# Systems Analysis & Design
# Semester 2025-III
# Workshop No. 1 — Kaggle Systems Engineering Analysis

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Welcome to the first workshop of the *Systems Analysis* course!

Your mission is to conduct a thorough **systems analysis** of a closed-priced Kaggle competition available at `https://www.kaggle.com/competitions?listOption=completed&hostSegmentIdFilter=2`.

This analysis will incorporate **systems engineering**, **elements**, **inter-element relationships**, **system sensitivity**, and aspects of **chaos theory**, among other key considerations.

**Workshop Scope and Objectives:**

- **Identify Key Elements:** Select a closed-priced Kaggle competition and describe all critical components (e.g., datasets, features, target variables).
- **Mapping Relationships:** Illustrate how these elements interact, including data flows, constraints, and system boundaries.
- **Systems Engineering Perspective:** Apply systems engineering principles to frame the competition problem (requirements, architecture, and lifecycle considerations).
- **Sensitivity Analysis:** Examine how changes in input parameters affect the competition outcomes and discuss potential techniques to quantify these effects.
- **Chaos Theory and Complexity:** Discuss any unpredictable or chaotic aspects you observe in the competition topic. Where might random, nonlinear, or feedback processes appear?

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Any comment or concern about this document can be sent to Carlos A. Sierra at: *cavirguezs@udistrital.edu.co*.

**Methodology and Deliverables:**

1. **Competition Overview:** Provide a succinct summary of the competition's goal, dataset structure, and any significant constraints.
2. **Systems Analysis Report:**
   - *Systemic Analysis:* Outline all elements and relationships within the context of the competition.
   - *Complexity & Sensitivity:* Present potential constraints, conflicts, or points of variability that can influence outcomes.
   - *Chaos and Randomness:* Note any observed or anticipated chaos theory aspects (e.g., unforeseen interactions or feedback loops).
   - *Conclusion:* Summarize key findings, highlighting potential strengths and weaknesses of the system.
3. **Visual Representation:** Include one or more diagrams (e.g., system architecture, data flow, element relationship maps, or process flowcharts) to visually explain the structure and dynamics of the competition system. Use tools such as *draw.io*, *Lucidchart*, or *TikZ* in `LaTeX`. Each diagram should be clearly labeled and referenced in your report.
4. **GitHub Repository:**
   - Create a folder in your `GitHub` repository to store all files related to this workshop (and for the future workshops).
   - Include a `README.md` describing how the analysis was carried out, any code used, and a link to your final PDF report.

**Deadline: Saturday, September 26th, 2025, 11:59 PM.** Failure to submit by the deadline may result in penalties according to course policy.

**Notes:**

- The report and any supplementary documentation must be in **English** and submitted in **PDF format**.
- Provide complete references if you use any external sources.
- This workshop emphasizes your *systems thinking* approach, so highlight any technical or theoretical frameworks you apply.
- Treat this analysis as a foundation for your course project. You will revisit and expand upon these findings in subsequent workshops.
- While the Kaggle competition provides a valuable dataset and problem statement, your analysis should extend beyond the data. Consider the broader context, underlying challenges, and potential applications or implications of the competition topic in real-world systems.

*Good luck, and remember your goal is to apply **systems analysis** principles thoroughly, showcasing your analytical skills in tackling complex data competitions.*