Report on exercise #2

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The proposed solution to find out the number of pages that the minimal kernel allocated makes essentially use of a `for` loop that, for each iteration, tries to access a page until a page fault and a consequent kernel panic are produced. After having initialized the segmentation and the paging tables by means of the `init_descriptor_tables()` and `init_paging()` functions, the loop is set up by setting the value of variables `i` (`u32int`) which is used to count the index of the page that is being checked, and `ptr` (`u32int*`), which is used as the pointer to reference the different pages, to `0`. At each iteration, the loop:

- Accesses the memory location addressed by `ptr`, storing the result in the variable `data` (`u32int`);
- If no page fault has occurred (i.e. no kernel panic has been generated), writes a message on the screen by means of the `monitor_write()` function and its derivatives for integer numbers.

After each iteration, the value of `i` is incremented and the value of `PAGE_SIZ` divided by 4 (i.e. shifted by 2) is added to `ptr`. `PAGE_SIZ` is defined as a constant set to `4096` (`0x1000` in hexadecimal notation), which represents the size of each page in the Intel x86 architecture (4 KB); it is divided by 4 since, due to the way pointers are handled in the C language, each increment of a pointer referring to a 32-bits long type will effectively result in a memory access shifted by 32 bits with respect to the pre-increment value of the pointer.

As a result of the execution of the program, we obtain that the minimal kernel allocates exactly 264 pages: the first page fault, in fact, is generated when accessing address `0x10900`, corresponding to the beginning of the 265th page.