CST 334: Operating Systems

Dr. Glenn Bruns

# OSTEP Chapter 18: Paging

**Purpose**. Paging is one of the main approaches to memory virtualization. This assignment will help you learn how paging works.

**Instructions**. Read OSTEP chapter 18 and answer the following questions by editing [chap18.txt](https://drive.google.com/file/d/1RAtw-fokRQ2X539aKwrLuDgzeEPHlbys/view?usp=sharing).

1. Suppose we have a virtual address space with 64 pages and in which virtual addresses are 16 bits long. A virtual address then has \_\_\_6\_\_ bits for the virtual page number and \_\_10\_\_\_ bits for the offset.
2. In address translation with paging, how is the offset of the virtual address modified? a) according to the page table, b) it is zeroed, c) it is not changed.
3. True or false: External fragmentation can occur with paging if the page tables are frequently modified.
4. Suppose we have a 32 bit virtual address space with pages that are 4 KB in size. How many entries will there be in the page table?

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1. Yes or no: Can permissions be assigned to different pages in a virtual address space, for example to prohibit writing to certain pages?

**Submission**: Submit your edited chap18.txt on iLearn.

**Grading**: Each problem is worth 10 points.