

Assigned: October 24, 2005

Due: October 31, 2005 at the beginning of the class

Name: Fill in on your answer sheet

You have to analyze the given Xinu code to answer the following questions about possible memory defects. We believe that the given code is all you need. However, if you think that you need more code, you can find it in the LSI subdirectory of the entire Xinu code given to you earlier. If you have questions, you should ask those in class till Friday, October 28.

Questions:

1. This involves analyzing the possibility of a defect where the same memory gets released twice. The **dsread()** calls **getbuf()** to get memory and subsequently it calls **freebuf()** to release the allocated memory. However, in-between it calls **dseq()** which in turn ends up calling **freebuf()** too. It would be a bug if **freebuf()** is called twice to release the memory. Is there an execution path along which the memory is being released multiple times? Provide proper justification. Either, show an execution path along which **freebuf()** gets called twice; or, show that the multiple calls to **freebuf()** are not along the same execution paths.
2. This involves analyzing the possibility of a defect where the memory does not get released. The **dswrite()** calls **getbuf()** to get memory; it does not call **freebuf()** to release the memory. However, it calls **dseq()** which in turn ends up calling **freebuf()**. It would be a bug if **freebuf()** is not called to release the memory. Is there an execution path along which the memory is not being released? Provide proper justification. Either, show an execution path along which **freebuf()** never gets called; or, show that the **freebuf()** is called along every execution path.

You should provide clear, concise, and well-written explanations that justify your answers. The credit will be given based on how complete is your analysis and how well you have explained your work. You must clarify the answer with specific references to the code.

Copy the top 4 lines and the questions, and fill in your name on the answer sheet. The homework must be type written.