QUESTION SHEET
ELIMINATION ROUND

DATA ANALYSIS
COMPETITION
2020

DAC

2020

Data Analysis Competition (DAC) 2020

1. The Question sheet is accessible on February 15th – February 24th. Report has to return by February 24th at 23.59 Western Indonesian Time (GMT+7)

2. Once the report is uploaded, it cannot be replaced or revised for any reasons.

3. The preliminary round will be conducted online.

4. Semifinal round will be held on April 4th, 2020 at the campus ITS Sukolilo, Surabaya.

5. The final round will be held on April 5th, 2020 at the campus ITS Sukolilo, Surabaya.

GENERAL INSTRUCTIONS

1. Write your results of the analysis on the Answer Sheet we provide. In addition, we require you to

   a. Write your analysis completely and clearly.

   b. Write the report of maximum 7 pages in English. Use paper size A4, font Times New Roman 10 with 1.0 spaces and two columns format.

2. Save the answer sheet with the format name: RegistrationNumber_NameParticipant1_NameParticipant2 _University in PDF and .docx format.

3. All answers must be compressed in a RAR format with the format name: RegistrationNumber.rar Example: ID-19-01-0248.rar

   (All participants may check the registration number at the pre-registration webpage).

4. Upload your team's answer maximum on February 24th, 2020 at 23.59 Western Indonesian Time (GMT+7) on the website. If participants send in format which does not match, then the participant's answer sheet will not be corrected.

5. Participants are allowed using any softwares.

6. Prohibited copying answers from the other teams. All forms of cheating will get disqualification from the committee.

7. If there any same points of teams to make in the semifinal round, participants who return earlier will be prioritized.

8. The judge's decision cannot be contested.

9. Any participant who doesn't obey the general instructions will be disqualified.

PROCESS OF MONTHLY CREDIT TRANSACTIONS AT A BANK IN APRIL - SEPTEMBER 2005

In this Digital Era, the world undergoing rapid development in the field of technology. Not only that, in the economic field it is also experiencing development that follows the development of technology as well. It is called Financial Technology (*Fintech*). *Fintech* is a term for innovation and creation of financial service advancements in this digital era. FSB (Financial Stability Board) grouping *fintech* based on the type of innovation into four groups: Payment, Clearing, and Settlement; E-Aggretator; Peer to Peer Lending (P2P); Risk and Investment Management.

The main idea of *fintech* is to make financial services better for consumers, not to get banks out of business. Banking also takes part in marketing technology-based on financial services such as the following: Banking, Credit and Loans, Financial Advisers, and Consumer Comfort. By automating most banking processes and adding speed, transparency, and security to those processes, Fintech application also helps in front of the customer experience.

From the above explanation, it is known that one of the banks in Taiwan has implemented a *fintech* system, one of which is in the case of credit payment processes (online credit). Some people have implemented credit at the bank by making payments digitally or online. The bank has collected data from their customers who have done online credit. These data are collected to obtain information that helps banks seeing the status of credit payments. Table 1 depicts the information.

Table 1. Variables Default of Credit Card Clients

ID	ID of each client
LIMIT_BAL	Amount of given credit in NT dollars (includes individual and family/supplementary credit)
SEX	Gender (Male, Female)
EDUCATION	Last Education (Graduate School, University, High School, Others)
MARRIAGE	Marital status (Married, Single, Others)
AGE	Age in years
PAY_0	Repayment status in September 2005 (-2 = early payment/no consumption, -1 = paid full on time, 0 = paid not fully, 1 = payment delay for one month, 2 = payment delay for two months, …, 8 = payment delay for eight months, 9 = payment delay for nine months and above)

PAY_2	Repayment status in August 2005 (scale same as above)
PAY_3	Repayment status in July 2005 (scale same as above)
PAY_4	Repayment status in June 2005 (scale same as above)
PAY_5	Repayment status in May 2005 (scale same as above)
PAY_6	Repayment status in April 2005 (scale same as above)
BILL_AMT1	Amount of bill statement in September 2005 (NT dollar) (-) = saving money
BILL_AMT2	Amount of bill statement in August 2005 (NT dollar) (-) = saving money
BILL_AMT3	Amount of bill statement in July 2005 (NT dollar) (-) = saving money
BILL_AMT4	Amount of bill statement in June 2005 (NT dollar) (-) = saving money
BILL_AMT5	Amount of bill statement in May 2005 (NT dollar) (-) = saving money
BILL_AMT6	Amount of bill statement in April 2005 (NT dollar) (-) = saving money
PAY_AMT1	Amount of previous payment in September 2005 (NT dollar)
PAY_AMT2	Amount of previous payment in August 2005 (NT dollar)
PAY_AMT3	Amount of previous payment in July 2005 (NT dollar)
PAY_AMT4	Amount of previous payment in June 2005 (NT dollar)
PAY_AMT5	Amount of previous payment in May 2005 (NT dollar)
PAY_AMT6	Amount of previous payment in April 2005 (NT dollar)
default.payment.next.month	Default payment (1 = yes, 0 = no)

"Default payment next month" is the credit card status which not only affects the customer's position with the bank but also the customer's credit status in general. The default is 1 if the customer skips the credit card payment for at least once of six months and the default is 0 if

the customer continues to make credit card payments every month. Bill will appear at the beginning of the month while the status of the credit card appears at the end of the month.

We are here interested in studying the characteristics of customers who make credit at the bank in the following month. We provide you 24000 customers with different characteristics, for which 15945 of them never skip payments and 8055 of them at least skip the payments once. As a consultant, you are asked to predict 6000 new customers with certain types of characteristics given by Table 1 whether or not they skip the payment at least once during the period of six months. If you think you find inconsistent information regarding the data in relation to the description, you are required to make decision on your own and give your justification why you take such an action. To report the results, you are required to write in the article format (see General Instruction) of a maximum of 7 pages. The paper should include four chapters as follows:

a. **Chapter I**: Determine the variable you choose for the analysis and give the justification.
b. **Chapter II**: Determine the methodology you use for the analysis and explain your reasons why you choose such method (mention and explain the theory briefly).
c. **Chapter III**: Show the result of data exploration and explain the results of your analysis.
d. **Chapter IV**: Conclude your results and give suggestions based on your results.