**For the following SQL coding problems use the “University.sql” script to create yours tables in Oracle LiveSQL.**

**Problem #1 – Retrieving all rows and all columns from a table**

For each of our tables, retrieve all rows and all columns.

Tables are Student, Faculty, Offering, Course, and Enrollment

SELECT \* FROM student;

SELECT \* FROM faculty;

SELECT \* FROM enrollment;

SELECT \* FROM course;

SELECT \* FROM offering;

(no need to sort at this point)

**Problem #2 – Retrieving a subset of columns from a table and sorting them**

**both with and without the ASC keyword**

Retrieve the student number, student first name, and student last name for all students

Sort the results by student last name then by student first name

Use the ASC keyword on the query

Repeat the query omitting ASC

SELECT stdno, stdfirstname, stdlastname

FROM student

ORDER BY stdlastname ASC, stdfirstname

SELECT stdno, stdfirstname, stdlastname

FROM student

ORDER BY stdlastname, stdfirstname

**Problem #3 – Retrieving a subset of columns from a table and sorting them on multiple columns mixing ascending and descending order, using both named and positional notation**

Retrieve the student last name, student first name, and GPA for all students

Sort the results by GPA highest first, then by student last name, then by student first name

Use column names to sort (omit ASC)

SELECT stdlastname, stdfirstname, stdgpa

FROM student

ORDER BY stdgpa DESC, stdlastname, stdfirstname

Repeat the query using positional notation

SELECT stdlastname, stdfirstname, stdgpa

FROM student

ORDER BY 3 DESC, 1, 2

**Problem #4 – Retrieving columns from a table both with and without duplicates**

Retrieve the student city and class for all students with duplicates

SELECT stdcity, stdclass

FROM student

Repeat query without duplicates

SELECT stdcity, stdclass, COUNT(\*)

FROM student

GROUP BY stdcity, stdclass

HAVING COUNT(\*) = 1

OR

SELECT DISTINCT stdcity, stdclass FROM student

**Problem #5 – Retrieving a subset of rows with a single Boolean expression**

Retrieve the student last name, student first name, and GPA for all students with a GPA greater than 3.2

SELECT stdlastname, stdfirstname, stdgpa

FROM student

WHERE stdgpa > 3.2

**Problem #6 – Retrieving a subset of rows with multiple complex Boolean expressions**

Retrieve the student last name, student first name, and GPA for all students with a GPA

(more than 2.2 and less than 2.7) OR (more than 3.2 and less than 3.8)

SELECT stdlastname, stdfirstname, stdgpa

FROM student

WHERE (stdgpa > 2.2 and stdgpa < 2.7) OR (stdgpa > 3.2 and stdgpa < 3.8)

**Problem #7 – Retrieving a subset of rows with the BETWEEN operator**

Retrieve the student last name, student first name, and GPA for all students with a GPA that is between 2.7 and 3.2 inclusive

SELECT stdlastname, stdfirstname, stdgpa

FROM student

WHERE stdgpa BETWEEN 2.7 and 3.2

**Problem #8 – Retrieving a subset of rows with testing for NULLs**

Retrieve the offer number, course number, year, and faculty number from all course offerings that has not yet been assigned a Faculty

SELECT offerno, courseno, offyear, facno

FROM offering

WHERE facno is null

Repeat query for course offerings that have been assigned a Faculty

SELECT offerno, courseno, offyear, facno

FROM offering

WHERE facno is NOT null