Demographics page

Tell us more about yourself

1. **What is your full name?** *

2. **What is your age?** *

3. **How many years of programming experience have you had?** *

4. **Have you ever taken a distributed systems or a networking course?** *
   Mark only one oval.

   ◯ Yes

   ◯ No

5. **Have you ever developed/debugged a distributed system?** *
   A distributed system is a system with at least two processes or two hosts that communicate over some channel, like TCP sockets.
   Mark only one oval.

   ◯ Yes

   ◯ No

Using ShiViz to understand a reliable broadcast execution

Reliable broadcast is a protocol that implements a mechanism to broadcast reliably to a set of nodes over an unreliable connection. The log you will study with ShiViz contains one execution of the reliable broadcast protocol.

1. Open the ShiViz tool: http://bestchai.bitbucket.org/shiviz/
2. Click the "Try out ShiViz" button
3. Click on the link "Reliable broadcast log"
4. Leave the options as they are and generate the visualization by clicking on the "Visualize" button

Now, answer the questions below.

6. **How many processes are recorded in this execution?** *

Mark only one oval.

- ( ) 1
- ( ) 2
- ( ) 3
- ( ) 4
- ( ) More than 4

7. **Are there processes in this execution that never communicate with any other process?** *

Mark only one oval.

- ( ) Yes
- ( ) No

Reliable broadcast execution continued

More questions about the visualized reliable broadcast execution.

(Reliable broadcast is a protocol that implements a mechanism to broadcast reliably to a set of nodes over an unreliable connection.)

8. **Which node initiates the reliable broadcast operation?** *

Mark only one oval.

- ( ) Node0
- ( ) Node1
- ( ) Node2

9. **Which nodes execute a "Handle Tick" event?** *

Check all that apply.

- [ ] Node0
- [ ] Node1
- [ ] Node2

10. **How many messages does node2 send to node1?** *

You may want to use the "filter" feature to show only communication events to/from a specific host.
Mark only one oval.

- ( ) 0
- ( ) 1
- ( ) 2
- ( ) 3
- ( ) 4
- ( ) 5
- ( ) More than 5

Using ShiViz to understand a Facebook data-center log

Our Facebook data-center log captures a distributed execution in which a user named "alice" interacts with the Facebook data-center. There are three timelines associated with hosts inside the Facebook datacenter: westDC (a host inside the west data center), eastDC (a host inside the east data center), and X (a host whose location/role is unclear).

1. Open the ShiViz tool: http://bestchai.bitbucket.org/shiviz/
2. Click the "Try out ShiViz" button
3. Click on the link "Facebook data-center log"
4. Leave the options as they are and generate the visualization by clicking on the "Visualize" button

Now, answer the questions below.

11. **Which two hosts exhibit the request-response communication pattern in the execution?** *
   A request-response is a communication pattern between two processes in which the first process sends a message to the second process, and the second process immediately responds to the first process. For this question you may want to search for a pre-defined motif.
   Mark only one oval.

   - ( ) eastDC and alice
   - ( ) eastDC and westDC
   - ( ) eastDC and X
   - ( ) alice and westDC
   - ( ) alice and X
   - ( ) westDC and X

12. **How many instances of the request-response communication patterns are there in this execution?** *
   Mark only one oval.

   - ( ) 1
   - ( ) 2
   - ( ) 3
   - ( ) 4
   - ( ) 5
   - ( ) More than 5

13. **Consider and briefly describe what you think is the role that host X plays in the Facebook system.** *

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14. **How many threads in this execution never communicated with other threads?** *

   _____

Using ShiViz to understand a Voldemort execution

Voldemort is a system that implements a distributed hash table. The log you will study with ShiViz contains one execution of Voldemort, in which the nodes are represented as threads.

1. Open the ShiViz tool: http://bestchai.bitbucket.org/shiviz/
2. Click the "Try out ShiViz" button
3. Click on the link "Voldemort log"
4. Leave the options as they are and generate the visualization by clicking on the "Visualize" button

Now, answer the questions below.

15. **Which thread generated the most number of events? ***

_____

16. **Some of the events in this execution explicitly note Voldemort protocol version "vp1". How many of these events are there? ***

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Voldemort execution continued
More questions about the visualized Voldemort execution.

17. **Which thread behaves most similarly to the thread named "nio-server1" ? ***

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18. **Which thread behaves most similarly to the thread named "vold-server2" ? ***

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Using ShiViz to understand 2 Facebook execution
You will study a log that records 2 executions of the Facebook system.

1. Open the ShiViz tool: http://bestchai.bitbucket.org/shiviz/
2. Click the "Try out ShiViz" button
3. Click on the link "Facebook log with multiple executions"
4. Leave the options as they are and generate the visualization by clicking on the "Visualize" button

Now, answer the questions below.

19. **Consider the request-response communication pattern. Compare the number of instances of this pattern between the two executions.**
A request-response is a communication pattern between two processes in which the first process sends a message to the second process, and the second process immediately responds to the first process. For this question, you may want to search for a pre-defined motif.
Mark only one oval.

◯ Left execution has more instances

◯ Right execution has more instances

◯ The two executions have the same number of instances

20. **Compare the two executions graphs and notice that they look different. In your own words, explain why the shapes of the two graphs look different.** *

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Feedback on your experience with the ShiViz tool

21. **What kind of questions in the assignment were the most challenging for you, and why?**

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22. **Which feature(s) of the ShiViz tool did you appreciate the most?**

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23. **What additional feature(s) do you think would be helpful to add to ShiViz?**

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24. **If you needed to understand a distributed execution log, would you use ShiViz?** *
    Mark only one oval.

    ◯ Absolutely

    ◯ Yes

    ◯ Likely

    ◯ Unlikely

    ◯ No

    ◯ Absolutely not