

# DMS 692: Advanced Statistical Methods in Business Analytics

## Project 2

**Total Marks: 100**

Note:

1. Please submit a single pdf file for your group. Name the file as follows: Group\_”your group number”. Submit it on Hello IIT K portal.
2. Mention Name and Roll No. of all the group members who have contributed to the project.
3. Specify all references (including analysis code) used in your project.

The project report should contain the following components -

1. **Introduction** - Provide an introduction for the project stating the reason for your interest in the data and the overall research question you seek to answer.
2. **Research Hypothesis** – State the specific research hypothesis that you are interested in exploring.
3. **Data** – Provide details about your data. Where did you get your data from? Provide some descriptive statistics of the data. Walk us through the process of data cleaning performed by you. List any inclusion-exclusion criteria used for observations. Clearly mention the multivariate variables that you are working with. You can provide some visualizations that can help the reader understand your data better.
4. **Method** – Mention the multivariate statistical method(s) you are using to answer the research question. Specify the model for your data (For example, if I am performing a simple linear regression of number of hours studied on marks obtained the model for my data can be written as  $marks_i = \alpha + \beta hours_i + \epsilon_i$ ). Clearly mention all the technical details of the model you are using. Mention the assumptions involved and the tests used to assess them.
5. **Results** – Present the results of the models. Write the inference for each model you have fit. Mention the results of assumptions testing. Specify the overall conclusion.
6. **Discussion** – What does the result mean for your data and the research questions you were interested in? What are some of the take-home messages from this exercise?