PART 1 - Database

Below are two different ways of query 1 and 2. The difference between Query 1 and 2 is that 2 its best practice and more readable.

Query 1

```
SELECT top 10 Stu.LastName + ', ' + Stu.FirstName AS Fullname,
Reg.CourseID,
RegistrationDate
FROM Students Stu,
Registration Reg,
Courses Cou
WHERE Cou.CourseID = 'MATH200' and Stu.StudentID = Reg.StudentID and Cou.CourseID = Reg.CourseID
ORDER BY Reg.RegistrationDate DESC
```

Query 2

```
SELECT top 10 Stu.LastName + ', ' + Stu.FirstName AS Fullname,
Reg.CourseID,
RegistrationDate
FROM Students Stu
INNER JOIN Registration Reg ON Stu.StudentID = Reg.StudentID
INNER JOIN Courses Cou ON Cou.CourseID = Reg.CourseID
WHERE Cou.CourseID = 'MATH200'
ORDER BY Reg.RegistrationDate DESC
```

PART 2 System Programming

Using Windows as OS.

This application will traverse a given path to produce output showing full pathname of all the folders, subfolders, and files that are found. The main function will be executed during the runtime.

```
FUNCTION main(path)
    CASE
        WHEN path is a file THEN
            CALL processFile WITH path
        WHEN path is a directory THEN
            CALL exploreDirectory WITH path
        ELSE
            DISPLAY path + " is not a valid directory or file"
    END CASE
END FUNCTION

FUNCTION exploreDirectory(path)
    SET files to listOfFilePathInCurrentDirectory // Assume we get a list of the full path of all the files in current directory

    FOR each element in files
        CALL processFile WITH element
    END FOR

    SET dirs to listOfDirectoriesInCurrentDirectory // Assume we get a list of all the directories in current directory

    FOR each element in dirs
        DISPLAY "Dir: " + element
        CALL exploreDirectory WITH element
    END FOR
END FUNCTION

FUNCTION processFile(path)
    DISPLAY "File: " + path
END FUNCTION
```