Guidelines:

- Students need to solve the problems in the Question Set whose code matches with the last digit of the Student ID
- The duration is 60 minutes
- All documents are allowed, including the Internet

For example:

Student Nguyen Van A whose Student ID is 018123456 will need to answer the questions in Question Set **6**.

Question Set 1

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. How many steps are there in the data science pipeline? Provide the details of each step.
   Choice 1: 4 steps - Ask an interesting question, Get the data, Analyze the data, Visualize the result

   Choice 2: 3 steps - Ask an interesting question, Get the data, Analyze the data

   Choice 3: 3 steps - Get the data, Analyze the data, Visualize the result

   Choice 3: 2 steps - Analyze the data, Visualize the result

2. What are 4Vs in big data? Give examples for each of them

   Choice 1: Volumn, Velocity, Variety, Veracity

   Choice 2: Vast, Vehicle, Volumn, Variety

   Choice 3: Volumn, Velocity, Variety, Vulnerability

3. Provide an application that you think the big data should be applied? Please explain why you make that choice.

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 2

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. What is the mean, median, mode, variance, standard deviation, 25-th percentile of the following dataset: 7,9,3,4,2,8,5,6,13,1.

2. Explain the differences between content-based recommendation and collaborative filtering recommendation. Give the example for each type.
   Choice 1: content-based uses user rating, collaborative filtering filters user profile

   Choice 2: content-based uses user profile and item profile, collaborative filtering uses user ratings

   Choice 3: cotent-based users user profile, collaborative filtering uses user ratings

3. What is time series data? What are some examples you may have encountered in everyday life?

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 3

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. The temperature on Tuesday was 37, on Wednesday was 36, on Thursday as 32 degrees. What is the temperature on Friday if we use moving average forecasting with k=2?

   Choice 1: 34

   Choice 2: 35

   Choice 3: 34.3333

2. The last period's forecast was 70 and demand was 60. What is the simple exponential smoothing forecast with alpha of 0.4 for the next period?

   Choice 1: 66

   Choice 2: 64

   Choice 3: 65

   Choice 4: 26

3. What is time series data? What are some examples you may have encountered in everyday life?

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 4

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. How many steps are there in the data science pipeline? Provide the details of each step.
   Choice 1: 4 steps - Ask an interesting question, Get the data, Analyze the data, Visualize the result

   Choice 2: 3 steps - Ask an interesting question, Get the data, Analyze the data

   Choice 3: 3 steps - Get the data, Analyze the data, Visualize the result

   Choice 3: 2 steps - Analyze the data, Visualize the result

2. What is the mean, median, mode, variance, standard deviation, 25-th percentile of the following dataset: 7,9,3,4,2,8,5,6,13,1.

3. The temperature on Tuesday was 37, on Wednesday was 36, on Thursday as 32 degrees. What is the temperature on Friday if we use moving average forecasting with k=2?

   Choice 1: 34

   Choice 2: 35

   Choice 3: 34.3333

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 5

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. The last period's forecast was 70 and demand was 60. What is the simple exponential smoothing forecast with alpha of 0.4 for the next period?

   Choice 1: 66

   Choice 2: 64

   Choice 3: 65

   Choice 4: 26

2. Explain the differences between content-based recommendation and collaborative filtering recommendation. Give the example for each type.
   Choice 1: content-based uses user rating, collaborative filtering filters user profile

   Choice 2: content-based uses user profile and item profile, collaborative filtering uses user ratings

   Choice 3: cotent-based users user profile, collaborative filtering uses user ratings

3. What are 4Vs in big data? Give examples for each of them

   Choice 1: Volumn, Velocity, Variety, Veracity

   Choice 2: Vast, Vehicle, Volumn, Variety

   Choice 3: Volumn, Velocity, Variety, Vulnerability

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 6

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. How many steps are there in the data science pipeline? Provide the details of each step.
   Choice 1: 4 steps - Ask an interesting question, Get the data, Analyze the data, Visualize the result

   Choice 2: 3 steps - Ask an interesting question, Get the data, Analyze the data

   Choice 3: 3 steps - Get the data, Analyze the data, Visualize the result

   Choice 3: 2 steps - Analyze the data, Visualize the result

2. The last period's forecast was 70 and demand was 60. What is the simple exponential smoothing forecast with alpha of 0.4 for the next period?

   Choice 1: 66

   Choice 2: 64

   Choice 3: 65

   Choice 4: 26

3. Explain the differences between content-based recommendation and collaborative filtering recommendation. Give the example for each type.
   Choice 1: content-based uses user rating, collaborative filtering filters user profile

   Choice 2: content-based uses user profile and item profile, collaborative filtering uses user ratings

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 7

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. What are 4Vs in big data? Give examples for each of them

   Choice 1: Volumn, Velocity, Variety, Veracity

   Choice 2: Vast, Vehicle, Volumn, Variety

   Choice 3: Volumn, Velocity, Variety, Vulnerability

2. The temperature on Tuesday was 37, on Wednesday was 36, on Thursday as 32 degrees. What is the temperature on Friday if we use moving average forecasting with k=2?

   Choice 1: 34

   Choice 2: 35

   Choice 3: 34.3333

3. What is the mean, median, mode, variance, standard deviation, 25-th percentile of the following dataset: 7,9,3,4,2,8,5,6,13,1.

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 8

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. Provide an application that you think the big data should be applied? Please explain why you make that choice.

2. The last period's forecast was 70 and demand was 60. What is the simple exponential smoothing forecast with alpha of 0.4 for the next period?

   Choice 1: 66

   Choice 2: 64

   Choice 3: 65

   Choice 4: 26

3. Explain the differences between content-based recommendation and collaborative filtering recommendation. Give the example for each type.
   Choice 1: content-based uses user rating, collaborative filtering filters user profile

   Choice 2: content-based uses user profile and item profile, collaborative filtering uses user ratings

   Choice 3: cotent-based users user profile, collaborative filtering uses user ratings

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 9

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer.

1. The temperature on Tuesday was 37, on Wednesday was 36, on Thursday as 32 degrees. What is the temperature on Friday if we use moving average forecasting with k=2?

   Choice 1: 34

   Choice 2: 35

   Choice 3: 34.3333

2. What is time series data? What are some examples you may have encountered in everyday life?

3. What are 4Vs in big data? Give examples for each of them

   Choice 1: Volumn, Velocity, Variety, Veracity

   Choice 2: Vast, Vehicle, Volumn, Variety

   Choice 3: Volumn, Velocity, Variety, Vulnerability

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.

Question Set 10

Part I: Quiz/short questions

Give the answers for the following quiz and a brief explanation for each answer

1. Provide an application that you think the big data should be applied? Please explain why you make that choice.

2. Explain the differences between content-based recommendation and collaborative filtering recommendation. Give the example for each type.
   Choice 1: content-based uses user rating, collaborative filtering filters user profile

   Choice 2: content-based uses user profile and item profile, collaborative filtering uses user ratings

   Choice 3: cotent-based users user profile, collaborative filtering uses user ratings

3. What are 4Vs in big data? Give examples for each of them

   Choice 1: Volumn, Velocity, Variety, Veracity

   Choice 2: Vast, Vehicle, Volumn, Variety

   Choice 3: Volumn, Velocity, Variety, Vulnerability

Part II: Writing Test

1. What is the machine learning technique your group employed in the course assignment. State the advantage and disadvantage of this technique.
2. Draw the statechart diagram of the system developed in your assignment.