IST722: Class Exercise 3

**This is an individual assignment.**

**Before you begin, please make sure you’ve read and understand 1) our class honor code, 2) course policies on late work and 3) participation policies as posted on the syllabus. “I didn’t know” is not an excuse.**

**You should cite your sources in a standard format like MPA or APA and include a list of works cited.**

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# Instructions (Refer Unit 3)

Answer each of the following questions as concisely as possible. More is not necessarily better. Please justify your answer by citing your sources from the assigned readings from our textbooks, our class lectures, or online if directed to do so. Be sure to cite in text and include a list of works cited. Place your answer below each question. When you’re finished, print out this document and bring it to class as part of your participation grade.

# Questions

[1] How does dimensional modeling reflect business processes? What are dimensions in dimensional modeling? Provide examples.

* The dimensional modelling helps to address complex business processes in an enterprise, the main purpose of the dimensional modelling is to organize and reflect on analytical aspects of data like profit margin of a product and monitor trends.
* Dimensions are outer tables in star schema, they provide context for facts. They also provide a basis for slicing and dicing data in data warehouse.

**Example**: Customer ID, Customer Name, Address, City, State, Country, Age etc.

Student, Major, Year, Dormitory and Gender

[2] Explain the difference between a functional and non-functional requirement? Provide examples.

**Key Difference:** Functional Req focuses on what a system must do in terms of specific functionalities, while non -functional Req focuses on how a system Architecture should be built and perform beyond its core functionalities.

**Example:**

* Describes how an item must be added to shopping cart on functionality and process proceeding to checkout is Functional Requirements.
* Since nonfunctional is based on performance aspect and basic built, it specifies constraint related process like a cart with 0 items cannot be processed for checkout.

[3] What are the three business process types? Provide an example of each.

The three business processes are: Transactional, Accumulating Snapshots and Periodic Snapshots.

**Transactional Process:** These are frequent actions that involve capturing and processing individual business transactions. These are real-time, immediate actions which give us specific business outcomes. One row is considered as a single transaction.

Eg: Registration events like Baby Shower registry were capturing and processing individual gift transactions as they occur. It acts as an intersection between guests and the registry system.

**Accumulating snap**

This process is based on status, this records a process workflow overtime, and it is based on milestone.

e.g: The periodic update on baby shower platform and updates on the registry status. On business terms it helps to identify the trends, provide insights into gifts preferences and track gift reservations. For expecting parents and guests these snapshots provide insights on the progress of the registry and plan accordingly.

**Periodic Snapshoot:**

This is a predetermined interval snapshots process to put in simple terms capturing and recording in a fixed interval. Like snapshots taken yearly, monthly, and weekly etc.

Eg. Weekly Registry Summary Email

Gives expecting parents with details like top gifts selections guests chose, number of gifts reserved and updates on the registry.

[4] What are the three types of facts? Provide an example of each.

The three types of facts are Addictive, Semi- Addictive and Non-addictive.

**Addictive:** These facts are numeric measures that can be aggregated or summed up across all dimensions associated with fact table.

Example: **Prescription Quantity Dispensed**, is an addictive fact. This represents quantity of medication dispensed to patients for each prescription. This can be aggregated to calculate total medications for each patient or per prescriber or over a year etc. Where patient, prescriber, and time (year) dimensions.

**Semi-Addictive:** These are also numeric measures facts but cannot be summed or aggregated across all dimensions.

Example: **Bed Occupancy Rate,** is a semi-addictive fact. This fact gives us the percentage of beds occupied in a hospital at a particular time. This fact can be aggregated over time dimensions but provides us with meaningless aggregation if done with hospital unit or patient type.

**Non-Addictive facts:** These neither can be summed nor aggregated across dimensions. These are measures like ratio, percentages that can lose their meaning or change the results.

Example: **Adherence Rate,** is non addictive fact. This represents the percentage of patients adhering to their prescribed medication regimen. This cannot be aggregated or summed up across any dimensions since it is a percentage value and also this fact is at individual patient level.

[5] Come up with your own functional requirement for any business/department – state that as a single question. Then, identify the business process, business process type, dimensions and fact(s) based on that statement.

**Functional Requirement:** How can we enhance our credit fraud detection system to proactively identify and prevent fraudulent transactions while also minimizing false positives?

**Business process:** Credit Fraud Detection

**Type of Business process: Transactional Process (**As it involves capturing and processing individual business transactions as they occur)

**Dimensions:** Transactions, Customer, Risk Thresholds

**Facts: Transaction Fraudulent Detection Rate** – Tracking the credit fraud for each customer in the system and identifying and preventing fraudulent transactions.

WORKS CITED: Professor Michael A Fudge. Building Data Warehouse [Video file].