Alex Weber
Prof. Karimi
CIS 310

Exam 1

ATTRIBUTE NAME	SAMPLE VALUE	SAMPLE VALUE	SAMPLE VALUE
CLIENT_NUM	298	289	289
CLIENT_NAME	Marianne R. Brown	James D. Smith	James D. Smith
CLIENT_REGION	Midwest	Southeast	Southeast
CONTRACT_DATE	10-Feb-2018	15-Feb-2018	12-Mar-2018
CONTRACT_NUMBER	5841	5842	5843
CONTRACT_AMOUNT	$2,985,000.00	$670,300.00	$1,250,000.00
CONSULT_CLASS_1	Database Administration	Internet Services	Database Des
CONSULT_CLASS_2	Web Applications		Database Adm
CONSULT_CLASS_3			Network Insta
CONSULT_CLASS_4			
CONSULTANT_NUM_1	29	34	25
CONSULTANT_NAME_1	Rachel G. Carson	Gerald K. Ricardo	Angela M. Jam
CONSULTANT_REGION_1	Midwest	Southeast	Southeast
CONSULTANT_NUM_2	56	38	34
CONSULTANT_NAME_2	Karl M. Spenser	Anne T. Dimarco	Gerald K. Rica
CONSULTANT_REGION_2	Midwest	Southeast	Southeast
CONSULTANT_NUM_3	22	45	
CONSULTANT_NAME_3	Julian H. Donatello	Geraldo J. Rivera	
CONSULTANT_REGION_3	Midwest	Southeast	
CONSULTANT_NUM_4		18	
CONSULTANT_NAME_4		Donald Chen	
CONSULTANT_REGION_4		West	

Table P6.10 was created to enable the manager to match clients with consultants. The objective is to match a client within a given region with a consultant in that region and to make sure that the client's need for specific consulting services is properly matched to the consultant's expertise. For example, if the client needs help with database design and is located in the Southeast, the objective is to make a match with a consultant who is located in the Southeast and whose expertise is in database design. (Although the consulting company manager tries to match consultant and client locations to minimize travel expense, it is not always possible to do so.) The following basic business rules are maintained:

- Each client is located in one region.

- A region can contain many clients.

- Each consultant can work on many contracts.

- Each contract might require the services of many consultants.

- A client can sign more than one contract, but each contract is signed by only one client.

- Each contract might cover multiple consulting classifications. For example, a contract may list consulting services in database design and networking.

- Each consultant is located in one region.

- A region can contain many consultants.

- Each consultant has one or more areas of expertise (class). For example, a consultant might be classified as an expert in both database design and networking.

- Each area of expertise (class) can have many consultants. For example, the consulting company might employ many consultants who are networking experts.

a. Given this brief description of the requirements and the business rules, write the relational schema and draw the dependency diagram for the preceding (and very poor) table structure. Label all transitive and/or partial dependencies.

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| CLIENT_Num | CLIENT_NAME | CLIENT_REGION | CONTRACT_NUM | CONTRACT_DATE | CONTRACT_AMOUNT | CONSULT_CLASS1 | CONSULT_CLASS2 | CONSULT_CLASS3 | CONSULT_CLASS4 |

—Transititve—

| CONSULANT_NUM1 | CONSULANT_NAME1 | CONSULTANT_REGION1 | CONSULANT_NUM2 | CONSULANT_NAME2 | CONSULTANT_REGION2 | CONSULANT_NUM3 | CONSULANT_NAME3 | CONSULTANT_REGION3 | CONSULANT_NUM4 | CONSULANT_NAME4 | CONSULTANT_REGION4 |

—Transtitive— —Transtitive— —Transitive— —transitive—
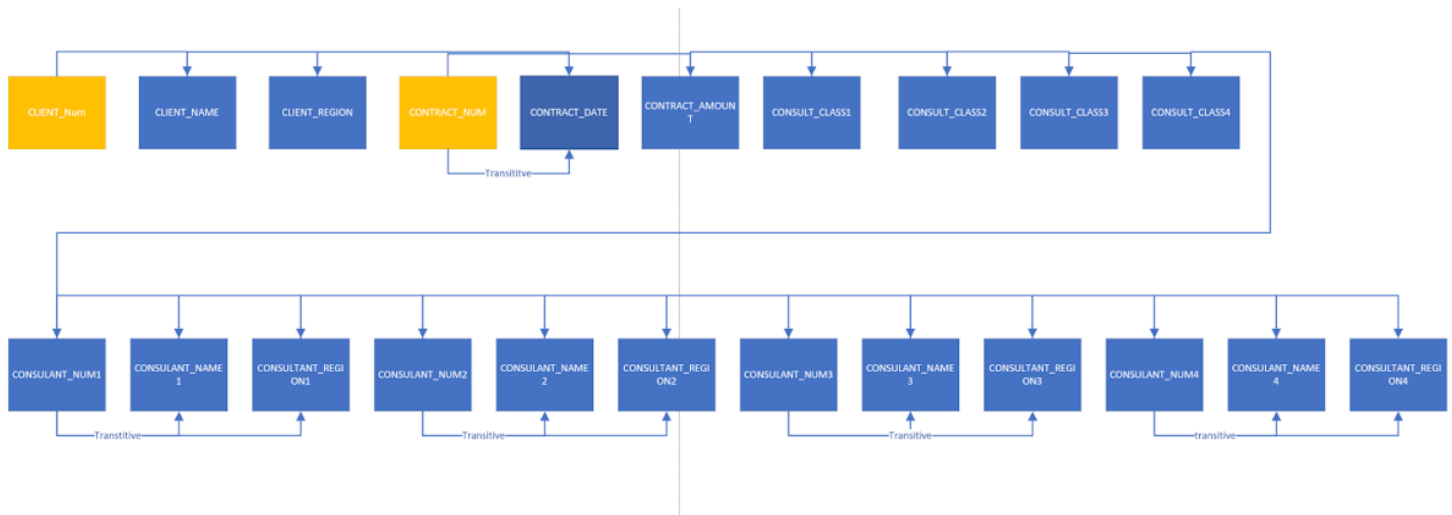
CONTRACT_NUMBER,CLIENT_NUM,CLIENT_NAME,CLIENT_REGION,CONTRACT_DATE,CONTRACT_AMOUNT_CONSULT_CLASS_1,CONSULT_CLASS_2,CONSULT_CLASS_3,CONSULT_CLASS_4,CONSULTANT_NUM_1,CONSULTANT_NAME_1,CONSULTANT_REGION_1,CONSULTANT_NUM_2,CONSULTANT_NAME_2,CONSULTANT_REGION_2,CONSULTANT_NUM_3,CONSULTANT_NAME_3,CONSULTANT_REGION_3,CONSULTANT_NUM_4,CONSULTANT_NAME_4,CONSULTANT_REGION_4,

b. Break up the dependency diagram you drew in Problem 10a to produce dependency diagrams that are in 3NF and write the relational schema. (*Hint:* You might have to create a few new attributes. Also make sure that the new dependency diagrams contain attributes that meet proper design criteria; that is, make sure there are no multivalued attributes, that the naming conventions are met, and so on.)
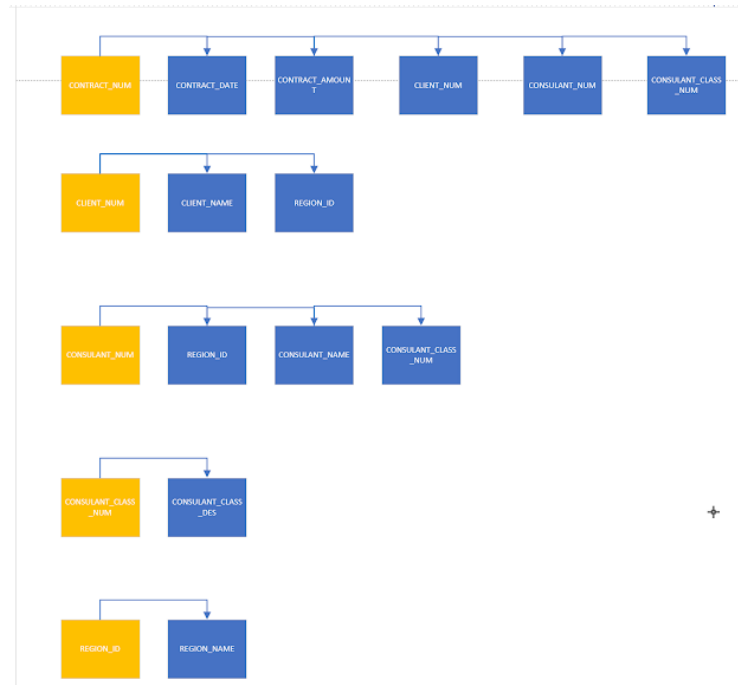
CONTRACT_NUM,CONTRACT_DATE,CONTRACT_AMOUNT,CLIENT_NUM,CONSULANT_NUM,CONSULANT_CLASS_NUM

CLIENT_NUM,CLIENT_NAME,REGION_ID

CONSULANT_NUM,REGION_ID,CONSULANT_NAME

CONSULANT_CLASS_NUM,CONSULANT_CLASS_DES

REGION_ID,REGION_NAME

c. Using the results of Problem 10b, draw the Crow's Foot ERD.

iven the sample records in the CHARTER table shown in Table P6.11, do the following: