ISEN 614 Fall 2017 Project

Description of project:

As a part of the assigned work for this course, you are required to conduct a course project. The purpose of this project is to encourage you to explore an avenue related to, but not limited to, the material in the class. You may need to read additional literature and broaden your knowledge base. The project will enable you to gain hands-on experience about developing methods for quality control and anomaly detection.

The project is based on a set of simulated data, in which both in-control and out-of-control data are present. You are asked to develop a method or a procedure to identify the data falling in the respective categories, i.e., which ones are in-control and which ones out of control. This is amounted to a Phase I analysis, whose purpose is to isolate the in-control data for estimating the in-control distribution parameters so that a monitoring scheme can be set up for future missions. If possible, detailed information on the changes detected can be provided, such as variables where the change occurs and type of the change, to help understanding of the simulated process.

Description of the dataset:

(a) This is a simulated dataset, and it has a total of 1000 data records.
(b) Each row is a data record. Each data record contains 25 values.
(c) Each of the 25 values represent a quality characteristic. The physical meanings of the quality characteristics are omitted.

Teaming: A team should include two students.

Submission: Each team should submit a set of Power Point slides as if you were to give a presentation (no actual presentation). No written report is required.

Format of your Power Point slides:

Your slides should start with a title slide, which includes the title of your project and the team members (including UIN numbers). Then clearly present your approaches, justification, results, and conclusion. Finally, summarize the insights you gained from doing the project, that is, anything that you feel you have a better understanding because of doing this project.

The total number of slides, including the title slide, MUST be at most **ten (10)**. Extra slides will be ignored, even if they contain important materials (in other words, if you put some important materials on the slides beyond the limit, you will lose some points for missing those materials). Also, please do NOT include any code or pseudo-code in your slides.

Timeline:

1. Formation of team: The list of students in your team. Due on November 9 (Thu).
Download the Excel spreadsheet in eCampus, fill in the sheet and submit.
Note:

- Each team member needs to submit a separate copy of the team formation sheet.

2. Power Point slides: Due by **6 PM** on December 7 (Thu).
Note:

- You must submit your slides in a PDF file. If you used the MS Power Point to make the slides, please make sure to convert your slides into PDF format before submission.
- A late submission will be penalized 0.5 points (among the 10 points) per hour it is late. The time is counted starting from the due date and time.

Grading:

A total of 10 points are allocated to this project. Grading depends on quality of your data analysis and quality of your slides.

Please note that *quality* of your data analysis does not equate *complexity* of your methodology. If you believe a simple method will do the best for answering the questions raised, it is Okay to use a simple method but you still need to provide convincing arguments and results to support your claim. Quality of slides includes the organization and clarity of your slides.

Mandatory point deductions:

−1	submission of presentation slides not in PDF format
−0.5	per hour the report/presentation is late