



6 DEGREES

The Analytics Case Competition



Greetings from Matrix !!!

Matrix – The Systems and Analytics Club of IIM Trichy, presents the sixth edition of its analytics case competition “**6 DEGREES**”. The case challenge gives you a chance to show your mettle and understanding of basic statistical and analytical concepts. Get ready to rack your brain, understand and analyse a challenging data-based problem statement.

Instructions:

1. The participants must submit their analyses by **11:59 p.m. on 13th Feb 2021** on D2C.
2. Kindly note that the submission should be in **Microsoft PowerPoint (.ppt / .pptx)** format and the solution and visualization files have to be in any of these formats: **.xlsx, .py, .sav, .r, .twbx/.twb** . Zip both the files together.
3. The deliverable should address two things:
 - a) Your understanding of the data. You can use visualizations, pivots, summaries etc to show this. Try to build a story.
 - b) Based on the above understanding build a solution using appropriate techniques and explain the rationale.
4. The naming convention must be:
 - a. Power Point: **<team_name>_<college>.ppt**
 - b. Source File: **<team_name>_<college>.SF**
 - c. Zip file: **<team_name>_<college>**
5. The submission must not exceed **10 slides** excluding cover slide and ‘Thank You’ slide. Feel free to use tables, charts, graphs and other visualization methods to explain your understanding.
6. Any valid assumption made should be explicitly mentioned in the submission.
7. Multiple submissions will not be entertained. The submissions once made will be treated as final.
8. The qualifying teams will be required to present the analyses in front of a panel of experts on **27th Feb 2021** via Zoom or Google Meets.
9. The submissions will be judged on the basis of content, presentation, use of appropriate statistical, analytical and visualisation techniques, depth of analysis done and richness of the insights drawn.
10. Any form of plagiarism will result in direct disqualification.
11. The decision of the organisers will be final and binding on all the participants.

For regular updates regarding the competition, do follow our social media handles:

- <https://www.facebook.com/matrixiimt>
- https://www.instagram.com/matrix_iimtrichy/

- <https://www.linkedin.com/in/matrix-systems-and-analytics-club-of-iim-trichy-163928153/>

Dhruva Small Finance Bank

Dhruva Small Finance Bank (DSFB) is one of the new age banks in India founded in 2015 by Mr. Rakesh Sharma. After completing his MBA from one of the leading b-schools, Rakesh worked with several prominent financial institutions in India for 18 years. In late 2011, he realised the growing potential of the MSME sector in India. After studying its future prospects, he understood that obtaining short term credits for business was one of the major issues faced by the MSME sector.

In 2013, Rakesh quit his job as the Chief Finance Officer of HFDC Bank and began his quest to start a small finance bank to cater the credit needs of micro, small and medium scale enterprises in India. After two long years of hardships, he was finally able to establish his dream bank called Dhruva Small Finance Bank in July 2015.

The initial two years went well for the bank. By offering an interest rate of 9% on fixed deposits, DSFB was able to attract many depositors and maintain a stable cash flow capable of meeting its demand for credits from the MSMEs. However, the COVID-19 pandemic hit hard both the MSME and banking sectors. With most of the businesses not performing well, the demand for credit steeply fell.

Only after the relaxation of lockdown and roll out of vaccines, the consumers have gathered confidence on the economy and hence the MSMEs have started booming once again. Meanwhile, DSFB has forecasted a steep increase in the demand for short term borrowings from the MSME sector towards August 2021. Now, Dhruva Small Finance Bank is badly in need for deposits to meet the future demands and maintain its cashflow.

Dhruva Small Finance Bank has approached Matrix Insights and Solutions (MIS) – a leading analytics firm in India – to help DSFB identify potential depositors. DSFB, keeping in mind the privacy of its depositors, has furnished a masked dataset containing the results of its recently conducted marketing campaign. Wherein, the sales and marketing team of DSFB had approached several potential depositors via phone calls and persuading them to make a deposit at DSFB. The dataset also contains the result of the effort - whether the client has agreed to make a deposit. In addition, the dataset contains the following information:

- **UserID:** Masked identity of the respondents
- **Age:** (Numeric data) Age of the respondent
- **Job:** (Categorical data) Current occupation of the respondent with 11 levels – Admin / Entrepreneur / Maid / Manager / Retired / Self-employed / Services / Student / Supervisor / Technician / Unemployed
- **Marital Status:** (Categorical data) 3 levels – Single / Married / Divorced
- **Education:** (Categorical data) Highest level education with 7 levels – 4th Grade / 6th Grade / 9th Grade / High School / Diploma / UG/PG / Illiterate

- **Loan_Outstanding:** (Categorical data) Current outstanding loans, if any, – Yes / No
- **Loan_Default_History:** (Categorical data) Whether the respondent has defaulted in any loan repayment in the past? Yes / No
- **Own_Housing:** (Categorical data) Whether the respondent owns a house? Yes / No
- **Call_Duration:** (Numeric data) Duration of the phone call between the sales representative and respondent (in seconds)
- **EVR:** (Numeric data) Employment Variation Rate – a quarterly indicator
- **CPI:** (Numeric data) Consumer Price Index – a monthly indicator
- **CCI:** (Numeric data) Consumer Confidence Index – a monthly indicator
- **Convert:** (Categorical data) Whether the sales representative was successful in persuading the respondent in making a deposit in DSFB – Yes / No

Imagining yourself to be the team of senior analysts from Matrix Insights and Solutions, carry out the necessary Exploratory Data Analysis (EDA) to understand and reveal the underlying structural secrets, and gain new insights into the data.

You are expected to conduct appropriate data treatments (ex: deleting datapoints with missing/unknown values) before beginning to analyse the set.

Case Deliverables:

1. Carry out an Exploratory Data Analysis to investigate the data set. Summarise its main characteristics (using appropriate data visualization methods).
2. Using appropriate analytical method, predict the segment of customers that have to be targeted by DSFB to increase the conversion ratio (i.e., ratio of respondents who successfully made the deposit to the total number respondents called).

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*** * * ALL THE BEST * * ***