

OS Assignment 5 Report

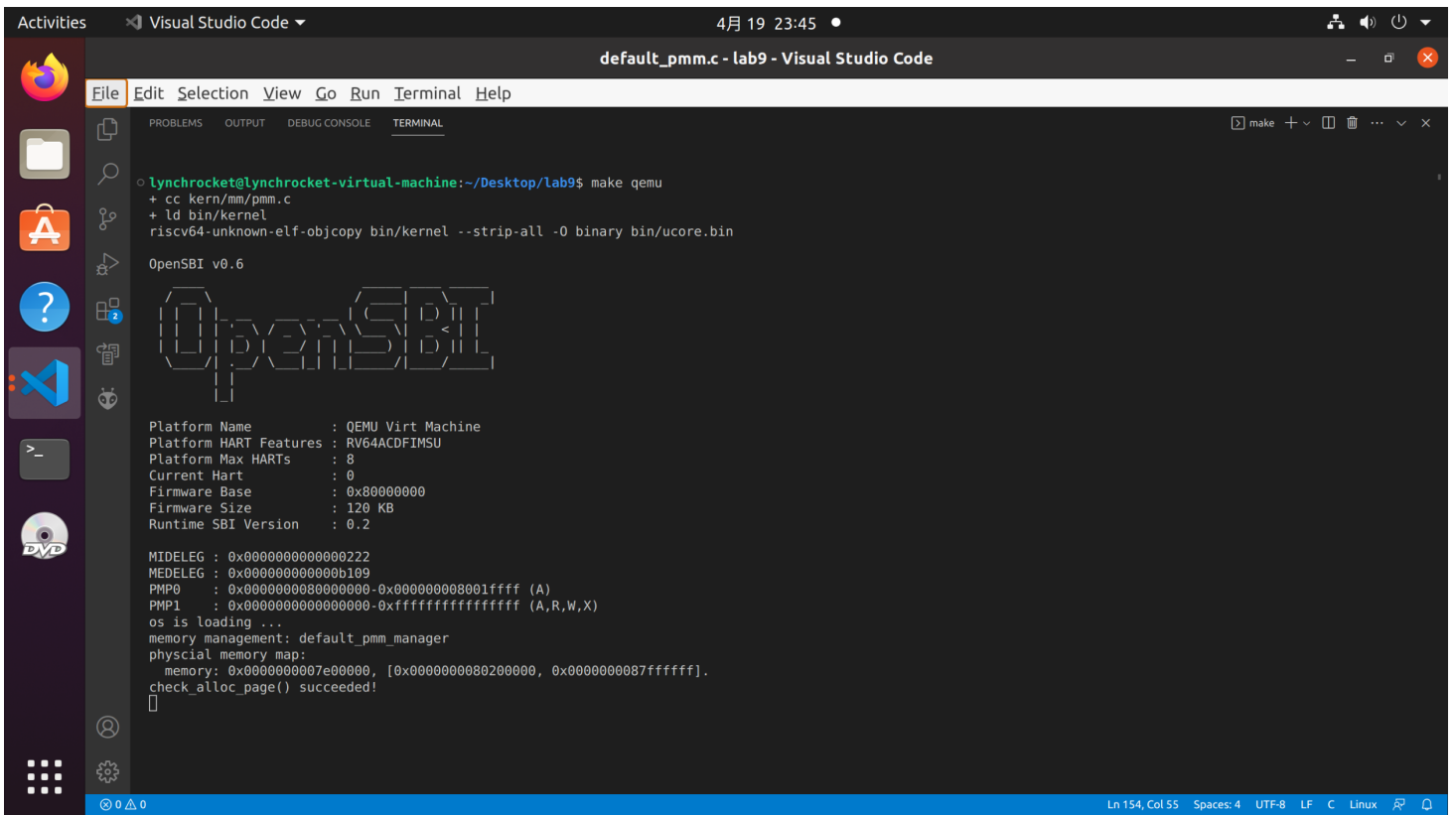
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1. default_free_pages()

```
C default_pmm.c x C best_fit_pmm.c C pmm.c C memlayout.h
kern > mm > C default_pmm.c > default_free_pages(Page *, size_t)
146         list_add_before(le, &(base->page_link));
147         break;
148     } else if (list_next(le) == &free_list) {
149         list_add(le, &(base->page_link));
150     }
151 }
152 }
153
154 //-----合并空闲块-----
155 if (!list_empty(&free_list)) {
156     // backward
157     list_entry_t* le = list_next(&(base->page_link));
158     if (le != &free_list) {
159         struct Page* page = le2page(le, page_link);
160         if ((!PageReserved(page) && PageProperty(page)) && (base + base->property == page)) {
161             base->property += page->property;
162             ClearPageProperty(page);
163             list_del(le);
164         }
165     }
166     // forward
167     le = list_prev(&(base->page_link));
168     if (le != &free_list) {
169         struct Page* page = le2page(le, page_link);
170         if ((!PageReserved(page) && PageProperty(page)) && (page + page->property == base)) {
171             page->property += base->property;
172             ClearPageProperty(base);
173             list_del(&(base->page_link));
174         }
175     }
176 }
177 //-----
178
179 }
```



```
Activities Visual Studio Code 4月 19 23:45 default_pmm.c - lab9 - Visual Studio Code
File Edit Selection View Go Run Terminal Help
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
lynchrocket@lynchrocket-virtual-machine:~/Desktop/lab9$ make qemu
+ cc kern/mm/pmm.c
+ ld bin/kernel
riscv64-unknown-elf-objcopy bin/kernel --strip-all -O binary bin/ucore.bin
OpenSBI v0.6

Platform Name      : QEMU Virt Machine
Platform HART Features : RV64ACDFIMSU
Platform Max HARTs  : 8
Current Hart       : 0
Firmware Base      : 0x80000000
Firmware Size      : 120 KB
Runtime SBI Version : 0.2

MIDELEG : 0x0000000000000222
MEDELEG : 0x000000000000b109
PMP0    : 0x0000000080000000-0x000000008001ffff (A)
PMP1    : 0x0000000000000000-0xffffffffffffff (A,R,W,X)
os is loading ...
memory management: default_pmm_manager
physcial memory map:
memory: 0x000000007e00000, [0x0000000080200000, 0x0000000087ffffff].
check_alloc_page() succeeded!
```

2. best_fit_pmm.c

I just modified here. Others are the same as default_pmm.c

```
static struct Page *
best_fit_alloc_pages(size_t n)
{
    //TODO
    assert(n > 0);
    if (n > nr_free) {
        return NULL;
    }
    struct Page *page = NULL;
    unsigned int min_property = 0xFFFF;
    list_entry_t *le = &free_list;
    while ((le = list_next(le)) != &free_list) {
        struct Page *p = le2page(le, page_link);
        if (p->property >= n && p->property < min_property) {
            page = p;
            min_property = p->property;
        }
    }
    if (page != NULL) {
        list_entry_t* prev = list_prev(&(page->page_link));
        list_del(&(page->page_link));
        if (page->property > n) {
            struct Page *p = page + n;
            p->property = page->property - n;
            SetPageProperty(p);
            list_add(prev, &(p->page_link));
        }
        nr_free -= n;
        ClearPageProperty(page);
    }
    return page;
}
```

