CPSC 559 – W2021 – Project Iteration 3

Contents

System Description

Now that the basic communication between peers is functioning you can start focussing on making this communication fault tolerant. For this iteration, you're asked to add the following features to the project. Some of these features are optional and some are required. Note that marks for optional features are counted directly to your course grade, not to your project grade. You only qualify for these grades if the required components are implemented correctly.

1. Required: managing dropped *stop* messages.
2. Optional: managing dropped *snip* messages. Implementing this will increase your course grade by up to 3%.
3. Optional: improving group management including improving detection of peers that left the group and helping peers that join late to catch up on lost snip messages. Implementing this will increase your course grade by up to 3%.

The registry for the required features is available. You can submit your solution on Friday March 25 or Friday April 1(alternate submission date for iteration 3) or Friday April 15 (submission date for iteration 4).

You can submit your solution for the optional features on Friday April 1(alternate submission date for iteration 3) or on Tuesday April 15 (submission date for iteration 4).

Note: requirements for optional features moved to different requirements document.

Requirements for a Peer Process

See iteration 2 for detailed requirements. Existing communication between peer and registry stays the same as does communication between peers. Some additional messages (and possibly management of peers) is required to improve the fault tolerance of your peer process.

Shutting down system requirements (*stop* UDP/IP messages)

Required update: send a response the registry to stop messages. The format is

`<stop response> :: ack<team name>`

The ack should be sent using the UDP protocol. Use the sender location of the stop message to find the location to respond to. Send this response immediately: before processing the stop request.

If the registry does not receive the ack on time, it is possible that you will receive multiple stop messages. Make sure that your process handles this appropriately.

Testing Your Solution

Before the iteration due date, a Registry server will be running (mostly) continuously. By default, it will be running at 136.159.5.22:55921. There will also always be at least three peer processes running that will generate random snippets and will participate in the group management as required.

The code for the Registry and the automated test peers will be provided if you want to run them locally before joining the rest of the class to test your peer process. If the registry is not running at the default location or the location last communicated on the discussion board, post a note on the discussion board and I will get the Registry restarted as quickly as possible.

The Registry that will be used to submit your solution will be the same as the one used for testing, but it will be restarted before submission starts.

For your convenience, the source code of this test registry is available on D2L.

Submission

This third iteration is due on Friday March 25 at 3pm. We'll also accept submissions, without penalty, on Friday April 1 by 3pm. Do note that the March 25 submissions will be graded before the April 1 submission.

If you want to submit a solution with the optional features, you can do so on Friday April 1 or on Friday April 15 (for iteration 4 of the project).

There are three requirements for submission:

1. Class diagram of your solution to the D2L dropbox for this iteration.

2. A video that gives a brief explanation of your implementation, shows your peer in action, **and explains under which circumstances a peer would not receive a *stop* message**, even with the resends in iteration 3.

The length of your video should be between 5 and 10 minutes. Only the first 10 minutes of your video will be viewed when grading. Use the same D2L dropbox to either upload the video or provide a link to your video.

3. Running your peer on
    a. Friday March 25 between 3pm and 4pm, or
    b. Friday April 1 between 3pm and 4pm

Grading will be based on:

1. Your ability to connect with the submission registry server and your ability to send your source code and report when required and requested. If this portion is not functioning, your submission will NOT be graded.
2. The accuracy of the report that your process sends to the registry sever during shut down.
3. The quality of the code. (Design, legibility and documentation)
    a. If no class diagram is provided, there is no marks for design.
    b. If the video does not give a brief overview of the design and organization of the code, there are no marks available for design.
4. The ability for an end user to send snippets and read snippets. If the video does not show this functionality clearly, no marks are available for the interface.

Collaboration Opportunities and Limitations

You may continue with the same partner, work with a different partner, or work alone for this iteration. Each team must have a unique team name. Please contact the instructor with a preferred team name and the list of team members.

No other individuals should work directly on the code you write, except for the instructor and TAs. Do not send your entire code base to any individuals nor make it available in a public repository, a discussion board or any other forums.

You may use any other resources you find useful. You may ask questions in the course discussion boards and any public discussion boards. Do make sure you cite any sources you use and any suggestions you received on discussion boards and other forums. An example on citing code using code documentation can be found at: https://runestone.academy/runestone/books/published/StudentCSP/CSPCreativity/referencing.html Do make it clear exactly which of your submitted code the citation relates to.

If you find an algorithm at a source other than the materials provided for class, make sure you cite this as well in the code documentation.

If you are not sure if a certain level of help or collaboration from individuals outside the team is allowed, make sure to contact the instructor for clarification.