MIDTERM REVIEWER
BAT401 - Fundamentals of Business Analytics

I. General Principles

1. Business Analytics has three-fold principles:
   - It is a science of solving business problems using data analysis and quantitative models
   - It is a process of transforming data into insights to improve business decisions
   - It is a tool for exploration and investigation of past business performance to gain insight

   Comments: Business analytics has many aspects that allow the business to manage data for to speed up its processes, solve problems and streamline its operations.

2. The primary nature of Business Analytics is to solve business problems to support wise business decisions to enhance the business performance.

3. Business Analytics supports business functions or departments of an organization in its processes:
   - Accounting: supports recording of transactions and financial events
   - Marketing: manages data on consumers and sales
   - Human Resources: arranges data of employees for compensation and benefits
   - Production: efficiently determines manufacturing inputs and materials planning
   - Finance: organizes data to support financial reporting and analysis

   Comments: Different business functions use different Information Systems (IS) that utilizes data from various sources. This is why the Business Analytics modeling may be different depending on the business function you will be supporting.

4. Big Data with respect to Business Analytics are those characterized by great volume, variety and velocity. Providers of big data are those that stores and manages data for a profit through Cloud services or Platform as a Service (PaaS), as the case may be.

5. The major framework being used in Business Analytics is ETL:

Extraction	Transformation	Loading
Retrieves unstructured data from sources	Processes unstructured data into structured information	Stores structured information in data warehouse for future use
Uses: DBMS Tools (SQL Server, SQL Server, Flatfile)	Uses: BA or BI Tools	Uses: Reporting or Multimedia Tools

   Comments: All BA tools require data from sources. In strict essence, there is no processing of data in Business Analytics since the same data is just being transformed into understandable and usable format; but the Business Analytics model does not change or modify the data, it just improves the format or presentation.

6. Types of Analytics are:
   - Descriptive Analytics (which tell us what has already happened) ex. AIS, POS, HRIS for compensation and benefits aspect
   - Predictive Analytics (which show us what could happen) ex. Risk Mgt Systems, Actuarials
   - Prescriptive Analytics (which inform us what should happen in the future) ex. SCMS, MRP and HRIS for recruitment and workforce forecasting aspects

7. Examples of commercially-available BA tools are Power BI, SAP HANA, Oracle Fusion Applications, Tableau and Workday, all of which supports Cloud services to enable accessing the tools remotely.

8. When comparing data with information, data is usually characterized by being unstructured or raw; while information is structured and has meaning or relevance. The reason why we have Business Analytics is to provide context on voluminous business data which in its raw form having no context.

9. Knowledge Management (KM) is the process of organizing, creating, using, and sharing collective knowledge within an organization.

10. In summary, managing data focuses on transforming data to information by taking the data, putting in into context and providing tools for aggregation and analysis thru DBMS tools. A DBMS is an organized collection of related information. It is an organized collection, because in a database, all data is described and associated with other data.

Comments: Through the use of DBMS, we can initiate the ETL framework specifically through Extraction of data from RDBMS through SQL, big data systems such as Cloud, data warehouse and data mining.

II. Practical Reviewer

A. Application of Business Analytics to Business Functions

1. Accounting - uses AIS, manages data related to transactions involving money such as orders, purchases, sales invoicing. BA helps to visualize if there is profit or loss.

2. Marketing - uses CRM systems to support sales, customer service and advertising. It manages data on customer profile, sales information and customer inputs/feedback.

3. Human Resources - used HRIS to support recruitment, hiring, onboarding, training and compensation of employees. Data is usually based on manhours or number of hours worked by the employee to compute for the salaries, deductions and benefits.

4. Production - uses MRP to determine optimal level of inventory, WIP or work in process and finished goods. It supports supply chain management, warehousing and procurement.

5. Finance - analyzes the trends of financial data to visualize performance year on year and per department or cost centers.

Remember: Taken altogether, these business functions are supported by ERP systems or Enterprise Resource Planning that integrates all processes and data into one singular and shared system which has built-in business analytics tools. Examples: SAP and

B. Types of Business Analytics

The peculiar nature of HRIS is that it supports end-to-end human resources function from hiring the employee to managing the exit (separation). Hence:

- The Compensation and Benefits aspect of HRIS is descriptive analytics.
- The Recruitment and HR Planning aspect of HRIS is prescriptive analytics.

Other examples of BA with respect to existing information systems are:

a. Sales and Inventory Systems - descriptive since it uses actual order from customers and prospective clients.
b. Project Management Systems - prescriptive since it plots the timeframe, budget and resources for deliverables that will be performed in the future.
c. Learning Management Systems or LMS - descriptive since it uses enrollment and courses completion

C. Extraction, Transformation and Loading

In the Extraction, data may be retrieved directly from the source systems whether local repository or cloud storage. In the practical exercise, the following are activities you performed related to Extraction:

1. Prepared db Tables and set data types
2. Arranged data by using functions and operators
3. Utilized forms and queries in DBMS

In the Transformation, data is being transformed into understandable or usable formats. In the practical exercise, you performed the following related activities:

1. Analyzed business requirements
2. Used logical and arithmetic operators

In the Loading, the transformed data was presented in user-friendly formats such as:

1. Prepared reports or documents thru Mail Merge (Reporting)
2. Designed charts, graphs and infographics (Multimedia)

III. Exam Pointers

Study and master the following topics for your exam:

1. Nature, Purpose and Importance of Business Analytics
2. Basic understanding on application of Business Analytics to business functions
3. Concept and Characteristics of Big Data
4. Types of Business Analytics
5. Extraction, Transformation and Loading (ETL) Framework
6. Fundamentals of Data Structures and RDBMS
7. Basics of Mail Merge, MS Excel and MS Access

Exam Types:

A. Written (40 pts)
- Multiple Choices 10 pts
- Dedicated Choices 20 pts
- True or False 10 pts

B. Practical (60 pts)
- DBMS tables, data types and relationship 20pts
- Extraction and Transformation 20pts
- Loading and presentation 20 pts

IV. Sample Quizzer

(Multiple Choices) 1. What aspect of business analytics focuses on understanding how business problems may be addressed through analytical and quantitative models?

A. Science B. Process C. Tool

(Multiple Choices) 2. ABC Corp tries to identify how many seasonal employees will be needed for the Christmas rush. What type of business analytics tool will it most likely use?

A. Descriptive B. Predictive C. Prescriptive

(Multiple Choices) 3. BPI wants to determine its market segmentation on the users of debit cards, while there are many profiling items to group the users or clients, how is such big data characterized?

A. Volume B. Variety C. Velocity

(Multiple Choices) 4. In the business analytics framework, which phase is database management relevant?

A. Extraction B. Transformation C. Loading

Take Note: For Dedicated Choices, there are 4 questions which has one corresponding answer from 4 dedicated choices. No repetition of answer as one choice corresponds only to one question.

(Dedicated Choices) For items 5-8, choose from:

A. Accounting
B. Finance
C. Production
D. Marketing

_____5. Supports recording of transactions and financial events
_____6. Manages data on consumers and sales
_____7. Efficiently determines manufacturing inputs and materials planning
_____8. Organizes data to support financial reporting and analysis

(Dedicated Choices) For items 9-11, choose from:

A. Extraction
B. Transformation
C. Loading

_____9. Designed charts, graphs and infographics
_____10. Utilized forms and queries in DBMS
_____11. Used logical and arithmetic operators

(True or False) 12. All providers of big data are also providers of business analytics tools.

(True or False) 13. In Loading, the transformed data was presented in user-friendly formats.

(True or False) 14. The Compensation and Benefits aspect of HRIS is descriptive analytics.

(True or False) 15. (KM) is the process of managing collective knowledge within an organization.

Answers:

1. A
2. C
3. B
4. A
5. A
6. D
7. C
8. B
9. C
10. A
11. B
12. F
13. T
14. T
15. T

- Nothing Follows -

Good luck and God bless my dear students!

Should you have questions or concerns, you may reach me through:
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