the following SQL queries:

a) Display the details of Sales Persons whose salary is more than Average salary in the company.

b) Update commission as 20% of Sales Amount.

c) Display SNO, SNAME, MANAGER\_NAME, SALARY, COMMISSION, MANAGER\_SALARY of the sales persons getting sum of salary and commission more than salary of manager .(Self join)

d) Display the records of employees who finished the service of 10 years.