Lab 4: Process – Course: Operating Systems
Student ID: 1610852 – Name: Huynh Sam Ha

REPORT

In which cases we should use alined_malloc() instead of standard malloc?

As http://www.gnu.org says:

"The address of a block returned by *malloc* or *realloc* in GNU systems is always a multiple of eight (or sixteen on 64-bit systems). If you need a block whose address is a multiple of a higher power of two than that, use *aligned_alloc* or *posix_memalign*. *aligned_alloc* and *posix_memalign* are declared in *stdlib.h*."

Therefore, we use *aligned_malloc()* in which we need address is a multiple of higher power of 2 (such as 2^12, 2^18 or 2^20) for our custom structures or classes (in c++).

How can we increase the size of heap in a running process?

The heap have start point, end point (called break, a point which heap is used) and the maximum size. So we only increase heap (or extend heap) not overflow the maximum size of heap.

In programming languages, we increase the size of heap in a running process, that means we allocate dynamic memory, in C such as *malloc(),* or other languages such as *new.*

In C, we can also use the syscall *sbrk(int inc)* to increase *inc* the break point in heap to allocate dynamic memory.