COSC 499: Capstone Software Engineering Project

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Week 3 Logs Feedback

- Did not have project tasks
    - A couple of attempts with Burnup chart - please make sure to update when project tasks are defined
- Minor mistakes - only warning this time
- Missing material or offensive content - received 0
    - e.g., AI generated logs copy/pasted with no changes
- logs:
    - Should NOT be made /docs/logs
    - Do NOT merge logs branch to main

Data Flow Diagrams (DFD)

- Formal notation to represent data flow in a system
    - Focuses on input, process, output, storage
    - Identifies system boundary and scope

- Assists in top-down system decomposition
    - Level 0: Context diagram
        - How system interactions with **external entities**
        - What are examples of external entities?
    - Level 1: Highest-level system processes
        - Illustrates major processes and their interactions
    - Level 2:
        - Expands on each Level 1 process
    - …

Notation

- Identify entities
  - Users and objects that interacts with your system
- Identify processes
  - A process does something
  - Use **verb-noun** format to name these
- Each data store keeps a separate type of data
  - Not the same as a database
- Draw data flows
  - Label them with the data (these are **nouns**)
  - Ensure direction of flow is correct

Yourdon DeMarco

External Entity	Entity
Process	Process
Data Store	Data Store
Data Flow	→

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Additional Resources

- Reminders:
    - Cross-check DFD with functional requirements
        - Does each requirement have a process/data flow supporting it?
    - Is the notation correct?
    - Is everything labeled?
    - Do all the labels follow convention?
    - Do the inputs/outputs match across levels?

- Further details and examples:
    - https://online.visual-paradigm.com/knowledge/software-design/dfd-using-yourdon-and-demarco

    - https://blog.hubspot.com/marketing/data-flow-diagram

System Architecture Feedback

- Common components:
    - File scanning
    - Metadata extraction
    - Data analysis (very big/vague)
    - Data reporting (very big/vague)

- Use this opportunity to flush out Analysis and Reporting!

What Might You Show?

- Highlight skills growth over time
- Show evidence of contributions and accomplishments
- Reflect on their learning trajectories
- Show evolution of ideas and drafts across time
- Track creative process, showing sketches/drafts to polished outputs
- Offer data for self-assessment, supervisor feedback, or testimonial
- Illustrate milestones and effort spent across projects
- Distinguish an individual's contributions in team project
- Identify roles taken
- Detect work rhythms
- Map out the adoption of new tools and technologies
- Show mastery of techniques or domains over time

Tailor to Different Users

- For graduating student:
    - Emphasize growth, versatility, learning process

- For new software engineers:
    - Emphasize technical depth, collaboration, measurable impact

- For graphics designers:
    - Emphasize process, creativity, evolution of ideas, style, identity

Next Steps

- Rest of this class:
    - Develop your DFD Level 0 and Level 1 diagrams

- Next class:
    - Same format as Requirements Discussion
    - Bring 2 printed copies for in-class discussion
    - Gather feedback from discussions
    - Complete individual quiz after