The Road to C Programming Language

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April 9.2013

Preface

　　The main purpose of this book is not just tell you how to programming in c language but you can practise to think all of things in the world in English which can let you wise,brightly.We have,however,lean English just for CET4 (College English Test) and for another purpose.Already some people asked me a problem,which made me disappointed,is that "what the reason you speak in English with us?We are Chinese People!".Once you leaned a languages,it can enborden you eyesight.What's more,You can realised that what a small world it is!
　　Now take the point,this book focus on the problem that we frequency asked questions.What's pointer?Why I can't understand the functions ,etc.
　　There is breath of spring in a gentle breeze.A good time to study.Thanks to Wish,David Wilson to help me write this document.

Chapter 1.Over View

Chapter 2.Pointer

1,Introduction.

　　Recently I'm concerned about how to develop driver under linux.Review the kernel source is a good way to learn programming.Currently I find this structure named file_operations as followed:

```c
struct file_operations {
        struct module *owner;
        loff_t (*llseek) (struct file *, loff_t, int);
        ssize_t (*read) (struct file *, char __user *, size_t, loff_t *);
        ssize_t (*write) (struct file *, const char __user *, size_t, loff_t *);
        ssize_t (*aio_read) (struct kiocb *, const struct iovec *, unsigned long,
loff_t);
        ssize_t (*aio_write) (struct kiocb *, const struct iovec *, unsigned long,
loff_t);
        int (*readdir) (struct file *, void *, filldir_t);
        unsigned int (*poll) (struct file *, struct poll_table_struct *);
        long (*unlocked_ioctl) (struct file *, unsigned int, unsigned long);
        long (*compat_ioctl) (struct file *, unsigned int, unsigned long);
        int (*mmap) (struct file *, struct vm_area_struct *);
        int (*open) (struct inode *, struct file *);
        int (*flush) (struct file *, fl_owner_t id);
        int (*release) (struct inode *, struct file *);
        int (*fsync) (struct file *, loff_t, loff_t, int datasync);
        int (*aio_fsync) (struct kiocb *, int datasync);
        int (*fasync) (int, struct file *, int);
        int (*lock) (struct file *, int, struct file_lock *);
```

```
        ssize_t (*sendpage) (struct file *, struct page *, int, size_t, loff_t *,
int);
        unsigned long (*get_unmapped_area)(struct file *, unsigned long, unsigned
long, unsigned long, unsigned long);
        int (*check_flags)(int);
        int (*flock) (struct file *, int, struct file_lock *);
        ssize_t (*splice_write)(struct pipe_inode_info *, struct file *, loff_t *,
size_t, unsigned int);
        ssize_t (*splice_read)(struct file *, loff_t *, struct pipe_inode_info *,
size_t, unsigned int);
        int (*setlease)(struct file *, long, struct file_lock **);
        long (*fallocate)(struct file *file, int mode, loff_t offset,
                          loff_t len);
        int (*show_fdinfo)(struct seq_file *m, struct file *f);
};
```

Now we see the declare of function as followed:

ssize_t (*read) (struct file *, char __user *, size_t, loff_t *);

How many times you seen & use function like this before?

What's real mean this function?

There are serveral steps to understandl of this.

Step 1. We declare a pointer point to a integer variable.

```
    int a=1;
    int *p;
    p=&a;
```

int *p; also you can int *(p); () in here just for the priority level.

We kown *p* is a pointer variable,Actually,*p* is storeded a address,maybe 0x20(the address of a).

Step 2.A function return a pointer that point to integer type.

```
    int *add(int,int);
```

Step 3, A pointer point to a function that return type is integer.

```
    int (*pFun)(int,int);
```

You should understand the priotity level of symbol.And how can we call the function that function's pointer point to.

Deeply,Show you some code how to let's the pointer point a function.