

Mid-semester Test

March 01, 2025: 14:30 – 16:30

Marks: 25, Weightage: 25%

INSTRUCTIONS:

- You are allowed to access your notes, slides, Moodle, Internet and other Internet based tools during the test. However, the following restrictions will strictly apply:
 - Tools such as MS Teams, Google Docs, WhatsApp, etc. **SHOULD NOT** be accessed during the test.
 - Use of any other online collaboration tool / other means of collaboration is also **NOT ALLOWED** at any time through the duration of the test.
 - Use of mobile phone is allowed, but **ONLY** for connecting to the internet, only if there are Wi-fi problems. No other application (including calculators) should be used on the mobile phone during the test.
 - The test should be answered using Jupyter Notebook, or similar Notebook environment having coding + documentation capabilities. If you use a 'coding only' environment, you **SHOULD** submit a separate document (PDF) containing your analysis and report.
 - In case you use online tools like Google Colab, be sure to download and submit '.ipynb' file and **NOT** a link to the online Notebook.
 - File names of the Notebook / code / report files **SHOULD** include your roll number.
 - The first cell of the Notebook **SHOULD** be a markup cell and it **SHOULD** list and explain all the major decisions and steps you have taken to arrive at the solution(s).
 - Subsequently, include additional markup cells containing your observations, analysis, etc. as and when required. **THESE SHOULD NOT BE INCLUDED AS PYTHON COMMENTS**
 - The Notebook / code file should flawlessly execute with your data file(s) kept in the same folder.
 - Upload **all created data files, Notebooks, source code files** (if separately created), **PDF of your report** (if separately created) to the **MidsemTest** submission point on Moodle.
 - MidsemTest will stop accepting submissions at 16:40 Hrs.**
 - MALPRACTICES / CHEATING: ANY MALPRACTICE OR VIOLATION OF ABOVE STATED RESTRICTIONS OR ANY CHEATING WILL RESULT IN THE SEVEREST POSSIBLE DISCIPLINARY ACTION – WHETHER DETECTED DURING THE TEST OR LATER / DURING EVALUATION.**
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Read the following statements carefully and work out your solutions following Data Science best practices. The assessment scheme will be as follows:

Problem understanding, definition, and documentation	20%
The solution approach: completeness and correctness	20%
Appropriate creation and presentation of results	20%
Analysis and conclusions: completeness and correctness	20%
Documentation: Organization, completeness, conciseness, and style + presentation	20%

The Problem

This Saturday afternoon you are in a relaxed post-lunch mood, lazing on the sofa with a large mug of your favourite coffee when your friend, who works for a chain of pathological labs, and who knows that you are a budding Data Scientist, barges in and makes a seemingly simple request!

1. "We have just received this data file (**patient-data.csv**), collected by our pathology labs sprinkled all over Pune. Each row contains blood test data related to a patient, and columns p01 – p24 represent various blood parameters. Our 'Analytics' team is working on it, but can you take a look and provide me with good, understandable, and useful insights into the data, and also demonstrate the useful stuffs that can be done with it? I would have done this myself using AI tools, but they usually throw me off-track. Please ensure, in your report, that you defend and justify every step of your analysis, and also your conclusions. My bosses ask me lot of tough questions!"
2. "By the way, in about 45 minutes our Analytics team will be sending an update, which will be shared with you. You will have some further work to do based on that information!"

Do your best to help your friend! It will help him if you create a complete, yet precise and well-organized report. Good luck!

Marks

1. Part-1: Will be assessed for 18 marks
2. Part-2: Will be assessed for 07 marks

Remember:

- Your submissions should be uploaded to Moodle by 16:40 Hrs, March 01, 2025.
- Cheating, and use of any collaboration tools on the computer / phones is completely prohibited. Violations WILL attract disciplinary action.

Only in case of difficulty with submitting to Moodle by 16:40 Hrs:

- Using your **IITB login**, upload your submission using **one** of the following links:

<https://forms.gle/tLja98zKsd2aeah78>

<https://docs.google.com/forms/d/e/1FAIpQLSeZxUkmFwMQ9OVf4C9FTHnT2JAaMkyGFkiNaj9-xk8xbXyFVQ/viewform?usp=preview>

- You will receive a confirmation email upon successful submission.
- **Note:**
 - If you have submitted to Moodle, DO NOT use this method to create a duplicate submission. Submissions to Moodle will be treated as final.

If you are unable to submit even using this alternate method, immediately contact one of the invigilating TAs before 16:40 Hrs.

Under no circumstances will submissions be accepted after 16:40 Hrs.
