**Address Translation Simulator Exercise example**  
  
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**Instructions**:  Download the Address Translation simulator and extract the zip file. This produces a folder named **address**. The user manual for this simulator, **address\_doc.html**, is included in this folder. It is strongly suggested that you carefully read through this documentation describing how the simulator operates prior to beginning these exercises.  
  
Steps: Perform the following steps using the address translation simulator.

1. In the **address** directory execute **~~runaddress~~** ~~(UNIX, Linux, Mac OS X)~~ or **runaddress.bat** (Windows.) This will start the address translation simulator.
2. Click the yellow button labeled **Single Level** at the right side of the Virtual Address Translation Simulator window. Five additional buttons labeled **Single Level Page Table Test 1** through **Single Level Page Table Test 5** appear. The ordering of the tests is random, based upon the name of the user specified in the configuration file **addressconfig** in the address directory. You will use the default name for the first test in this part. Later steps will have you set the username to your name and you will submit a logfile of your activity.
3. Click the **Single Level Page Table Test 1** button at the right of the simulator window. The **Virtual Address Translation** window appears. This is the window where you will translate the supplied logical address to its physical address.
4. Click the **Progress** button at the bottom left of the Virtual Address Translation window. The **Single Level Page Table Progress** window appears with the 10 tasks for resolving the logical address to the physical address (the window may need to be resized for you to read the entire title in the title bar).
5. Click the green button labeled **Lifeline** in the upper left-hand corner of the Virtual Address Translation window. A lifeline is an aid which helps you perform one of the steps from the progress window. (You do not have to use lifelines if you do not require such aid.) Your instructor control whether lifelines are available, and if he or she chooses to make them available, he or she can also set the number of lifelines for each test. If lifelines are not available, clicking the **Lifeline** button will have no effect.
6. Perform Task 1 in the Progress window, using the Lifeline window to find the correct location (, and click to segment the logical address. (A light blue circle appears to the left of each step in the Progress window after it is successfully completed.)
7. Perform Task 2 in the Progress window, using the Lifeline window to find the correct location (, and segment the physical address.
8. Perform Task 3 in the Progress window and click the **Paste** button to paste the offset into the physical address address.
9. Click the **TLB** button at the bottom of the Virtual Address Translation window. The **TLB** window appears.
10. Click on **4. Segment TLB** in the Progress window. A separate **Help** window appears describing the steps for completing this task. Following the steps in the Help window, segment the TLB. (You may also use the Lifeline in conjunction with the Help window.)
11. Perform Task 5 in the Progress window.
12. Perform Task 6 in the Progress window by clicking the **Lookup** button in the bottom left-hand corner of the TLB window. The TLB window displays a message indicating whether the frame for this logical page was found in the TLB or not. In this case, it displays "Found Frame". Notice that Tasks 7 and 8 have been disabled, you will not complete them in this test.
13. Perform Task 9 in the Progress window.
14. Click the appropriate completion button -- either **Found Physical Address** or **Page Fault** -- in this case, click the **Found Physical Address** button.
15. Click the pink **Quit** button in the lower left-hand corner of the Virtual Address Translation  window (the main window). This will terminate the simulator.