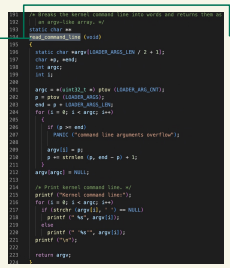
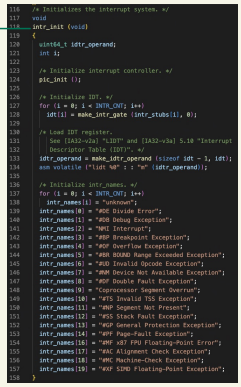
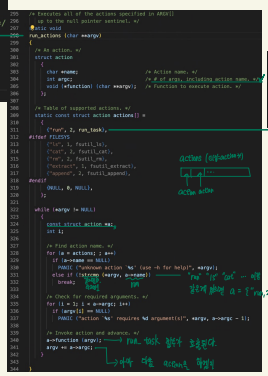
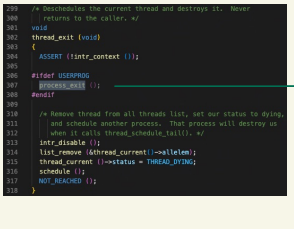
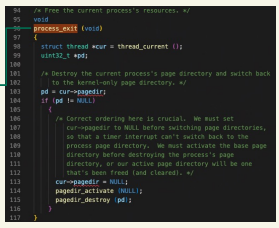
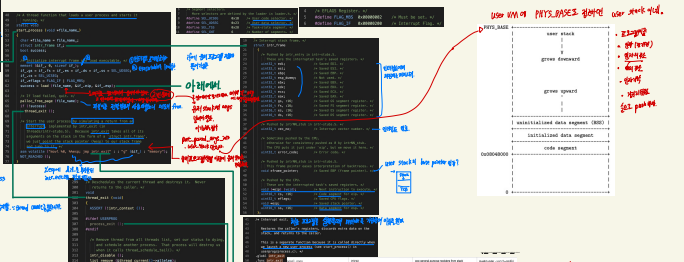


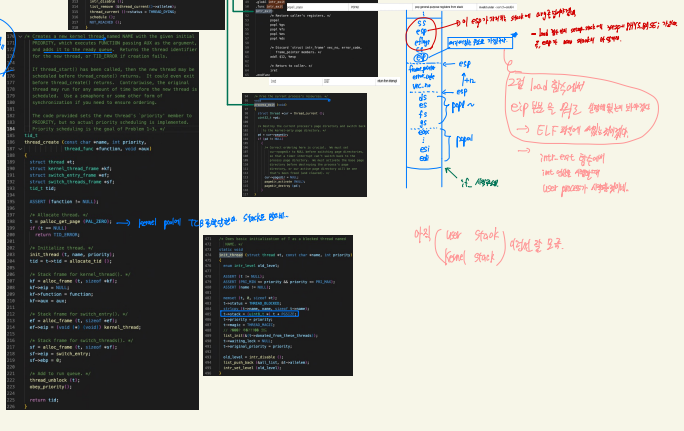












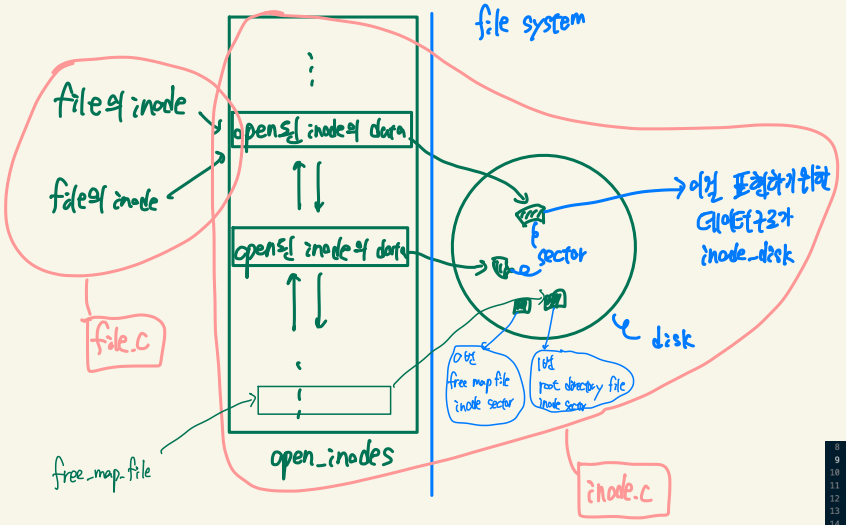
4.2. 목요일

- Binary semaphores used for coordination: initial value of 0;

```
semaphore sem;        // initialized to 0
Thread::Join calls sempahore->P(sem);
Thread::Finish calls semaphore->V(sem);
```

  - * Scheduling constraints : having one thread to wait for something to happen

```c
/* Identifies an inode. */
#define INODE_MAGIC 0x494e4f44

/* On-disk inode.
   Must be exactly BLOCK_SECTOR_SIZE bytes long. */
struct inode_disk
  {
    block_sector_t start;               /* First data sector. */
    off_t length;                       /* File size in bytes. */
    unsigned magic;                     /* Magic number. */
    uint32_t unused[125];               /* Not used. */
  };

/* Returns the number of sectors to allocate for an inode SIZE
   bytes long. */
static inline size_t
bytes_to_sectors (off_t size)
{
  return DIV_ROUND_UP (size, BLOCK_SECTOR_SIZE);
}

/* In-memory inode. */
struct inode
  {
    struct list_elem elem;              /* Element in inode list. */
    block_sector_t sector;              /* Sector number of disk location. */
    int open_cnt;                       /* Number of openers. */
    bool removed;                       /* True if deleted, false otherwise. */
    int deny_write_cnt;                 /* 0: writes ok, >0: deny writes. */
    struct inode_disk data;             /* Inode content. */
  };

/* Returns the block device sector that contains byte offset POS
   within INODE.
   Returns -1 if INODE does not contain data for a byte at offset
   POS. */
static block_sector_t
byte_to_sector (const struct inode *inode, off_t pos)
{
  ASSERT (inode != NULL);
  if (pos < inode->data.length)
    return inode->data.start + pos / BLOCK_SECTOR_SIZE;
  else
    return -1;
}

/* List of open inodes, so that opening a single inode twice
   returns the same `struct inode'. */
static struct list open_inodes;
```



Syscall_handler는 언제실행되는가

```c
void
syscall_init (void)
{
  intr_register_int (0x30, 3, INTR_ON, syscall_handler, "syscall");
}
```

struct block* fs_device

```c
/* A block device. */
struct block
  {
    struct list_elem list_elem;         /* Element in all_blocks. */

    char name[16];                      /* Block device name. */
    enum block_type type;               /* Type of block device. */
    block_sector_t size;                /* Size in sectors. */

    const struct block_operations *ops; /* Driver operations. */
    void *aux;                          /* Extra data owned by driver. */

    unsigned long long read_cnt;        /* Number of sectors read. */
    unsigned long long write_cnt;       /* Number of sectors written. */
  };
```

free_map_init

```c
/* Sets up the timer to interrupt TIMER_FREQ times per second,
   and registers the corresponding interrupt. */
void
timer_init (void)
{
  pit_configure_channel (0, 2, TIMER_FREQ);
  intr_register_ext (0x20, timer_interrupt, "8254 Timer");
}
```

src/userprog/syscall.c

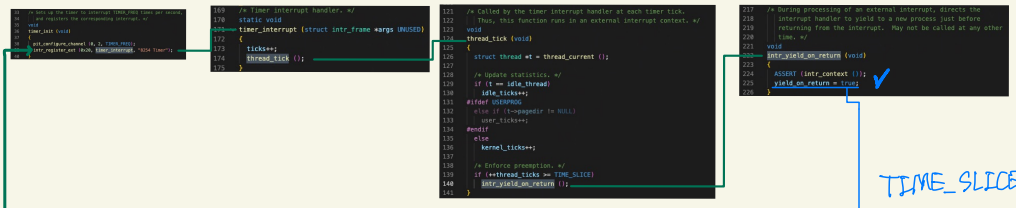
- syscall_init
- syscall_handler
  구현.
  → 인터럽트 프레임에서 syscall number 받기.

src/lib/user/syscall.c, syscall.h

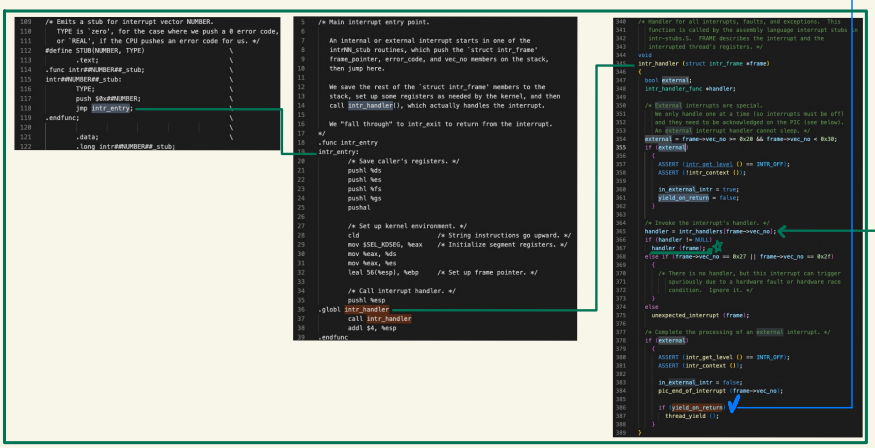
```
22  /* Projects 2 and later. */
23  void halt (void) NO_RETURN;
24  void exit (int status) NO_RETURN;
25  pid_t exec (const char *file);
26  int wait (pid_t);
27  bool create (const char *file, unsigned initial_size);
28  bool remove (const char *file);
29  int open (const char *file);
30  int filesize (int fd);
31  int read (int fd, void *buffer, unsigned length);
32  int write (int fd, const void *buffer, unsigned length);
33  void seek (int fd, unsigned position);
34  unsigned tell (int fd);
35  void close (int fd);
```

process.c

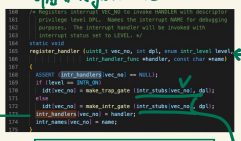
- process_wait



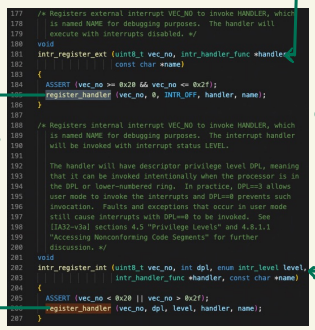
TIME_SLICE가
끝난다면 thread_yield 함수를
호출한다.



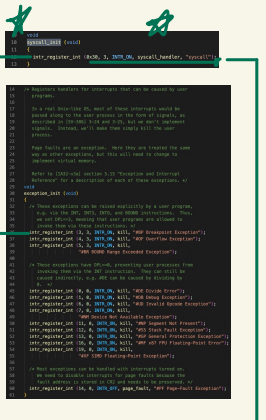
이쪽에 register 해준.



@ intr_handlers 초기 배열에 예약해당하는 함수 주소 저장.



@ register한다!



① init 할 때

(src/userprog/syscall.c 에 있는)

0x30 에 syscall_handler 함수를 등록시켜준다.

등록 how?

syscall_init함수에서
intr_register_int 함수를 호출하고
→ register_handler 함수를 호출한다.
→ intr_handlers에 저장시켜준다.

"구현할 것."

```
static void
syscall_handler (struct intr_frame *f UNUSED)
{
  printf ("system call!\n");
  thread_exit ();
}
```

호출 how?

나중에 intr_handler 에서 인터럽트 발생하면 (0x30이겠지)
syscall_handler 함수를 호출하는 것일.

유저 호출의 시발점에 어디인지 오늘.

└ intr□□_stub

└ intr_stubs.S 더 보기

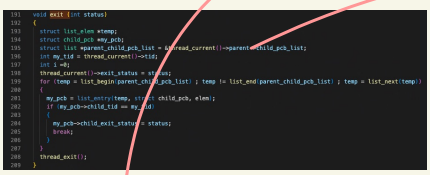
```c
/* Initializes the file system module.
   If FORMAT is true, reformats the file system. */
void
filesys_init (bool format)
{
  fs_device = block_get_role (BLOCK_FILESYS);
  if (fs_device == NULL)
    PANIC ("No file system device found, can't initialize file system.");

  inode_init ();
  free_map_init ();

  if (format)
    do_format ();

  free_map_open ();
}
```

```c
/* List of open inodes, so that opening a single inode twice
   returns the same `struct inode'. */
static struct list open_inodes;

/* Initializes the inode module. */
void
inode_init (void)
{
  list_init (&open_inodes);
}
```

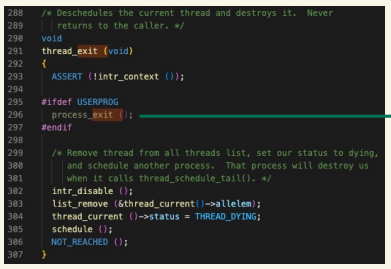
test 코드에서 msg 함수 write 분석.

```c

void
msg (const char *format, ...)
{
  va_list args;

  if (quiet)
    return;
  va_start (args, format);
  vmsg (format, args, "\n");
  va_end (args);
}
```

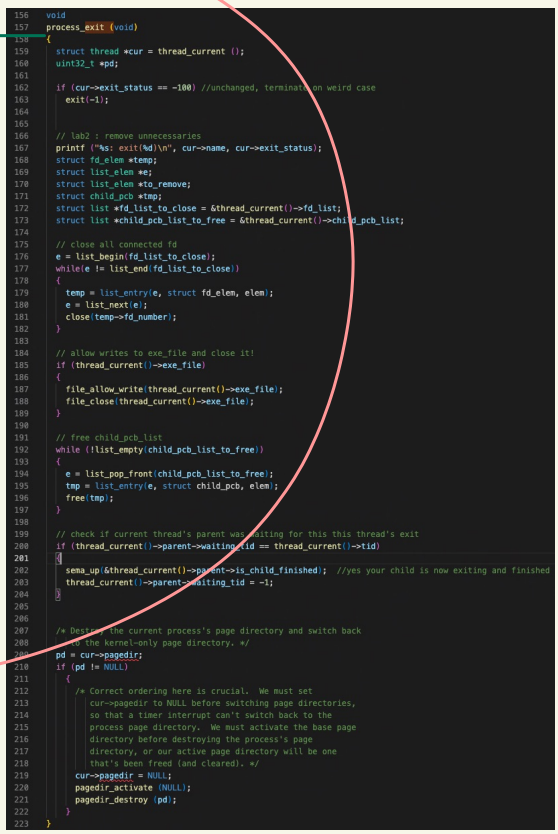
```c
static void
vmsg (const char *format, va_list args, const char *suffix)
{
  /* We go to some trouble to stuff the entire message into a
     single buffer and output it in a single system call, because
     that'll (typically) ensure that it gets sent to the console
     atomically.  Otherwise kernel messages like "foo: exit(0)"
     can end up being interleaved if we're unlucky. */
  static char buf[1024];

  snprintf (buf, sizeof buf, "(%s) ", test_name);
  vsnprintf (buf + strlen (buf), sizeof buf - strlen (buf), format, args);
  strlcpy (buf + strlen (buf), suffix, sizeof buf - strlen (buf));
  write (STDOUT_FILENO, buf, strlen (buf));
}
```



```c
void exit (int status)
{
  struct list_elem *temp;
  struct child_pcb *my_pcb;
  struct list *parent_child_pcb_list = &thread_current()->parent->child_pcb_list;
  int my_tid = thread_current()->tid;
  int i =0;
  thread_current()->exit_status = status;
  for (temp = list_begin(parent_child_pcb_list) ; temp != list_end(parent_child_pcb_list) ; temp = list_next(temp))
  {
    my_pcb = list_entry(temp, struct child_pcb, elem);
    if (my_pcb->child_tid == my_tid)
    {
      my_pcb->child_exit_status = status;
      break;
    }
  }
  thread_exit();
}
```



```c
/* Deschedules the current thread and destroys it.  Never
   returns to the caller. */
void
thread_exit (void)
{
  ASSERT (!intr_context ());

#ifdef USERPROG
  process_exit ();
#endif

  /* Remove thread from all threads list, set our status to dying,
     and schedule another process.  That process will destroy us
     when it calls thread_schedule_tail(). */
  intr_disable ();
  list_remove (&thread_current()->allelem);
  thread_current ()->status = THREAD_DYING;
  schedule ();
  NOT_REACHED ();
}
```

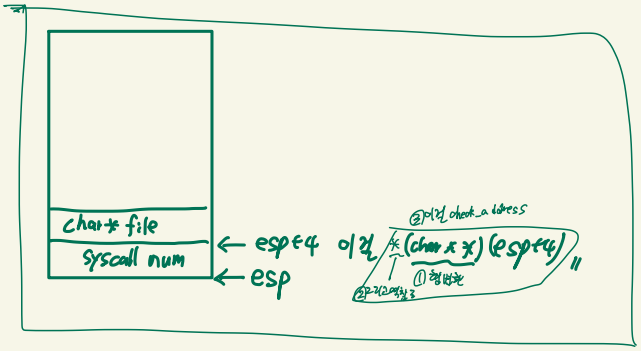


```c
void
process_exit (void)
{
  struct thread *cur = thread_current ();
  uint32_t *pd;

  if (cur->exit_status == -100) //unchanged, termination on weird case
    exit(-1);


  // lab2 : remove unnecessaries
  printf ("%s: exit(%d)\n", cur->name, cur->exit_status);
  struct fd_elem *temp;
  struct list_elem *e;
  struct list_elem *to_remove;
  struct child_pcb *tmp;
  struct list *fd_list_to_close = &thread_current()->fd_list;
  struct list *child_pcb_list_to_free = &thread_current()->child_pcb_list;

  // close all connected fd
  e = list_begin(fd_list_to_close);
  while(e != list_end(fd_list_to_close))
  {
    temp = list_entry(e, struct fd_elem, elem);
    e = list_next(e);
    close(temp->fd_number);
  }

  // allow writes to exe_file and close it!
  if (thread_current()->exe_file)
  {
    file_allow_write(thread_current()->exe_file);
    file_close(thread_current()->exe_file);
  }

  // free child_pcb_list
  while (!list_empty(child_pcb_list_to_free))
  {
    e = list_pop_front(child_pcb_list_to_free);
    tmp = list_entry(e, struct child_pcb, elem);
    free(tmp);
  }

  // check if current thread's parent was waiting for this this thread's exit
  if (thread_current()->parent->waiting_tid == thread_current()->tid)
  {
    sema_up(&thread_current()->parent->is_child_finished);  //yes your child is now exiting and finished
    thread_current()->parent->waiting_tid = -1;
  }


  /* Destroy the current process's page directory and switch back
     to the kernel-only page directory. */
  pd = cur->pagedir;
  if (pd != NULL)
    {
      /* Correct ordering here is crucial.  We must set
         cur->pagedir to NULL before switching page directories,
         so that a timer interrupt can't switch back to the
         process page directory.  We must activate the base page
         directory before destroying the process's page
         directory, or our active page directory will be one
         that's been freed (and cleared). */
      cur->pagedir = NULL;
      pagedir_activate (NULL);
      pagedir_destroy (pd);
    }
}
```

pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
pass tests/userprog/create-null
pass tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
pass tests/userprog/open-null
pass tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
pass tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
pass tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
FAIL tests/userprog/exec-missing
pass tests/userprog/exec-bad-ptr
pass tests/userprog/wait-simple
pass tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
pass tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
18 of 80 tests failed.

pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
FAIL tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
FAIL tests/userprog/create-null
FAIL tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
FAIL tests/userprog/open-null
FAIL tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
FAIL tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
FAIL tests/userprog/exec-bound-2
FAIL tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
FAIL tests/userprog/exec-missing
FAIL tests/userprog/exec-bad-ptr
pass tests/userprog/wait-simple
pass tests/userprog/wait-twice
FAIL tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
pass tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write

pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
FAIL tests/userprog/create-null
FAIL tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
FAIL tests/userprog/open-null
FAIL tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
FAIL tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
FAIL tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
FAIL tests/userprog/exec-missing
FAIL tests/userprog/exec-bad-ptr
pass tests/userprog/wait-simple
pass tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
pass tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
25 of 80 tests failed.



p.30보고해결. case1, 2, 3

create의 인자에대한 check추가

```
pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
FAIL tests/userprog/create-null
FAIL tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
FAIL tests/userprog/open-null
FAIL tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
FAIL tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
FAIL tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
FAIL tests/userprog/exec-missing
FAIL tests/userprog/exec-bad-ptr
pass tests/userprog/wait-simple
pass tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
pass tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
25 of 80 tests failed.
```

```
pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
pass tests/userprog/create-null
pass tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
pass tests/userprog/open-null
pass tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
pass tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
FAIL tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
FAIL tests/userprog/exec-missing
FAIL tests/userprog/exec-bad-ptr
FAIL tests/userprog/wait-simple
FAIL tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
FAIL tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
23 of 80 tests failed.
```

정상동작 해야하는게 안됐네.

exit code 출력 문제 없음.

추가 check_address 넣고 안됐네.

pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
pass tests/userprog/create-null
pass tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
pass tests/userprog/open-null
pass tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
pass tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
FAIL tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
FAIL tests/userprog/exec-missing
FAIL tests/userprog/exec-bad-ptr
FAIL tests/userprog/wait-simple
FAIL tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
FAIL tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
23 of 80 tests failed.

pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
pass tests/userprog/create-null
pass tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
pass tests/userprog/open-null
pass tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
pass tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
pass tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
FAIL tests/userprog/exec-missing
pass tests/userprog/exec-bad-ptr
FAIL tests/userprog/wait-simple
FAIL tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
FAIL tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
21 of 80 tests failed.

execoff
checkald
ㅋㅋ.

pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
pass tests/userprog/create-null
pass tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
pass tests/userprog/open-null
pass tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
pass tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
pass tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
pass tests/userprog/exec-missing
pass tests/userprog/exec-bad-ptr
FAIL tests/userprog/wait-simple
FAIL tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
FAIL tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
FAIL tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
20 of 80 tests failed.

pass tests/userprog/args-none
pass tests/userprog/args-single
pass tests/userprog/args-multiple
pass tests/userprog/args-many
pass tests/userprog/args-dbl-space
pass tests/userprog/sc-bad-sp
pass tests/userprog/sc-bad-arg
pass tests/userprog/sc-boundary
pass tests/userprog/sc-boundary-2
pass tests/userprog/sc-boundary-3
pass tests/userprog/halt
pass tests/userprog/exit
pass tests/userprog/create-normal
pass tests/userprog/create-empty
pass tests/userprog/create-null
pass tests/userprog/create-bad-ptr
pass tests/userprog/create-long
pass tests/userprog/create-exists
pass tests/userprog/create-bound
FAIL tests/userprog/open-normal
pass tests/userprog/open-missing
FAIL tests/userprog/open-boundary
pass tests/userprog/open-empty
pass tests/userprog/open-null
pass tests/userprog/open-bad-ptr
FAIL tests/userprog/open-twice
pass tests/userprog/close-normal
pass tests/userprog/close-twice
pass tests/userprog/close-stdin
pass tests/userprog/close-stdout
pass tests/userprog/close-bad-fd
pass tests/userprog/read-normal
FAIL tests/userprog/read-bad-ptr
FAIL tests/userprog/read-boundary
FAIL tests/userprog/read-zero
pass tests/userprog/read-stdout
pass tests/userprog/read-bad-fd
FAIL tests/userprog/write-normal
FAIL tests/userprog/write-bad-ptr
FAIL tests/userprog/write-boundary
FAIL tests/userprog/write-zero
pass tests/userprog/write-stdin
pass tests/userprog/write-bad-fd
pass tests/userprog/exec-once
pass tests/userprog/exec-arg
pass tests/userprog/exec-bound
pass tests/userprog/exec-bound-2
pass tests/userprog/exec-bound-3
pass tests/userprog/exec-multiple
pass tests/userprog/exec-missing
pass tests/userprog/exec-bad-ptr
pass tests/userprog/wait-simple
pass tests/userprog/wait-twice
pass tests/userprog/wait-killed
pass tests/userprog/wait-bad-pid
pass tests/userprog/multi-recurse
FAIL tests/userprog/multi-child-fd
FAIL tests/userprog/rox-simple
FAIL tests/userprog/rox-child
FAIL tests/userprog/rox-multichild
pass tests/userprog/bad-read
pass tests/userprog/bad-write
pass tests/userprog/bad-read2
pass tests/userprog/bad-write2
pass tests/userprog/bad-jump
pass tests/userprog/bad-jump2
FAIL tests/userprog/no-vm/multi-oom
pass tests/filesys/base/lg-create
pass tests/filesys/base/lg-full
pass tests/filesys/base/lg-random
pass tests/filesys/base/lg-seq-block
pass tests/filesys/base/lg-seq-random
pass tests/filesys/base/sm-create
pass tests/filesys/base/sm-full
pass tests/filesys/base/sm-random
pass tests/filesys/base/sm-seq-block
pass tests/filesys/base/sm-seq-random
pass tests/filesys/base/syn-read
pass tests/filesys/base/syn-remove
FAIL tests/filesys/base/syn-write
16 of 80 tests failed.

23 → 21 → 20 → 16 → 0