BCS 260 Capstone Project for Fall 2018
Given to Class 10-11-2018

Your capstone project for BCS 260 is to analyze and begin creation of the database described below. Complete the requirements for this project in the stages indicated below and by the EOD (End of Day) for the dates involved.

The Scenario

Snodsdale University is divided into several schools such as business, arts and sciences, education, computer systems, and applied sciences. Each school is headed by a dean who is a professor. Each professor can be the dean of only one school, and a professor is not required to be the dean of any school. A professor is one type of employee of the University and is associated with one department. The University broadly classifies employees as administrators, professors, and general staff (staff). The University classifies staff according to levels ranging from 1 to 10 (Level I, Level II, etc., based on seniority, competence, rank, etc.). For professors, in addition to the typical data associated with employees, the University also tracks the degrees that professors have earned.

Each school comprises several departments. A school can have multiple departments, but a school must have at least one department. For example, the school of business has an accounting department, a management/marketing department, an economics/ finance department, and a computer information systems department. A department is chaired by a professor.

Each department may offer courses. For example, the management/marketing department offers courses such as Introduction to Management, Principles of Marketing, and Production Management. Most departments offer courses, but several departments conduct research only and therefore do not offer courses. Courses may, but need not have, prerequisite courses.

A class is a section of a course. For example, a department may offer several sections (classes) of the same database course. Not every course is offered in a class during a given semester and therefore the course is not reflected in the class offerings for the semester. The University does not offer classes until and unless they class is reflected in the course catalog. Each class is taught by a professor at a given time on one or more days in a specific building and room.

A department has one or more professors assigned to it. One of those professors chairs the department, but no professor is required to accept the chair position.

Each professor may teach up to four classes; each class is a section of a course. A professor may also be on a research contract and teach no classes at all.

A student may enroll in several classes but takes a specific class only once during any given enrollment period. For example, a single student cannot enroll in BCS120 PM1 five times; he or she is only enrolled once. Each student may enroll in up to six classes, and each class may have up to 35 students.

Each department has several (or many) students whose major is offered by that department. Although each student has only one major and is associated with a single department in the University environment, it is possible – at least for a while – for a student not to declare a major field of study.

Each student has an advisor in his or her department; each advisor counsels several students. The advisor is a professor in the student's assigned department but not all professors advise students.

A class is held in a single room in a particular building on campus. A room must exist in single building, but some buildings on campus may not house any rooms suitable for classes (classrooms) at all, like those storage buildings or garages.

Deliverables

There are four deliverables for this capstone project, each of which counts as a separate component of the capstone grade. Each deliverable must be submitted in order to get the maximum grade. For example, if you omit Deliverable I, your maximum grade for the capstone is 65%

DELIVERABLE I:
Create an Entity-Relationship diagram [VISIO] with entities and relationships (e.g., 1:1, 1:M). Show strong/weak (solid vs. dotted line) and whether optional or mandatory. The diagram must include ALL of the attributes you plan to include in Deliverable II.

Note: The scenario above is a general description. It will be up to you to supply any needed assumptions about the data you will work with. State these assumptions either on a Word document to accompany Deliverable I's Visio file or directly as comments on the Visio file. Deliverable I is worth 35% of your capstone grade.

Also: In place of a Visio diagram, I will accept a narrative in Word indicating entities, relationships, attributes, etc.

DUE DATE: Deliverable I is due over Course Messages on Blackboard Learn no later than EOD [end of the day] on November 1, 2018. Submit Deliverable I as a Visio file and with a Word file if needed.

DELIVERABLE II:
Use the Visio ERD or narrative you prepared for Deliverable I to create a database structure for the database. Write an SQL script that would CREATE the database tables. Be sure the tables are scripted in the correct order and have the appropriate

constraints and data types. Submit Deliverable II as an SQL script in a text file (*.txt or *.sql). Use SQL comments within to supply any explanations for coding you feel is necessary. Deliverable II is worth 30% of your capstone grade.

DUE DATE: Deliverable II is due over Course Messages on Blackboard Learn no later than EOD [end of the day] on November 15, 2018.

DELIVERABLE III:
 Populate the database you created in Deliverable II with data. Write the SQL insert script average of 8 rows of data for each table. Again, be sure the inserts go in the correct order. Submit Deliverable III as an SQL script in a text file (*.txt or *.sql). Deliverable III is worth 25% of your capstone grade.

DUE DATE: Deliverable III is due over Course Messages on Blackboard Learn no later than EOD [end of the day] on November 29, 2018.

DELIVERABLE IV:
 Write at least 15 SQL select/join queries to retrieve information from the database. You may use a general SQL query to retrieve all the rows from a given table. But at least 8 queries must use either a WHERE clause, GROUP BY, GIVING, etc., and involve data from multiple tables. Submit the queries in a text file (*.txt or *.sql). Deliverable IV is worth 15% of your capstone grade.

DUE DATE: Deliverable IV is due over Course Messages on Blackboard Learn no later than EOD of the day of our final exam, which is December 20, 2018.