T-IV

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PGDM (G/SM/M); FOURTH TRIMESTER (Batch 2019-21) SET 1

END TERM EXAMINATIONS, OCTOBER 2020

Course Name	**Predictive Analytics**	Course Code	**G/M/BA402**
Max. Time	**2 hours**	Max. Marks	**40 Marks**

INSTRUCTIONS: Attempt all questions.

1. Cluster analysis is often used as a pre-processing step for predicting or classifying consumption of products, and there exist numerous data-driven approaches that can be applied to the clustering results in a predictive context. In real life we often have very large data, which are similar to each other hence we may want to organize them in a few clusters with similar observations within each cluster. For example, in the case of customer data, even though we may have data from millions of customers, these customers may only belong to a few segments: customers are similar within each segment but different across segments. We may often want to analyze each segment separately, as they may behave differently.

   P & G, the famous FMCG company has got the data (Refer Sheet1 in Excel) after demographic analysis. The cities have been assigned to a specific cluster based upon analysis. The company has hired you as a consultant to help them in designing their business strategy. Analyse the data in Sheet 1 to make appropriate recommendations to P&G. (16 marks)

2. One of the uses of conjoint analysis is being able to understand how customers make their decisions. It allows you to answer questions such as: When a customer is presented with products composed of several features, how do they prioritise? Which features do they see as the 'must haves' and which as the 'nice to haves'? Are there features they are willing to sacrifice? Which feature drives purchase and is linked to the price of the product.

   A conjoint study was conducted by a firm to determine the role that five attributes play in influencing a consumer's preference for a vacuum cleaner. The five attributes and their levels are as follows:

   Package design (either A, B or C)

   - Brand (1,2 or3)
   - Price (Rs 300, Rs 400, Rs 500)
   - Did "Good Housekeeping" magazine approve product?
   - Is product guaranteed?

The best prediction for the product is given in Excel sheet 2. Explain different possible inferences which can be drawn by the firm's product manager from this equation for devising a pro-active marketing strategy? (12 marks)

3. The automotive industry has seen rapid adoption of big data analytics. Whether it is enhancing vehicle safety with cognitive IoT, or revolutionary changes in the transportation and locomotive services and functions, predictive analytics is helping the companies with even decreasing repair costs. A leading global automobile manufacturer has collected the data as shown in sheet 3 in excel sheet. Discuss different ways to help the company in analyzing the data by building relevant predictive models. (12 marks)

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PGDM(G/SM/M); FOURTH TRIMESTER (Batch 2019-21) SET-2

END TERM EXAMINATIONS, OCTOBER 2020

Course Name	**Predictive Analytics**	Course Code	**G/M/BA402**
Max. Time	**2 hours**	Max. Marks	**40 Marks**

INSTRUCTIONS: Attempt all questions.

1. Big data analytics is one of the big trends in banking. The majority of banking providers surveyed by The Financial Brand say it is a top priority for them in the coming year. But financial institutions face some unique challenges. For starters, the senior marketer is not usually considered part of the C-suite. It's simply a reflection of the responsibilities marketers traditionally have had at smaller banks and credit unions. Their activities — for the most part — have focused on things like sales support, event planning, branch signage, brochures, updating the website and maybe social media.
   These senior marketing managers are now being tasked with designing, building and implementing sophisticated marketing analytics platforms. This will involve some major shifts in how they — and everyone around them — view their role. Discuss any four changes involved with this transformation that senior marketers can look forward to when implementing a marketing analytics strategy at their institution.
   (10 marks)
2. The dataset in following link provides admission data for applicants to graduate schools in business. The objective is to use the GPA and GMAT scores to predict the likelihood of admission (admit, not admit, and borderline).
   http://www.biz.uiowa.edu/faculty/jledolter/DataMining/admission.csv

   By using suitable predictive model, categorise two students who have scored a GPA of 3.12, GMAT of 397; and a GPA of 2.5 , GMAT of 300.

   (10 marks)

3. A forecast of total-market demand won't guarantee a successful strategy. But without it, decisions on investment, marketing support, and other resource allocations will be based on hidden, unconscious assumptions about industrywide requirements, and they'll often be wrong. By gauging total-market demand explicitly, managers have a

better chance of controlling their company's destiny by devising an effective strategy. Total-market forecasting is only the first stage in creating such strategy.

a. By using suitable examples illustrate how can data scientists use tools such as ANOVA (one way & two way) to forecast demand?

b. Discuss the role of qualitative variables in forecasting. (10X2=20 marks)