



CS-GY 6083 - B, Spring 2022
Principles of Database Systems
Assignment: 2 [100 points]

Please submit your assignment on NYU Brightspace course site with a single PDF document attachment. Please mention Student ID, Name, Course, Section Number, and date of submission on first page of your submission. Insert picture of ERD diagrams in same PDF document. **Each entity in design should have your initial as prefix, e.g. AP_CUSTOMER, AP_ACCOUNT etc.**

Problem 1: 50 points

WWW (World Wide Wealth) Bank stores their Customers Name, Address and Account Open Date. WWW has three types of accounts: Checking, Savings, and Loan. Following are the attributes for each type of account:

CUSTOMER: Customer Name, Customer Address

CHECKING: Acct No, Acct_Name, Address, Date Opened, Service Charge

SAVINGS: Acct No, Acct_Name, Address, Date Opened, Interest Rate

LOAN: Acct No, Acct_Name, Address, Date Opened, Loan Rate, Loan Amount, Loan Months, Loan Payment, Loan Type (Loan Months represents the term of the loan, e.g. 60 months, Loan Payment represents monthly loan back payment, e.g. \$600.87, Loan Type represents the type of the loan, e.g. HOME LOAN, STUDENT LOAN, PERSONAL LOAN etc.)

A customer can have multiple bank accounts of different types. Using Oracle Data Modeler, develop an EER model (both Logical and Relational Model. Resolve any composite/multivalued/derived attributes, if any. For each attribute choose appropriate data type, their size and whether or not mandatory. Please clearly state any assumptions that you have made, if any, in support to your ERD models.

SUBMIT: a) Logical Model b) Relational Model c) Assumptions made about the business rules (other than stated in business case)

Problem 2: 50 points

The following figure shows a sample of shipping manifest of Worldwide Shipping Inc.

Shipment ID:		00-0001	Shipment Date:		01/10/2015
Origin:		Boston	Expected Arrival:		01/14/2015
Destination:		Brazil			
Ship Number:		39	Captain:		002-15 Henry Moore
Item Number	Type	Description	Weight	Quantity	TOTALWEIGHT
3223	BM	Concrete Form	500	100	50,000
3297	BM	Steel Beam	87	2,000	174,000
				Shipment Total:	224,000

Worldwide Shipping Inc. is in business of shipping building material parts worldwide. There is no shipment without any parts, and each part is being shipped through many shipments. The company has also hired captains who can be assigned to different ships time to time. Decompose this manifest to 3NF relations using data normalization process. Using Oracle Data Modeler, draw Logical and Relational model with appropriate entities, attributes, datatype and size of each attribute, and relationship amongst entities.

SUBMIT: a) Logical Model b) Relational Model c) Assumptions made about the business rules (other than stated in business case)