

PWSP DATABASE MANAGEMENT CLASS
SQL ASSIGNMENT SOLUTIONS
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Name:

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Using the University Records Database solve the following problems.

1. Retrieve the name, city, and grade point average (GPA) of students with a high (GPA) greater than or equal to 3.7). The results follow the SELECT statement.
Select StdFirstName, StdLastName, StdCity, StdGPA
From Student
Where StdGPA >= 3.7;

2. List all columns and rows of the *Faculty* table. The resulting table is show in two parts.
Select *
From Faculty;

3. List the name, city, and increased salary of faculty hired after 1991 if the salary raise is 10%.
Note: The **year** function extracts the year part of a column with a date data type.
Select FacFirstName, FacLastName FacCity, FacSalary * 1.1 As InflatedSalary, FacHireDate
From Faculty
Where year(FacHireDate) > 1991

4. List the senior level IS courses.
Select *
From Offering
Where CourseNo Like 'IS4%'

5. List the name and hiring date of faculty hired in 1994 or 1995.
Select FacFirstName, FacLastName, FacHireDate
From Faculty
Where (year(FacHireDate) = 1994) OR (year(FacHireDate) = 1995)

Alternate Solution:

```
Select FacFirstName, FacLastName, FacHireDate
From Faculty
Where FacHireDate between #1/1/1994# AND #12/31/1995#
```

6. List the offering number and course number of summer 2000 offerings without an assigned instructor.
Select OfferNo, CourseNo
From Offering
Where (OffTerm = 'SUMMER') AND (OffYear = 2000) AND FacSSN IS NULL
7. List the offering number, course number, and faculty social security number for course offerings scheduled in fall 1999 or winter 2000.
Select OfferNo, CourseNo, FacSSN
From Offering
Where (OffTerm = 'FALL' AND OffYear = 1999) OR
(OffTerm = 'Winter' AND OffYear = 2000)
8. List the offering number, course number, days, and time of offerings containing the words "database" or "programming" in the course description and taught in spring 2000.

```

Select OfferNo, CourseNo, OffDays, OffTime
From Offering, Course
Where (OffTerm = Spring AND OffYear = 2000)
      AND
      (Offering.CourseNo = Course.CourseNo)
      AND
      (Course.CrsDesc Like '*database*'
      OR Course.CrsDesc Like '*programming*')

```

9. List the offer number, course number, and name of the instructor of IS course offerings scheduled in fall 1999 that are taught by assistant professors.

```

Select OfferNo, CourseNo, facFirstName, facLastName
From Offering, Faculty
Where (CourseNo Like 'IS*')
      AND
      (OffTerm = 'Fall')
      AND
      (OffYear = '1999')
      AND
      (Offering.FacSSN = Faculty.FacSSN)
      AND
      (FacRank = 'ASST')

```

10. List the offer number, course number, and name of the instructor of IS course offerings scheduled in fall 1999 that are taught by assistant professors. (Use Inner Join Key Word)

```

Select OfferNo, CourseNo, FacFirstName, FacLastName
FROM Offereing INNER JOIN Faculty ON Faculty.FacSSN = Offering.FacSSN
Where (CourseNo Like 'IS*')
      AND
      (OffTerm = 'Fall')
      AND
      (OffYear = '1999')
      AND
      (FacRank = 'ASST')

```

11. Summarize the average GPA of students by major.

```

Select StdMajor, AVG(StdGPA) AS AvgGPA
From Student
Group By StdMajor

```

12. Summarize the average GPA of upper-division (junior or senior) students by major.

```

Select StdMajor, AVG(StdGPA) AS AvgGPA
From Student
GROUP BY stdMajor
Where StdClass = 'JR' OR stdClass = 'SR'

```

13. Summarize the average GPA of upper-division (junior or senior) students by major. Only list the majors with average greater than 3.1.

```

Select StdMajor, AVG(stdGPA) AS AvgGPA
From Student
Where stdClass IN ('JR', 'SR')
GROUP BY stdMajor

```

Having Avg(stdGPA) > 3.1

14. List the number of upper-division students and their GPA.
Select Count(*) AS StdCnt, Avg(StdGPA) AS AvgGPA
From Student
Where StdClass = 'JR' OR StdClass = 'SR'
15. Summarize the minimum and maximum GPA of students by major and class.
Select Min(StdGPA), Max(StdGPA)
From Student
Group BY StdMajor, StdClass
16. Summarize the number of IS course offerings by course description.
Select CrsDesc, Count(*) AS OfferCount
From Course, Offering
Where Course.CourseNo = Offering.CourseNo
AND CourseNo Like 'IS*'
Group By CrsDesc
17. List the GPA, Name, city, and state of juniors. Order the result by GPA in ascending order.
Select StdGPA, StdFirstName, StdLastName, StdCity, StdState
From Student
Order By stdGPA ASCENDING
18. List the rank, salary, name, and department of faculty. Order the result by ascending (alphabetic) rank and descending salary.
Select FacRank, FacSalary, FacLastName, FacFirstName, FacDept
From Faculty
OrderBy FacRank Ascending, FacSalary Desc
19. List the city and state of faculty members.
Select FacCity, FacState
From Faculty
20. List the unique city and state combinations in the *Faculty* table.
Select DISTINCT FacCity, FacState
From Faculty
21. List the course number, unique member, and average grade of students enrolled in fall 1999 IS course offerings in which more than one student is enrolled. Sort the result by course number in ascending order and average grade in descending order.
Select CourseNo, Enrollment.OfferNo, Avg(EnrGrade) AS AvgGrade
From Enrollment, Offering
Where CourseNo Like 'IS*' AND OffYear = 1999
AND OffTerm = 'FALL'
AND Enrollment.OfferNo = Offering.OfferNo
AND Enrollment.OfferNo = Offering.CourseNo
Group By CourseNo, Enrollment.OfferNo
Having Count(*) > 1
Order By CourseNo Ascending, Avg(StdGPA) Descending
22. List the student name, offering number, and grade of students who have a grade ≥ 3.5 in a course offering.

```
Select StdFirstName, StdLastName, StdGPA
From Student, Enrollment
Where EnrGrade >=3.5
      AND Student.StdSSN = Enrollment.StdSSN
```

23. List the names of students who have a grade ≥ 3.5 in a course offering.

```
Select StdFirstName, StdLastName
From Student
Where Enrollment.EnrGrade > 3.5
      AND Enrollment.StdSSN = Student.StdSSN
```

24. List the students name (without duplicates) who have a grade \geq in a course offering.

```
Select Distinct StdFirstName, StdLastName
From Student
Where Enrollment.EnrGrade > 3.5
      AND Enrollment.StdSSN = Student.StdSSN
```

25. List the student name and offering number in which the grade is greater than 3.7 and the offering is given in the fall 1999.

```
Select StdFirstName, StdLastName, OfferNo
From Student, Offering
Where Student.StdSSN = Enrollment.StdSSN
      AND Enrollment.OfferNo = Offering.OfferNo
      AND EnrGrade >= 3.7
      AND OffYear = 1999
      AND OffTerm = 'FALL'
```

26. List the social security number, the name, and the major of students who have a high grade (≥ 3.5) in a course offering.

```
Select stdSSN, StdFirstName, StdLastName, StdMajor
From Student
Where Student.StdSSN IN
      (Select StdSSN
       From Enrollment
       Where EnrGrade >= 3.5)
```

27. List the social security number, the name (first and last), and the major of students who have a high grade (≥ 3.5) in a course offering.

```
Select StdSSN, StdFirstName, StdLastName, StdMajor
From Student
Where Exists
      (Select StdSSN From Enrollment
       Where Student.StdSSN = Enrollment.StdSSN
       And EnrGrade >= 3.5)
```