**Phase 1 – Preliminary conceptual design (DUE APR 13)**

Think of this as a “mock” turn in. I will grade your work and provide you feedback as though you received

a grade for your work, but it will not contribute to your final grade. Not until you get to Phase 1 Final will I

award your team a “real” grade for phase 1. For Phase 1 Preliminary, turn in:

1. The description of your five additional business rules. Please call this BusinessRules.docx, txt, …
2. The explanation of your denormalization and how you are going to enforce data integrity in spite of the redundancy of the denormalized structure. Please call this document Denormalization.docx, .txt, …
3. The normalized UML class diagram – either as a DIA model or draw.io. If you have a different tool that you would like to use, please check with me first.
4. English description of all classes and associations. Please call this ClassAndAssociationDefinitions.txt, or docx, or …
5. English description of all of the attributes. Please call this AttributeDefinitions.txt, or docx, or …

**Customer Information(Omar)**

Customers can remain anonymous if they pay in cash. However, if they give us some basic information about them, we can award them Miming’s Money (see below) to reward their loyalty. In addition, we will be sure to let them know of specials that we have from time to time. What we would like to know about each private customer is:

• Name

• E-mail address

• Snail-mail address

If they represent a corporation (for instance, they are buying for a corporate function):

• The name of the person

• The name of the corporation

• The name of the organization within the corporation (say Sales, Fabrication, Engineering, …)

• The address of their office

• The contact information for someone that we can advise of specials

A specific person could come into Miming’s as a private individual and as a representative of a corporation. But they will have two separate Miming’s accounts, one as a private individual and one as a member of a corporation.

**Miming’s Money(Omar)**

We also encourage repeat customers. Each time that a customer places an order with us and pays cash, we put Miming’s Money put into an “account” with us that they can apply to their next order. For every $10 of money that they spend, they get a $1 of Miming’s Money deposited into their Miming’s account. We only deal in whole numbers, so an order for $137.42, for instance, would give that customer $13 of Miming’s Money. If the customers has enough Miming’s money to pay for the entire bill, then that amount is deducted from their Miming’s account and they do not pay us anything for that bill. Each bill only has one type of payment (e.g. credit card, debit card, Miming’s money, money order, …).

1) List the customers. For each customer, indicate which category he or she fall into, and his or her contact information. If you have more than one independent categorization of customers, please indicate which category the customer falls into for all of the categorizations.

2) List the top three customers in terms of their net spending for the past two years (last 730 days), and the total that they have spent in that period.

7) List the customers, sorted by the amount of Miming’s Money that they have, from largest to smallest.

8) List the customers and the total that they have spent at Miming’s ever, in descending order by the amount that they have spent.

9) Report on the customers at Miming’s by the number of times that they come in by month and order the report from most frequent to the least frequent. Each row in the output should have the Customer name, the month, the year, and the number of times that customer came in during that month of that year.

10) List the three customers who have spent the most at Miming’s over the past year (365 days). Order by the amount that they spent, from largest to smallest.

14) List all of the customers who eat at Miming’s on their own as well as ordering for their corporation.

**Orders(Sooyoung)**

A given party may be too large to sit at just one table, so the guests within a party might be divided up between two or more tables. For privacy reasons, we do not take the names of any of our guests unless they are paying for the food. Therefore, it is a seat at a table within a party that places an order, not an individual person. It would take us too long to gather the information about each customer within the party. After all, we just want to make sure that we get the money at the end. Each party has just one bill. Just one Customer pays for a given bill

An order can come in via **the web, the phone, or “eat in”**. They must pay for their order when they place the order on the web. The customer pays for their phone order when they pick it up. Miming’s records the type of payment used on each bill. The phone order and eat in orders can be paid for by **cash, debit card, or credit card**. Evil customers have taken advantage of Miming’s with bad checks too often in the past to allow customers to use them as a form of payment. For the “to go” orders, we give the customer a time when they can come and pick it up. We also record exactly when the order was ready so that we can be sure to have the food hot and ready, no matter how much they order.

**Menu Items (Shaki)**

Each menu item has a single spiciness associated with it.

The spiciness values are:

o Mild

o Tangy

o Piquant

o Hot

o Oh My God

Each menu item falls into one of several categories:

o Appetizer

o Soup

o Meat Entrees

▪ Chow Mein

▪ Egg Foo Young

▪ Chop Suey

▪ Each of the meat entrees comes with a particular type of meat. The meat must be one of: Chef

Special, Pork, Chicken, Beef, Seafood, or Vegetables. Do not ask what is in the Chef Special. It’s

better that you don’t know.

**Pricing**

Miming’s has four menus:

o Evening

o Lunch

o Sunday brunch buffet

o Children’s

A given menu item can appear on any of the four menus, but it must appear on no less than one of them. The same menu item showing up on the evening menu will cost the customer more money than the same menu item on the lunch menu. We reduce the portion size for the lunch menu, so we can offer them for less. The All You Can Eat Sensational Suicide Sunday Brunch has no prices for the individual items at all, since each customer pays a fixed rate to partake of our superlatively sumptuous buffet. As you would guess, the portions on the Children’s menu are even smaller than they are on the Lunch menu. None of our spicy items go into the children’s menu. Each menu item comes in only one portion size within a given menu.

5) Find the three menu items most often ordered from the Children’s menu and order them from most frequently ordered to least frequently ordered.

11) List the five menu items that have generated the most revenue for Miming’s over the past year (365 days).

15) List the contents and prices of each of the menus.

**Scheduling of staff (Jon)**

To keep things simple, the employees work shifts. Each day has just two shifts: morning and evening. A given employee always works a full shift, no matter what their function is. Each shift is eight hours. Many of our employees are part-time, so we pay them by the hour. Others are on salary and receive a weekly set rate. Only the salaried employees receive health care benefits. It’s not that we do not care about our employees, it is just that we care a lot more about our customers.

**Staff**

We treat our staff like family, because most of them are. Each employee at Miming’s has a specific title and function:

• Chef – prepares the food. In turn, the Chef can fall into one and only one of the following categories.

o Head Chef

▪ Designs new recipes and oversees the rest of the chefs. We keep track of which of our

recipes were developed by a given head chef

▪ We must have one and only one of our head chefs in the kitchen whenever Miming’s is

open.

o Sous Chef

▪ Works with the head chef but tends to be more “hands on”.

▪ Each sous chef is expert in preparing a set of menu items. A sous chef who wishes to

learn how to prepare a given menu item must enter a mentoring relationship with one of   
 the other sous chefs who is an expert in that menu item. When they do, Miming’s records   
 the start date, the menu item, and the end date of the mentorship.

o Line Cook

▪ Works in at station (butcher, fry cook, grill chef, pantry chef, pastry chef, roast chef,

sauté chef (in charge of the sauces and gravies) and vegetable chef (this is the one who

earns the highest celery).

▪ During a given shift, more than one line cook could staff any one of these stations, and

a given line cook might be in charge of more than one station. Typically, during a time of

day that is usually slow, we will assign one line cook to several stations so that

we get the best value for their time.

o All our cooks are full time employees and work on salary.

• Maître d’ – welcomes guests, gets them seated, and evenly distributes the patrons across the wait staff who are on duty.

o All our Maître d’s have a fixed, hourly rate.

o Each shift needs at least one Maître d’.

• The wait staff – takes the orders, brings the food and drink and helps the customers with any questions that they might have.

o During a given shift, each wait staff member covers some collection of tables. That wait staff

team member has those tables for their entire shift. No other wait staff member serves any of

those tables during a given shift.

o In Miming’s, we believe in the safety of our customers, so we bolt the tables to the floor, which

means that we can never “push the tables together” to make a larger table. But we can break a

given party up and spread them across several tables when needed.

o The wait staff also has a fixed hourly rate that they receive in addition to their tips.

• Dishwasher – fixed hourly rate.

• Manager – Full-time salaried

o Each shift needs one and only one manager.

3) Find all of the sous chefs who have three or more menu items that they can prepare. For each sous chef, list their name, the number of menu items that they can prepare, and each of the menu items. You can use group\_concat to get all of a given sous chef’s data on one row, or print out one row per sous chef per menu item.

4) Find all of the sous chefs who have three or more menu items in common.

i. Please give the name of each of the two sous chefs sharing three or more menu items. ii. Please make sure that any given pair of sous chefs only shows up once.

iii. Please list the items that the two Sous Chefs have in common. Again, you can use group\_concat to get all of those items into one value in the output.

6) Show by week, how many hours each employee works.

12) Find the sous chef who is mentoring the most other sous chef. List the menu items that the sous chef is passing along to the other sous chefs.

13) Find the three menu items that have the fewest sous chefs skilled in those menu items.

16) Three additional queries that demonstrate the five additional business rules. Feel free to create additional views to support these queries if you so desire.