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Intro to OS

Lab 5

1. The size of the page in paging systems are always powers of 2 because they must represent each part in memory. This makes it efficient to allocate memory since it would align with the physical memory addresses. This also makes memory offset calculation simpler as well. In general, memory addresses are typically represented by binary so using powers of 2 would allow for faster address translation, as well as operations like bit shifting and masking.
2. Assuming 1 KB (1024 bytes) page size:
   1. floor(3085 / 1024) = 3; 3085 % 1024 = 13  
      **Page 3; Offset 13**
   2. floor(42095 / 1024) = 41; 42095 % 1024 = 111  
      **Page 41; Offset 111**
   3. floor(215201 / 1024) = 210; 215201 % 1024 = 161  
      **Page 210; Offset 161**
   4. floor(650000 / 1024) = 634; 650000 % 1024 = 784  
      **Page 634; Offset 784**
   5. floor(2000001 / 1024) = 1,953; 2000001 % 1024 = 129  
      **Page 1,953; Offset 129**
3. C program attached
4. C program attached