

CPRE 556: Scalable Software Engineering      **Homework 1** (20 points)

Assigned: January 19, 2006

Due: January 26, 2006 to be sent my email before 10 pm.

Name:

Use the above header and include your name. Also, repeat the questions before giving your answer.

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Analyze the given Xinu code (zip file posted on the course website) to answer the following questions regarding the possibility of a memory leak. If you have questions, you should ask those either by email or in class before 2 pm on Tuesday, January 24.

The **dswrite ()** calls **getbuf ()** to get memory; it does not call **freebuf ()** to release the memory.

Questions:

1. Is this a memory leak – yes or no?
2. Justify the above answer. The justification should be complete and clear. Write your argument neatly in a step-by-step fashion. Refer to lines of code where necessary. Either, show an execution path along which **freebuf ()** never gets called; or, show that the **freebuf ()** is called along every execution path.
3. Note: Give the best possible answer to the above two questions based on the given code.
4. Is the given code enough to give a completely sound answer to the above questions – yes or no?
5. Justify the above answer.

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.