

Big Data Analytics – Homework 2

Due 9 am, Friday September 13

This assignment will help you improving your ability designing a database. You will be asked to design the schema of a database based on a description of company. For evaluation you are required to submit to late the code to create the data base and a word or pdf document with the explanation of why you decide such schema.

Problem 1: Database Design for B2B Company

You want to design a small database for a startup in Boston – MAS that sells various products to other manufacturers in the nation. Until now, data has been merely stored in files. Since demand is increasing they have decide that they need to become more careful handling data. They want you design the structure of the database as well as it implementation in MySQL. To make sure, the database supports the activities of the firm, you need to know how it works. They provide this information which they consider should be sufficient. If otherwise, you are allow make any assumptions as long as properly stated and justified.

For each customer, they want to store its id number, all the directions where packages are shipped (each customer may more than one) and the customer's account balance. Her credit limit is assigned to by the company to each customer depending her shopping history. It starts by default at \$1000 but should never be higher than \$500,000. For each article, the database should be able to store its unique identification number, the name of the factory that distributes them, its stock level and a description of the article.

Customers demand products by making orders through the online system. When they make a purchase, they fill a form that has two components the header of the order and the order. The head of the order includes the identifier for the client, the address where he wants the package to be shipped and the date where the order was made. The body on the other hand, is list describing the name of the demanded item and its number of units.

Finally, for strategic purposes, it has been determined to store factory-related information. Specifically, the company wants the database to be able to rapidly inform on, the factories they work with, what products are produced by each factory, its website, phone number it address and a description of it.

Remarks, an address must have the number of the street, the name of the street, the city and the 5 digit zip code. The dates must include day, month, year and the hour, minute and second when they were set.

Problem 2: Database Design for a Sales Department

Company X has hired you to design and code a data base. The data base is meant to support the continuous interaction between providers, customers, products and sales. They provide you with the following information

- **Providers:** Every provider has its unique id, address, phone, and website.
- **Customer:** As for providers, every customer buying products to company X has it unique id, user name and password. Company X, also wants to save all the phone numbers that customer provides (not only the most recent one), all the addresses (not only the most recent one) and a description of him.
- **Products:** A product has its id_product unique, name, a price updated daily, stock available and the provider that produces it. Further each product is classified into categories. A product belongs to a unique category and is produced by a single provider but many providers serve products in the same category. The company stores a report of the overall state of each category every year. This report is just text.
- **Transaction:** For accounting reasons, each transaction must be recorded with an id, a date, the client, discount and amount paid, units of each product and price at the day of the transaction.