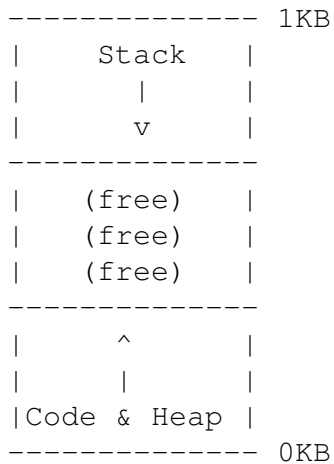


July 5, 2017: CS 537-Intro to Operating Systems

Worksheet 1 - Segmentation

Assume a system that uses **segmented virtual memory**. The segmentation that this system uses is pretty simple: an address space has just **two** segments: segment 0 and segment 1; further, the top bit of the virtual address generated by the process determines which segment the address is in: 0 for **segment 0** (where, say, **code and the heap** would reside) and 1 for **segment 1** (where the **stack** lives). **Segment 0** grows in a **positive** direction (towards higher addresses), whereas **segment 1** grows in the **negative** direction.



Segment register information:

```

Segment 0 base (grows positive) : 0x00001aea (decimal 6890)
Segment 0 limit                               : 472
    
```

```

Segment 1 base (grows negative) : 0x00001254 (decimal 4692)
Segment 1 limit                               : 450
    
```

For each virtual address, either write down the physical address it translates to OR write down that it is an out-of-bounds address (a segmentation violation).

Virtual Address	Physical Address OR Seg Fault
0x0000020b (decimal: 523)	
0x0000019e (decimal: 414)	
0x00000322 (decimal: 802)	
0x00000136 (decimal: 310)	
0x000001e8 (decimal: 488)	