CSE 403
Software Engineering
Spring 2020

Course projects

April 03, 2020
Today

- Communication guidelines and resources
- Course project: overview and examples
- Brainstorming project themes
  (Breakout room speed dating)
Communication guidelines and resources

Communication guidelines
● We use Slack for all (non-sensitive) communication.
● The Slack guidelines for this course are here:

Resources
● The go-to page for this course is the course web site:
● All information is on the website or linked from it.
● Canvas only for assignments and non-public materials.
  ○ Recordings are under Canvas -> Files
Course project overview

https://homes.cs.washington.edu/~rjust/courses/2020Spring/CSE403/project.html
Course project examples
An ordinary work day
Productivity killers

- Too many distractions
- Too many context switches
- Poor task prioritization and time management
The pomodoro technique

1. Work on one task (pomodoro) until the timer rings (25min).
2. If a distraction pops into your head, write it down, but immediately get back to the task.
3. Take a short 5 min break after each pomodoro.
4. Take a longer 30 min break after four pomodoros, and reset the counter.
A useful Pomodoro application

Scheduling

TO DO LIST

- Homework
- Slides
- Coding

Priorities
- Medium
- High
- Low

Estimates
- ●●●
- ●●
- ●
- ●

Monitoring

Notes

Integration
Cycling...we are in Seattle after all

CSE = Cycling and Software Engineering
Virtual power

Problem:
● Smart trainers and power meters are expensive

Solution:
● Build a DIY power meter
Virtual power

Current estimation approaches:
- Estimate power from resistance curve and speed
- Does not account for temperature etc.
Virtual power

DIY 1:
1. More sensors (speed, cadence, temperature)
2. Refine estimation model
3. App to read sensors and display power
Virtual power

DIY 2:
1. Record and process audio
2. Build estimation model
3. App to process audio and display power
Multi-objective Navigation

Goal: Optimize a route based on constraints and objectives

- Maximize or minimize elevation gain
- At most x% of the shortest path
- Only paved roads, etc.
Multi-objective Navigation

Goal: Optimize a route based on constraints and objectives

- At most x% grade
- Avoid accessibility barriers
- etc.

New route-finding map lets Seattle pedestrians avoid hills, construction, accessibility barriers

Jennifer Langston
UW News

Transportation routing services primarily designed for people in cars don't give pedestrians, parents pushing bulky strollers or people in wheelchairs much information about how to easily navigate a neighborhood using sidewalks.

For someone with limited mobility, using sidewalks or pedestrian paths in an unfamiliar area can be like driving without directions and hitting dead end after dead end.
Other examples

- Hack the pandemic
  - Data analysis and visualization
  - Apps to support research and/or society

- Software engineering research
  - Improve developer productivity
  - Better program analyses
Brainstorming project themes (Breakout room speed dating)

Themes and discussions on Slack (#breakout-rooms and #team-search)