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Midterm Exam: Professional Skills Discussion
25% of course grade
9.30.22, v1

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Background

The midterm exam is an ***online group discussion*** called the professional skills discussion (PSD). The PSD is a "line item" in the assessment plan for all degree programs in the School of EECS. It addresses three of the seven student learning outcomes (SLOs) used to assess whether our programs meet the requirements for accreditation and, as such, EECS takes the PSD very seriously. The EECS Assessment Committee evaluates a random sample of the PSDs for each major, and an assessment report is written each even year based on its findings. The SLOs are:

1. An ability to communicate effectively with a range of audiences in a variety of contexts (SLO 3)

2. An ability to recognize ethical and professional responsibilities in engineering and computing situations and make informed judgments based on legal and ethical principles, and with consideration of global, economic, environmental, and societal impacts (SLO 4)

3. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies (SLO 7)

In fact, CptS/EE 302 is used to assess SLOs 3 and 4 separately from the PSD, and the group case study (GCS) project, as well as the homework assignments, address these SLOs and SLO 7. CptS/EE 302 has been chosen because it's 1) the only course that covers ethics explicitly and 2) the only course required for all our majors. The purpose of the PSD is to assess whether our programs have prepared you sufficiently for your professional careers with respect to the three SLOs presented above.

Overview

For this exam, you'll work in teams, but you'll be graded individually. The PSD will capture your thoughts, perspectives, ideas, and results for the scenario described below. You'll engage in a collaborative exchange and critique of each other's thoughts, ideas, etc. You'll challenge and support one another as a team, using your collective resources and experiences and diving more deeply into the issues raised by the scenario. **Your online exchanges will result in a single group proposal as described below.** A separate discussion forum has been set up for each team. When the exam is available (9.30.22 at 11:59 pm), you'll access the PSD from the Assignments or Discussions link in Canvas.

Critical Dates

Friday, 9.30.22:   Professional skills discussion groups available @11:59 pm
Tuesday, 10.4.22:   Initial post (~500 words) for each team member due @11:59 pm (**worth 50% and will take considerable effort, so don't procrastinate!**)
Thursday, 10.6.22:   First response posts due @11:59 pm
Saturday, 10.8.22:   Second response posts due @11:59 pm
Monday, 10.10.22:   Proposal due @11:59 pm

Scenario

For a democracy to flourish, all eligible citizens must have the right to vote, and this right to vote should be protected by the federal government. Voting must be confidential, the voting system must be safe from both outside interference and voter fraud, and the results of an election must be accurate and auditable. You are employed by a large engineering management firm which is considering the

submission of a proposal to the US Congress for managing implementation of an electronic voting system nationwide. Before making a final decision on whether to submit such a proposal, company executives have tasked your team with completing a preliminary proposal with the following overarching requirements:

- Electronic voting will be used
- The voting system must be safe from both outside interference and voter fraud
- Voting must be confidential
- Election results must be accurate and auditable
- Voting must be accessible to every eligible citizen including the elderly, the disabled, people who are unable to take time off from work to vote, etc.

Proposal

Your group proposal must include the following five elements:

1. A recommendation for the type of electronic voting machine to be used
2. A budget estimate for the total number of voting machines that will be needed based on the population of the US in 2022 (see link below); assume 50% of the population is eligible to vote and that the average cost of a voting machine is $4,000 (this is simplistic, but sufficient for the PSD; see link below, *The price of voting*, for a lot more on the price of a voting machine).
3. An approach for ensuring accurate and auditable election results (legitimacy of results)
4. An approach for ensuring eligible voters can vote
5. An approach for ensuring voting is safe from outside interference and voter fraud

To meet the proposal specifications above, you must do some research and make some decisions. You should also consider the following ideas in your discussion:

- Should voter ID be required? This may limit voter fraud, but it is also a barrier to many eligible voters.
- Currently, voting in most states is restricted to a single day. What restrictions does this impose, on whom does it have the greatest impact, and what are some possible alternatives?
- Should electronic voting machines be connected to the internet, or should they be confined to a local network? Why?
- How many people are expected to use a single voting machine? What assumptions are used to make an estimate? How is this influenced by the number of days allotted for voting? What are the budget trade-offs, i.e., more days and fewer machines vs fewer days and more machines?
- Should biometrics be used rather than (or in addition to) voter ID? Should facial recognition be used? These may also prevent fraud, but what is their impact on eligible voters? On whom would it have the greatest impact?
- Where should electronic voting machines be placed to ensure access to the greatest number of voters?
- What should be done in the event of a pandemic or power interruption during an election? Is there a way to allow online voting or some other method of voting if there's a pandemic or a natural disaster? Is there a way to ensure uninterrupted power that's economically feasible?

Website Sources

The following websites are provided to get you started. You must assess the veracity of any website or resource you use, and references provided in your discussions must be legitimate. *Wikipedia is not a*

legitimate reference, but a Wikipedia website may lead to legitimate references, e.g., refereed journal publications and newspaper articles (not blogs).

[Dominion voting machines](#)

[Which states use Dominion voting machines?](#)

[Voting methods and equipment by state](#)

[The price of voting (.pdf)](#)

[Electronic voting in the United States](#)

[Is voting a right or a privilege in the United States?](#)

[US population (live)](#)

[No evidence for voter fraud in 2020](#)

[Is voter fraud a danger or a myth](#)

[How voting machines work](#)

[Three dozen voting systems connected to the internet](#)

[The vulnerabilities of voting machines](#)

PSD Details and Timeline

You'll have **ten days** to complete the PSD in Canvas**.** To foster the refinement and maturation of ideas, please actively participate and adhere to the deadlines described below. It's important to make your Initial Post (and subsequent responses) in a timely manner because delays will affect your teammates. Your Initial Post is due by **11:59 pm on Tuesday, 10.4.22.** You're expected to make *multiple* posts throughout the ongoing discussion (see grading rubric in Canvas). The timeline below suggests how to pace your discussion*.* Note, however, that the four deadlines are firm, i.e., you must complete each of the types of posts by the given deadlines.

- By Tuesday, 10.4.22, @11:59 pm: Make Initial Post (**50% of grade**). Each initial post must be a *minimum* of **500 words** and must be written independently without consulting your teammates. You won't be able to see other posts until you've submitted your initial post. These posts are intended to provide starting points for your team's deliberations. As such, your initial post must address the five elements of the proposal enumerated above under "Proposal" and touch upon ideas (such as the ones listed below the proposal elements) that are relevant to your post. Your initial post should be cohesive and well written and reflect a professional and thoughtful approach, i.e., do not simply write a few sentences for each proposal element; your post should flow smoothly. Finally, you must include at least three legitimate references (not included in the word count) in your initial post. However, you don't have to include citations to the references in your post. ***Importantly, do not upload a file; initial posts and all responses must be typed directly into Canvas.* See the instructions at the end of the prompt for creating posts.**

- By Thursday, 10.6.22, @11:59 pm: Finish First Response Posts (**15% of grade**). *Read all the initial posts.* Your responses to the initial posts should tie together information and ideas on important points and possible approaches made by your teammates for each proposal element. **To this end, each team captain must create five separate discussion threads as listed below (which mirror the proposal elements listed on page 2).** Each team member must post *at least* one response for each discussion thread for a total of five or more posts per person. The objective of the first response posts is for each team member to state their *opinion* on which of the recommendations and approaches by their teammates they think is the best and *why*. You can also choose your own recommendation or approach, or you might want to combine ideas from different initial posts in your response post. Unfortunately, Canvas doesn't allow actual threads to be posted in a graded group discussion. Please see the end of this prompt for instructions on creating posts. Also, to assist your teammates, for each thread, label each of your first response posts as "First Response."

Five Discussion Threads:
1. *Electronic voting method*
2. *Budget estimate*
3. *Legitimacy of election results*
4. *Accessibility of voting*
5. *Safety from interference or fraud*

- By Saturday, 10.8.22, @11:59 pm: Finish Second Response Posts (**15% of grade**). For your second response posts, read all the first response posts and reread some or all of the initial posts as necessary. Again, each team member must post *at least* one response for each discussion thread for a total of five or more posts per person. The objective of the second response posts is to reach a consensus on which recommendations and approaches to use in the final proposal. It may take more than a single response post to reach a consensus, but one point of the PSD is to have a meaningful discussion and to compromise when necessary. For each thread, label each of your second response posts as "Second Response."
- By Monday, 10.10.22 @11:59 pm: Finish Proposal (**20% of grade**). The team captain, or some other team member if they want to volunteer, should create a separate "thread" called Proposal and write a draft of the team's proposal based on the consensus of the team. The proposal should be well written and cohesive. Include a heading for each of the five specifications of the proposal, and state your recommendation, estimate, or approach for each as succinctly as possible. Include any relevant data, values, or reasoning needed to explain or justify your choice. In addition, include the references relevant to the proposal (citations aren't necessary). After the proposal draft has been completed, each team member must post at least one response to the draft. The response might include a suggestion for rewriting part of the proposal, comments on grammar or spelling errors, disagreements on what has been written (i.e., present your dissenting POV), and so forth. The team member who wrote the draft proposal should incorporate the responses, and each team member must then "sign off" or else indicate other changes they deem necessary. This process should continue until everyone is satisfied with the proposal. Clearly indicate which post gives the final version of your proposal, i.e., label it "Final Proposal."

Important Notes:
- It isn't ideal to prescribe a set number of posts for a discussion, but it's necessary to do so because each student must be graded separately rather than as a team. The hope is that the PSD will result in a natural dialog among all team members, with some members responding more because of strong feelings they may have about an issue. On this note, all team members are expected to treat each other with respect and to maintain a civil discourse.
- Apart from the Initial Post, there are no word length requirements, either for the response posts or the proposal. *Posts will be assessed based on their quality rather than on the number of words used.*

Summary of Deliverables

By Monday, 10.10.22, your PSD group forum should include the following:
- An initial post by each of team member, totaling n initial posts where n is the number of team members. Each initial post must be a *minimum* of 500 words
- Five discussion threads with the titles as given above with at least two posts per thread by each team member (the first response post and the second response post, labeled as such)
- The final proposal thread with at least 2n posts, i.e., the original draft proposal, responses from each team member except for the person who wrote the draft, the final draft proposal, and sign-offs from each team member except for the person who wrote the final draft.

Grading

While this is a team effort and your team will have an impact on your performance, you will be graded individually. The Initial Post is worth 50% of your score, contributions to the discussion (Response Posts) are worth 30%, and the Proposal is worth 20%. Please see the rubric in Canvas in the module for Week 7.

Creating Initial and Response Posts for the PSD in Canvas

Canvas Discussions can be confusing, so don't feel bad if you're confused. The PSD Discussion can be accessed via the Assignments link or Discussions link. If you use the Assignments link, it will take you directly to the PSD Discussion. If you use the Discussions link, you'll need to click on PSD under Discussions. After you click, you'll see the name of your team, e.g., CE1, CS1, or EE1. When you click on your team name, you'll reach the Discussion forum. Click on the Reply arrow to create your initial post. You won't be able to see anyone else's initial post until you've added yours.

After the initial post due date, the team captain must click on the original Reply arrow at the top to create each "thread." Label each thread appropriately, e.g., 1. Electronic Voting Method or Thread 1: Electronic Voting Method. Note that you need to click on the original Reply arrow each time you create a new thread.

To create your first response post for a thread, click on the Reply arrow for that thread. Don't forget to label your response as a "First Response." You can respond to someone else's response by clicking on the Reply arrow for their response. If this is a second response, be sure to label it as a "Second Response."

To create the proposal post, click on the original Reply arrow at the top. After the proposal has been created, team members can click on the Reply to the proposal or to a Reply to a teammate's post. Create a new post using the original Reply arrow at the top for the final proposal, and everyone should then reply to it to sign off with their approval.

You need to ensure that you're in the correct location for creating posts. You can tell by looking at the top left in Canvas. If you see something similar to:

you're in the wrong location. Instead, you should see something like this:

If you have issues figuring out what to do, email me (shira@wsu.edu); include a screenshot if appropriate.