Design Challenge Description – TextFinder

The design problem:

TextFinder searches a directory subtree seeking files that contain a specified string.

TextFinder Specification:

1. Identify all files in a directory subtree that match a pattern and contain a specified text.
2. Specify root path, one or more file patterns (.h,.cpp,.cs, …), and search text on command line
3. Display file name and path without duplication of path name, e.g., organized by directory, for files containing the search text
4. Interesting extensions:
    a. Replace text by regular expressions for both search text and file names
    b. Asynchronous processing to improve performance

Design Challenge Activities:

1. Develop software design
    a. Identify relevant program tasks
    b. Define software structure
        i. Parts (call graph or packages or classes)
        ii. Responsibilities of each part
        iii. Execution time-line (execution flow for tasks)
        iv. Potential for forking execution with threads or processes (not implemented)
    c. Define error handling
    d. Define tests
    e. Discuss future extensions
2. Implement prototype TextFinder – small implementation of some interesting part
3. Prepare design documents – Design document and Presentation slides.
4. Present design to evaluators either via Zoom or video mp4 upload.

Design Challenge Scoring:

1. Overall Presentation (25%):
    Brevity, clarity, completeness (ordered from most to least important) of presentation
2. Structure (25%):
    Essential parts named and responsibilities described (very briefly)
3. Work flow (20%):
    Sequencing of activities, potential for forking threads or processes
4. Testing (15%):
    Errors handled, test descriptions (brief)
5. Prototype (10%):
    Demonstrate workflow or critical processing – does not need to be complete implementation
    Language choice up to team. No penalty for choosing simple one with modest performance, e.g., python
6. Presentation of Extensions (5%):
    Discuss as part of documentation. No implementation of extensions in prototype expected.
7. Results submitted as document (pdf from docx or google doc) plus presentation (pdf from pptx or google slides). Teams may submit mp4 video instead of presentation (see notes, next page)

Reference: https://jimfawcett.github.io/Design.html

Design Challenge Events:

1. Design challenge begins Friday October 30th with introduction to Design Challenge during Zoom meeting.
2. Zoom Q&A session Sunday, Nov 1st at 1:00 pm – answer questions about requirements and scoring.
3. Zoom Q&A session Sunday, Nov 8th at 1:00 pm.
4. Final Zoom Q&A session Thursday, Nov 12th at 1:00 pm.
5. Upload documents and/or video mp4 by Friday, Nov 13 at 10:00 am. Shared Google drive folder link sent 24 hours earlier.
6. Zoom team presentations, Friday, Nov 13th starting at 1:00pm (see note below).
7. Team rankings for design challenge posted by 10:00 am, Saturday, Nov 14th, the first day of the Codeathon code challenges.
8. Revisions of documents and/or videos may be submitted to improve ranking by 1:00 pm on Saturday, Nov 14th.
9. Final results posted by 3:00 pm on Saturday.

Notes:

1. Zoom meeting links sent to participants 24 hours prior to meeting time.
2. All Q&A sessions are optional. You don't need to participate if you don't have questions.
3. Optional team Zoom presentations scheduled 24 hours before.
4. Team scores based on
    a. Design document
    b. Presentation video using slides prepared by team and presented by one or more team members
    c. You may substitute a Zoom presentation for the video upload, without penalty.
5. Design documents should be about 5 pages, organized into sections for each of the activities.
6. Design presentations should be about 5 slides, with much less detail. That will be supplied in the video or Zoom presentation.
7. Slides could simply summarize the most important parts of the document.

Reference:

TBD: will have a link here to an example design for a different application, posted to my github website.

Schedule of Events:

Mon	Tues	Wed	Thur	Fri Oct 30	Sat Oct 31	Sun Nov 01
				kickoff Zoom mtg		Zoom Q&A 1:00 pm
Mon Nov 02	**Tues Nov 03**	**Wed Nov 04**	**Thur Nov 05**	**Fri Nov 06**	**Sat Nov 07**	**Sun Nov 08**
						Zoom Q&A 1:00 pm
Mon Nov 09	**Tues Nov 10**	**Wed Nov 11**	**Thur Nov 12**	**Fri Nov 13**	**Sat Nov 14**	
			Zoom Q&A 1:00 pm	Upload docs 10:00 am Zoom present (opt) 1:00 pm	Ranking posted 10:00 am Revision upload 1:00 pm	