**Create Given Tables With All Necessary Constraints Such As Primary Key, Foreign Key, Unique Key, Not Null And Check Constraints.**

**HOSTEL (HNO, HNAME, HADDR, TOTAL\_CAPACITY, WARDEN)**

**ROOM (HNO, RNO, RTYPE, LOCATION, NO\_OF\_STUDENTS, STATUS)**

**CHARGES (HNO, RTYPE, CHARGES)**

**STUDENT (SID, SNAME, MOBILE-NO, GENDER, FACULTY, DEPT, CLASS, HNO, RNO)**

**FEES (SID, FDATE, FAMOUNT)**

* *The STATUS field tells us whether the room is occupied or vacant.*
* *The charges represent the term fees to be paid half yearly.*
* *A student can pay either the annual fees at one time or the half yearly fees twice a year.*

*Insert proper data (at least 5 appropriate records) in all the tables.*

**1. Display the total number of rooms that are presently vacant.**

**2. Display number of students of each faculty and department wise staying in each hostel.**

**3. Display hostels, which have at least one single-seated room.**

**4. Display the warden name and hostel address of students of Computer Science department.**

**5. Display those hostel details where single seated or double-seated rooms are vacant.**

**6. Display details of hostels occupied by medical students.**

**7. Display hostels, which are totally occupied to its fullest capacity.**

**8. List details about students who are staying in the double seated rooms of Chanakya Hostel.**

**9. Display the total number of students staying in each room type of each hostel.**

**10. Display details about students who have paid fees in the month of Nov. 2017.**

**11. For those hostels where total capacity is more than 300, display details of students studying in Science faculty.**

**12. Display hostel details where there are at least 10 vacant rooms.**

**13. Display details of students who have still not paid fees.   
14. Display those hostels where single-seated room is the costliest."**

**Creating the HOSTEL table**

**CREATE TABLE HOSTEL (**

**HNO NUMBER PRIMARY KEY,**

**HNAME VARCHAR2(50) UNIQUE NOT NULL,**

**HADDR VARCHAR2(100) NOT NULL,**

**TOTAL\_CAPACITY NUMBER CHECK (TOTAL\_CAPACITY > 0),**

**WARDEN VARCHAR2(50) NOT NULL**

**);**

**Creating the ROOM table**

**CREATE TABLE ROOM (**

**HNO NUMBER,**

**RNO NUMBER,**

**RTYPE VARCHAR2(20) CHECK (RTYPE IN ('Single', 'Double', 'Triple')),**

**LOCATION VARCHAR2(50),**

**NO\_OF\_STUDENTS NUMBER CHECK (NO\_OF\_STUDENTS >= 0),**

**STATUS VARCHAR2(10) CHECK (STATUS IN ('Occupied', 'Vacant')),**

**PRIMARY KEY (HNO, RNO),**

**FOREIGN KEY (HNO) REFERENCES HOSTEL(HNO)**

**);**

**Creating the CHARGES table**

**CREATE TABLE CHARGES (**

**HNO NUMBER,**

**RTYPE VARCHAR2(20),**

**CHARGES NUMBER CHECK (CHARGES > 0),**

**PRIMARY KEY (HNO, RTYPE),**

**FOREIGN KEY (HNO) REFERENCES HOSTEL(HNO)**

**);**

**Creating the STUDENT table**

**CREATE TABLE STUDENT (**

**SID NUMBER PRIMARY KEY,**

**SNAME VARCHAR2(50) NOT NULL,**

**MOBILE\_NO VARCHAR2(15) UNIQUE NOT NULL,**

**GENDER VARCHAR2(10) CHECK (GENDER IN ('Male', 'Female', 'Other')),**

**FACULTY VARCHAR2(50) NOT NULL,**

**DEPT VARCHAR2(50) NOT NULL,**

**CLASS VARCHAR2(10) NOT NULL,**

**HNO NUMBER,**

**RNO NUMBER,**

**FOREIGN KEY (HNO, RNO) REFERENCES ROOM(HNO, RNO)**

**);**

**Creating the FEES table**

**CREATE TABLE FEES (**

**SID NUMBER,**

**FDATE DATE,**

**FAMOUNT NUMBER CHECK (FAMOUNT > 0),**

**PRIMARY KEY (SID, FDATE),**

**FOREIGN KEY (SID) REFERENCES STUDENT(SID)**

**);**

**Inserting sample data**

**INSERT INTO HOSTEL VALUES (1, 'Chanakya', 'Street A, City', 500, 'Dr. Sharma');**

**INSERT INTO HOSTEL VALUES (2, 'Aryabhatta', 'Street B, City', 300, 'Prof. Rao');**

**INSERT INTO HOSTEL VALUES (3, 'Vikram', 'Street C, City', 400, 'Dr. Mehta');**

**INSERT INTO ROOM VALUES (1, 101, 'Single', 'North Wing', 1, 'Occupied');**

**INSERT INTO ROOM VALUES (1, 102, 'Double', 'North Wing', 2, 'Occupied');**

**INSERT INTO ROOM VALUES (2, 201, 'Single', 'South Wing', 0, 'Vacant');**

**INSERT INTO ROOM VALUES (2, 202, 'Double', 'South Wing', 1, 'Occupied');**

**INSERT INTO ROOM VALUES (3, 301, 'Triple', 'West Wing', 3, 'Occupied');**

**INSERT INTO CHARGES VALUES (1, 'Single', 20000);**

**INSERT INTO CHARGES VALUES (1, 'Double', 15000);**

**INSERT INTO CHARGES VALUES (2, 'Single', 18000);**

**INSERT INTO CHARGES VALUES (2, 'Double', 14000);**

**INSERT INTO CHARGES VALUES (3, 'Triple', 12000);**

**INSERT INTO STUDENT VALUES (101, 'Rohan', '9876543210', 'Male', 'Science', 'Computer Science', 'B.Tech', 1, 101);**

**INSERT INTO STUDENT VALUES (102, 'Priya', '8765432109', 'Female', 'Medical', 'Biotech', 'MBBS', 1, 102);**

**INSERT INTO STUDENT VALUES (103, 'Amit', '7654321098', 'Male', 'Engineering', 'Civil', 'B.E.', 2, 202);**

**INSERT INTO STUDENT VALUES (104, 'Neha', '6543210987', 'Female', 'Medical', 'Nursing', 'B.Sc.', 3, 301);**

**INSERT INTO STUDENT VALUES (105, 'Arjun', '5432109876', 'Male', 'Science', 'Physics', 'M.Sc.', 3, 301);**

**INSERT INTO FEES VALUES (101, TO\_DATE('15-NOV-2017', 'DD-MON-YYYY'), 40000);**

**INSERT INTO FEES VALUES (102, TO\_DATE('10-JUN-2017', 'DD-MON-YYYY'), 20000);**

**INSERT INTO FEES VALUES (103, TO\_DATE('20-NOV-2017', 'DD-MON-YYYY'), 20000);**

**INSERT INTO FEES VALUES (104, TO\_DATE('25-DEC-2017', 'DD-MON-YYYY'), 12000);**

**Queries**

**1. Display the total number of rooms that are presently vacant.**

**SELECT COUNT(\*) FROM ROOM WHERE STATUS = 'Vacant';**

**2. Display number of students of each faculty and department wise staying in each hostel.**

**SELECT HNO, FACULTY, DEPT, COUNT(\*) FROM STUDENT GROUP BY HNO, FACULTY, DEPT;**

**3. Hostels with at least one single-seated room**

**SELECT DISTINCT HNO FROM ROOM WHERE RTYPE = 'Single';**

**4. Warden name and hostel address of Computer Science students**

**SELECT H.WARDEN, H.HADDR FROM HOSTEL H JOIN STUDENT S ON H.HNO = S.HNO WHERE S.DEPT = 'Computer Science';**

**5. Hostels with vacant single or double rooms**

**SELECT DISTINCT HNO FROM ROOM WHERE RTYPE IN ('Single', 'Double') AND STATUS = 'Vacant';**

**6. Hostels occupied by medical students**

**SELECT DISTINCT HNO FROM STUDENT WHERE FACULTY = 'Medical';**

**7. Hostels fully occupied**

**SELECT HNO FROM HOSTEL WHERE TOTAL\_CAPACITY = (SELECT COUNT(\*) FROM STUDENT WHERE STUDENT.HNO = HOSTEL.HNO);**

**8. Students in double-seated rooms in Chanakya Hostel**

**SELECT \* FROM STUDENT WHERE HNO = 1 AND RNO IN (SELECT RNO FROM ROOM WHERE RTYPE = 'Double');**

**9. Total students in each room type in each hostel**

**SELECT HNO, RTYPE, COUNT(\*) FROM ROOM GROUP BY HNO, RTYPE;**

**10. Students who paid fees in Nov 2017**

**SELECT \* FROM FEES WHERE TO\_CHAR(FDATE, 'MM-YYYY') = '11-2017';**

**11. Students in Science faculty in hostels with capacity > 300**

**SELECT \* FROM STUDENT WHERE FACULTY = 'Science' AND HNO IN (SELECT HNO FROM HOSTEL WHERE TOTAL\_CAPACITY > 300);**

**12. Hostels with at least 10 vacant rooms**

**SELECT HNO FROM ROOM WHERE STATUS = 'Vacant' GROUP BY HNO HAVING COUNT(\*) >= 10;**

**13. Students who haven't paid fees**

**SELECT \* FROM STUDENT WHERE SID NOT IN (SELECT SID FROM FEES);**

**14. Hostels where single-seated rooms are the costliest**

**SELECT HNO FROM CHARGES WHERE RTYPE = 'Single' AND CHARGES = (SELECT MAX(CHARGES) FROM CHARGES WHERE RTYPE = 'Single');**