EGR 115: Introduction to Programming for Engineers

Modeling Problem

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What is a Modeling Problem?

- Real-world
- Imperfect data
- Imperfect result
- Assumptions
- Limitations and Constraints

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3 Submissions

- Overall worth 10% of your grade, where
  - Written model 4%, due Sunday 10/4
  - Algorithm 2%, due Sunday 10/18
  - Final program 4%, due Sunday 11/1

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Submission 1: Written Model

- A document that explains the input and output of the model, its assumptions and the limitations, and the reasons and logics why the model is set up that way
- It is a typed document in WORD
- Include pictures and flowcharts as you see necessary
- One submission per team

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General Guidelines

- Create your 2-person team on Canvas
- Read the problem thoroughly
- Highlight all requirements
- Have discussion with your teammate
- Use draw.io to create flowcharts
- Type answers in Word
- Follow the rubric

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Words Used in the Rubric

- Reusability – Communicate limitations, constraints, and assumptions
- Modifiability – Work for other scenarios
- Mathematical Model Complexity – work with more than the given data (large data sets? Missing data?)
- Shareability – Replicate-able; show the result

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Advice

- Start as soon as possible
- Reread the rubric and problem before submitting
- Revise multiple times
- Use GoogleDoc/OneDrive to collaborate with your teammate

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Final Project

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Course Project

- The final project is your opportunity to demonstrate your programming skills in a reasonable-sized project
- Choose a topic that you know well and will enjoy
- Develop your plan/algorithm as soon as possible

Refer to "Project Description" and rubric for details

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Some Project Ideas

- Card Games (e.g., Blackjack, WAR, poker)
- Dice Games (Yatzee, Shut the Box)
- Other Games (e.g., Clue, Sorry, Mancala, Connect-4 w/ AI, Hangman)
- Mancala
- TV game shows (Jeopardy, Wheel of Fortune)
- Database-type projects

- Refer to "Project Description" for a complete list of topics you can choose from

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Submissions of the Final Project

Select a topic	due: 10/4	2.5 points
Project proposal	due: 10/11	4 points
Draft #1	due: 10/25	8.5 points
Draft #2	due: 11/8	8.5 points
Peer review	due: 11/15	3 points
Draft #3	due: 11/22	8.5 points
Final submission	due: 12/4	15 points

The final submission is on a Friday; all other due dates are on Sundays.

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Project Description Document

- Read the whole "project description" document
  - It will answer a lot of your questions
  - It has the complete list of programming techniques you should implement in the project
  - It discusses inappropriate practices and how to avoid them

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Reminders

- Study “Arrays I – Basics” before Thursday (10/1) lab
- Modeling problem – written model (team work) is due Sunday 10/4
- Final project – select a topic is due Sunday 10/4
- HW#6 is due Monday 10/5

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