**Database Schema for a student-Lab scenario**

Student(stud\_no: integer, stud\_name: string, class: string)

Class(class: string,description: string)

Lab(mach\_no: integer, Lab\_no: integer, description: String)

Allotment(Stud\_no: Integer, mach\_no: integer, dayof week: string)

For the above schema, perform the following:—

**a)Create the tables with the appropriate integrity constraints**

**CLASS TABLE:**

create table class17(class\_id varchar2(4)primary key,description varchar2(20));

Table created.

0.02 seconds

desc class17;

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | | | | | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [CLASS17](javascript:ret_Column('CSEA17.CLASS17');) | | | | | [CLASS\_ID](javascript:ret_Column('CLASS_ID');) | Varchar2 | 4 | - | - | 1 | - | - | - |
|  | | | | | [DESCRIPTION](javascript:ret_Column('DESCRIPTION');) | Varchar2 | 20 | - | - | - | nullable | - | - |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  | 1 - 2 |  |  | | | | | | | | | | | | | | |
|  |  |  |  |

**STUDENT TABLE:**

create table stu17(stud\_no number(4)primary key,stud\_name varchar2(20),class\_id varchar2(4)references class17(class\_id));

Table created.

0.03 seconds

desc stu17;

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [Object Type](javascript:popupFieldHelp('22156222310565561','1526394194558250','Close')) | **TABLE** | [Object](javascript:popupFieldHelp('22174606305655533','1526394194558250','Close')) | **STU17** |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [STU17](javascript:ret_Column('CSEA17.STU17');) | [STUD\_NO](javascript:ret_Column('STUD_NO');) | Number | - | 4 | 0 | 1 | - | - | - |
|  | [STUD\_NAME](javascript:ret_Column('STUD_NAME');) | Varchar2 | 20 | - | - | - | nullable | - | - |
|  | [CLASS\_ID](javascript:ret_Column('CLASS_ID');) | Varchar2 | 4 | - | - | - | nullable | - | - |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  | 1 - 3 |  |  | | | | | | | | | | |

**LAB TABLE:**

create table lab17(mach\_no number(4)primary key,lab\_no number(4),description varchar2(20));

Table created.

0.01 seconds

desc lab17;

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** | | [LAB17](javascript:ret_Column('CSEA17.LAB17');) | [MACH\_NO](javascript:ret_Column('MACH_NO');) | Number | - | 4 | 0 | 1 | - | - | - | |  | [LAB\_NO](javascript:ret_Column('LAB_NO');) | Number | - | 4 | 0 | - | nullable | - | - | |  | [DESCRIPTION](javascript:ret_Column('DESCRIPTION');) | Varchar2 | 20 | - | - | - | nullable | - | - | | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  | 1 - 3 |  |  | | | | | | | | | | | |  |  |  |  | |

**ALLOTMENT TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

create table allotment17(stud\_no number(4) references stu17(stud\_no),mach\_no number(4)references lab17(mach\_no),dayofweek varchar2(10));

Table created.

0.00 seconds

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |

desc allotment17;

|  |
| --- |
|  |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [ALLOTMENT17](javascript:ret_Column('CSEA17.ALLOTMENT17');) | [STUD\_NO](javascript:ret_Column('STUD_NO');) | Number | - | 4 | 0 | - | nullable | - | - |
|  | [MACH\_NO](javascript:ret_Column('MACH_NO');) | Number | - | 4 | 0 | - | nullable | - | - |
|  | [DAYOFWEEK](javascript:ret_Column('DAYOFWEEK');) | Varchar2 | 10 | - | - | - | nullable | - | - |
| |  |  |  | | --- | --- | --- | |  |  | 1 - 3 | | | | | | | | | | | |

**b)Insert the tables with the appropriate records.**

**INSERT INTO CLASS TABLE**

insert into class17 values('1a','1st sem');

insert into class17 values('2a','2nd sem');

insert into class17 values('1b','newproject');

insert into class17 values('2b','excellant student');

insert into class17 values('3a','workshop');

**select \* from class17;**

|  |  |
| --- | --- |
| **CLASS\_ID** | **DESCRIPTION** |
| 1a | 1st sem |
| 2a | 2nd sem |
| 1b | new project |
| 2b | excellant student |
| 3a | workshop |

**INSERT INTO STUDENT TABLE:**

insert into stu17 values(100,'raja','2a');

insert into stu17 values(101,'pooja','3a');

insert into stu17 values(102,'kavi','1a');

insert into stu17 values(103,'kavitha','1a');

insert into stu17 values(104,'vels','1b');

**select \* from stu17;**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **STUD\_NO** | | **STUD\_NAME** | **CLASS\_ID** | |
| 100 | | raja | 2a | |
| 101 | | pooja | 3a | |
| 102 | | kavi | 1a | |
| 103 | | kavitha | 1a | |
| 104 | | vels | 1b | |
| 5 rows returned in 0.01 seconds | | |

**INSERT INTO LAB TABLE:**

insert into lab17 values(1001,1112,'rm');

insert into lab17 values(1003,1114,'icl');

insert into lab17 values(1004,1115,'rm');

**select \* from lab17;**

|  |  |  |
| --- | --- | --- |
| **MACH\_NO** | **LAB\_NO** | **DESCRIPTION** |
| 1000 | 1111 | cisco |
| 1001 | 1112 | rm |
| 1002 | 1113 | apj |
| 1003 | 1114 | icl |
| 1004 | 1115 | rm |

**INSERT INTO ALLOTMENT TABLE:**

insert into allotment17 values(100,1000,'friday');

insert into allotment17 values(101,1001,'saturday');

insert into allotment17 values(102,1002,'monday');

insert into allotment17 values(101,1002,'saturday');

insert into allotment17 values(103,1003,'tuesday');

**select \* from allotment17;**

|  |  |  |
| --- | --- | --- |
| **STUD\_NO** | **MACH\_NO** | **DAYOFWEEK** |
| 100 | 1000 | friday |
| 101 | 1001 | saturday |
| 102 | 1002 | monday |
| 102 | 1002 | monday |
| 101 | 1002 | saturday |
| 103 | 1003 | tuesday |

**c)List all the machine allotments with the student names, lab and machine number**

select s.stud\_name,l.mach\_no,l.lab\_no from stu17 s,lab17 l,allotment17 a where s.stud\_no=a.stud\_no and a.mach\_no=l.mach\_no;

**output:**

|  |  |  |  |
| --- | --- | --- | --- |
| **STUD\_NAME** | | **MACH\_NO** | **LAB\_NO** |
| raja | | 1000 | 1111 |
| pooja | | 1001 | 1112 |
| pooja | | 1002 | 1113 |
| kavi | | 1002 | 1113 |
| kavi | | 1002 | 1113 |
| kavitha | | 1003 | 1114 |
| 6 rows returned in 0.00 seconds | |  |

**d)List the total number of lab allotments day wise**

select l.mach\_no,l.description,a.dayofweek from lab17 l,allotment17 a where a.mach\_no=l.mach\_no;

**output:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MACH\_NO** | | **DESCRIPTION** | **DAYOFWEEK** | |
| 1000 | | cisco | friday | |
| 1001 | | rm | saturday | |
| 1002 | | apj | monday | |
| 1002 | | apj | monday | |
| 1002 | | apj | saturday | |
| 1003 | | icl | tuesday | |
| 6 rows returned in 0.00 seconds | | |

**e)Give a count of how many machines have been allocated to the 2A class**

select count(a.mach\_no) from allotment17 a,stu17 s,class17 c where s.stud\_no=a.stud\_no and c.class\_id=s.class\_id and c.class\_id='2a';

**output:**

|  |
| --- |
| **COUNT(A.MACH\_NO)** |
| 1 |
| 1 rows returned in 0.00 seconds |  |

**f)Give a machine allotment etails of the stud\_no 5 with his personal and class details**

select s.stud\_no,s.stud\_name,c.class\_id,l.mach\_no,l.lab\_no,a.dayofweek from stu17 s,class17 c,lab17 l,allotment17 a where s.stud\_no=a.stud\_no and c.class\_id=s.class\_id and l.mach\_no=a.mach\_no and s.stud\_no=102;

**output:**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STUD\_NO** | | **STUD\_NAME** | **CLASS\_ID** | **MACH\_NO** | **LAB\_NO** | **DAYOFWEEK** |
| 102 | | kavi | 1a | 1002 | 1113 | monday |
| 102 | | kavi | 1a | 1002 | 1113 | monday |
| 2 rows returned in 0.00 seconds | |  | [CSV Export](http://127.0.0.1:8080/apex/f?p=4500:1204:3211530514024497::::P1204_BROWSER_LANG:en-us) |

**g)Count for how many machines have been allocated in Lab\_no 1 for the day of the week as ”Monday”**

select count(l.mach\_no) from lab17 l,allotment17 a where l.mach\_no=a.mach\_no and l.lab\_no=1113 and a.dayofweek='monday';

**output:**

|  |
| --- |
| **COUNT(L.MACH\_NO)** |
| 2 |
| 1 rows returned in 0.00 seconds |  |

**h)How many students class wise have allocated machines in the labs**

select c.class\_id,count(s.stud\_no) from stu17 s,class17 c,allotment17 a where s.stud\_no=a.stud\_no and c.class\_id=s.class\_id group by(c.class\_id);

**output:**

|  |  |  |
| --- | --- | --- |
| **CLASS\_ID** | | **COUNT(S.STUD\_NO)** |
| 2a | | 1 |
| 3a | | 2 |
| 1a | | 3 |
| 3 rows returned in 0.03 seconds |  | [CSV Export](http://127.0.0.1:8080/apex/f?p=4500:1204:3211530514024497::::P1204_BROWSER_LANG:en-us) |

**i)Create a view which lists out the stud\_no, stud\_name, mach\_no, lab\_no, dayofweek**

create view vdet17 as(select s.stud\_no,s.stud\_name,l.mach\_no,l.lab\_no,a.dayofweek from student17 s,lab17 l,allotment17 a where s.stud\_no=a.stud\_no and l.mach\_no=a.mach\_no);

**output:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| View created.  0.03 seconds   |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |