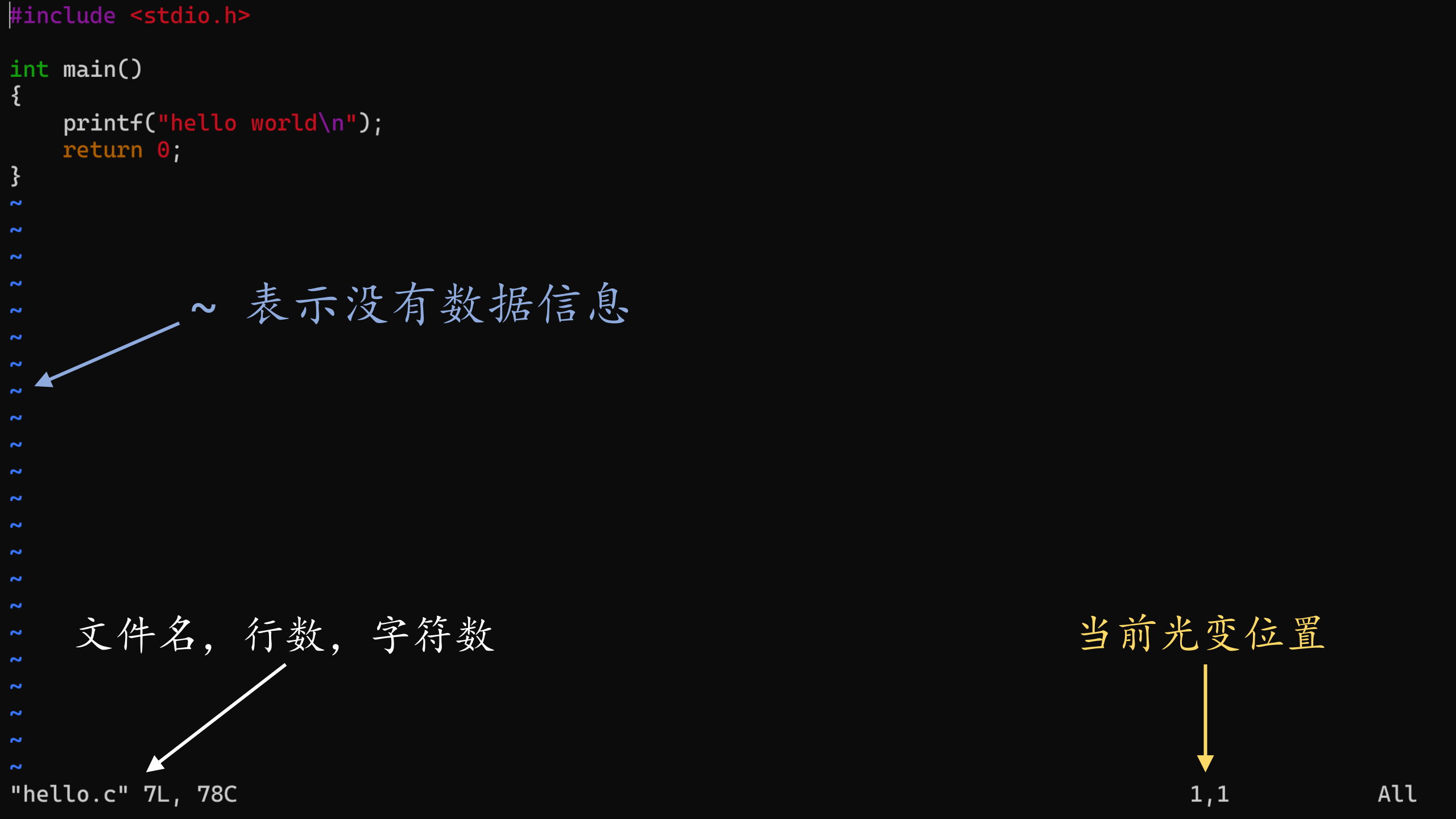
计算机学习的第 0 课

```
jqlg@X1:~/project/hello$ ls
hello.c
jqlg@X1:~/project/hello$ vim hello.c

Command 'vim' not found, but can be installed with:

sudo apt install vim         # version 2:8.1.2269-1ubuntu5.9, or
sudo apt install vim-tiny    # version 2:8.1.2269-1ubuntu5.9
sudo apt install neovim      # version 0.4.3-3
sudo apt install vim-athena  # version 2:8.1.2269-1ubuntu5.9
sudo apt install vim-gtk3    # version 2:8.1.2269-1ubuntu5.9
sudo apt install vim-nox     # version 2:8.1.2269-1ubuntu5.9

jqlg@X1:~/project/hello$ sudo apt install vim
[sudo] password for jqlg:
```

```
jqlg@X1:~/project/hello$ ls
hello.c
jqlg@X1:~/project/hello$ vim hello.c
```

vim + filename 打开文件


#include <stdio.h>
int main()
{
printf("hello world\n");
return 0;
}
~ 表示没有数据信息
文件名，行数，字符数
当前光变位置
"hello.c" 7L, 78C
1,1
All

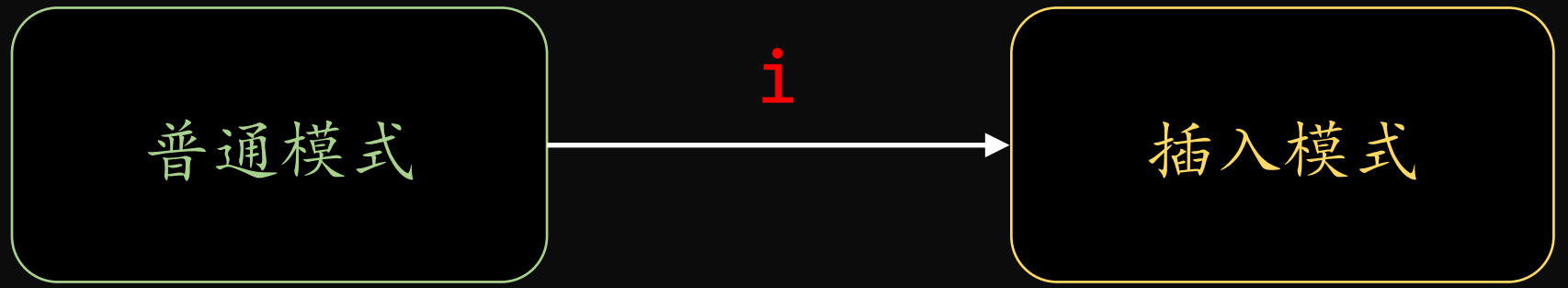
```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0;
}
```

普通模式（normal mode）

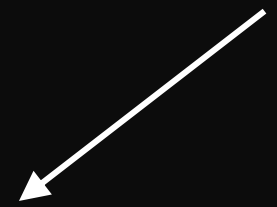
- 通过[上下左右]移动光标
- 删除字符或者整行
- 复制、粘贴、注释代码

```
jqlg@X1:~$ vim .vimrc
```

vim filename 创建一个新文件（退出后需保存）



新文件



".vimrc" [New File] 0,0-1 All

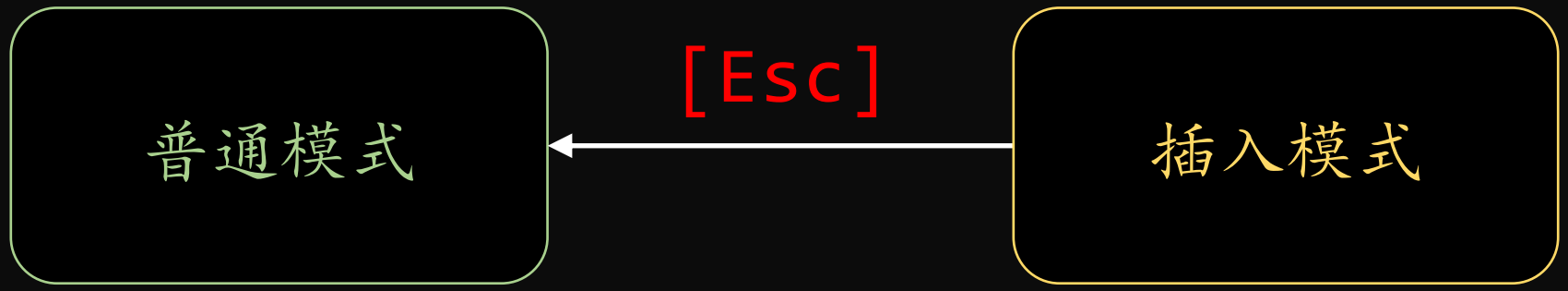
插入模式

-- INSERT --

1,1 All

set number

set number 设置行号



-- INSERT --

1,11 All

```
set number
```

普通模式

INSERT 消失

1,10 All

```
set number
```

命令行模式

```
:
```

```
set number
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:w
```

w 将编辑的内容写入磁盘中（write）

```
set number
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
".vimrc" [New] 1L, 11C written                                    1,10          All
```

写入操作执行完毕后，返回普通模式

```
set number
```

q 退出（quit）

```
:q
```

```
jqlg@X1:~$ vim .vimrc
jqlg@X1:~$
```

```
set number
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:wq
```

wq　写入并退出（组合命令）

```
set number
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
E37: No write since last change (add ! to override)          1,10          All
```

退出时未保存

```
set number
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:q!
```

q!　修改过文件，又不想保存，可以使用强制退出不保存

```
jqlg@X1:~$ vim .vimrc
jqlg@X1:~$ ls -a
.               .bashrc  Documents  .local    .profile  .sudo_as_admin_successful  .vimrc
..              .cache   Downloads  .mozilla  project   Templates                  .vscode-server
.bash_history   .config  .gnupg     Music     Public    Videos                     .wget-hsts
.bash_logout    Desktop  .lesshst   Pictures  Software  .viminfo
jqlg@X1:~$
```

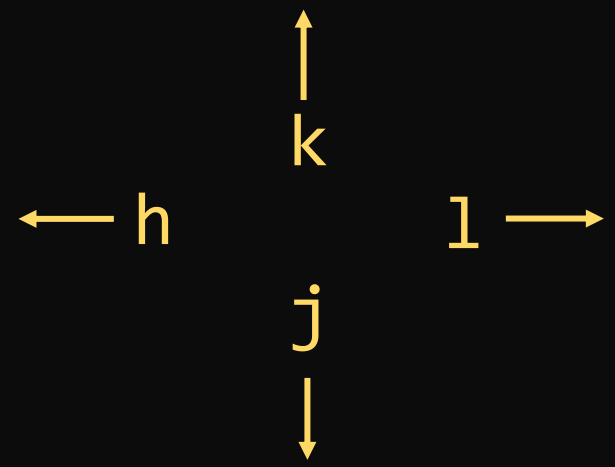
```
jqlg@X1:~$ vim .vimrc
jqlg@X1:~$ ls -a
.               .bashrc  Documents  .local    .profile  .sudo_as_admin_successful  .vimrc
..              .cache   Downloads  .mozilla  project   Templates                  .vscode-server
.bash_history   .config  .gnupg     Music     Public    Videos                     .wget-hsts
.bash_logout    Desktop  .lesshst   Pictures  Software  .viminfo
jqlg@X1:~$ vim ./project/hello/hello.c
```

vim + 文件相对路径

```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0
}
```

普通模式

```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0
}
```



h	左移一列
l	右移一列
j	下移一行
k	上移一行

```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0
}
```

多行移动 - 数量 + 动作

5j - 一次向下移动5行

"hello.c" 7L, 77C 1,1 All

```
136 #endif
137 //1
138 /*
139  * bitXor - x^y using only ~ and &
140  *   Example: bitXor(4, 5) = 1
141  *   Legal ops: ~ &
142  *   Max ops: 14
143  *   Rating: 1
144  */
145 int bitXor(int x, int y) {
146   return 2;
147 }
148 /*
149  * tmin - return minimum two's complement integer
150  *   Legal ops: ! ~ & ^ | + << >>
151  *   Max ops: 4
152  *   Rating: 1
153  */
154 int tmin(void) {
155
156   return 2;
157
158 }
159 //2
160 /*
161  * isTmax - returns 1 if x is the maximum, two's complement number,
162  *     and 0 otherwise
163  *   Legal ops: ! ~ & ^ | +
```

当前光标在146行，如何快速到155行？

155G - 移动光标到第155行

```
1 set number
2 set relativenumber
3
4
5
6
7
```

set relativenumber - 设置相对行号

:wq

```
 14  *      the correct answers.
 13  */
 12
 11
 10 #endif
  9 //1
  8 /*
  7  * bitXor - x^y using only ~ and &
  6  *   Example: bitXor(4, 5) = 1
  5  *   Legal ops: ~ &
  4  *   Max ops: 14
  3  *   Rating: 1
  2  */
  1 int bitXor(int x, int y) {
146   return 2;
  1 }
  2 /*
  3  * tmin - return minimum two's complement integer
  4  *   Legal ops: ! ~ & ^ | + << >>
  5  *   Max ops: 4
  6  *   Rating: 1
  7  */
  8 int tmin(void) {
  9
 10   return 2;
 11
 12 }
 13 //2
 14 /*
"datalab-handout/bits.c" 296L, 8642C                    146,3         49%
```

9j / 9[Enter]

```
 14  *      the correct answers.
 13  */
 12
 11
 10 #endif
  9 //1
  8 /*
  7  * bitXor - x^y using only ~ and &
  6  *   Example: bitXor(4, 5) = 1
  5  *   Legal ops: ~ &
  4  *   Max ops: 14
  3  *   Rating: 1
  2  */
  1 int bitXor(int x, int y) {
146   return 2;
  1 }
  2 /*
  3  * tmin - return minimum two's complement integer
  4  *   Legal ops: ! ~ & ^ | + << >>
  5  *   Max ops: 4
  6  *   Rating: 1
  7  */
  8 int tmin(void) {
  9
 10   return 2;
 11
 12 }
 13 //2
 14 /*
"datalab-handout/bits.c" 296L, 8642C                    146,3         49%
```

G - 移动到这个文件的最后一行

gg - 移动到这个文件的开始一行

H(head)

```
/*
 * CS:APP Data Lab
 *
 * <Please put your name and userid here>
 *
 * bits.c - Source file with your solutions to the Lab.
 *          This is the file you will hand in to your instructor.
 *
 * WARNING: Do not include the <stdio.h> header; it confuses the dlc
 * compiler. You can still use printf for debugging without including
 * <stdio.h>, although you might get a compiler warning. In general,
 * it's not good practice to ignore compiler warnings, but in this
 * case it's OK.
 */
```

M(middle) - 光标移动到当前屏幕的最中央的第一个字符

```
#if 0
/*
 * Instructions to Students:
 *
 * STEP 1: Read the following instructions carefully.
 */

You will provide your solution to the Data Lab by
editing the collection of functions in this source file.

INTEGER CODING RULES:

  Replace the "return" statement in each function with one
  or more lines of C code that implements the function. Your code
```

L(low)

15,0-1 Top

```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0
}

```

l - 右移一列

w(word) - 光标向前一个单词,单词开头

b(back) - 光标向后一个单词,单词开头

e(end) - 光标向前一个单词,单词尾部

```
5 #include <stdio.h>
4
3 int main()
2 {
1     printf("hello world\n");
6     return 0
1 }
2
```

0 - 移动光标到行最开始的地方

$ - 移动光标到当前行的最后一个字符

^ - 移动光标到当前行的第一个非空字符

```
1   set number
  1 set relativenumber
  2
  3 map H ^
  4 map L $
  5
  6
  7
```

^ <-> H (shift + h)

$ <-> L (shift + l)

".vimrc" 8L, 50C 1,1 All

```
 5 #include <stdio.h>
 4
 3 int main()
 2 {
 1     printf("hello world\n");
 6     return 0
 1 }
 2
```

f{char} - 行内查找下一个指令的字符char

F{char} - 行内查找上一个指令的字符char

; - 重复执行

, - 回退

Already at oldest change 6,12 All

```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0
}
```

Ctrl + f（forward）	屏幕向下移动一页
Ctrl + b（back）	屏幕向上移动一页
Ctrl + d	屏幕向下移动半页
Ctrl + u	屏幕向上移动半页

注: CapsLock -> Ctrl

```
jqlg@X1:~$ sudo vim /etc/default/keyboard
```

Ubuntu 下修改键盘的配置文件

```
# KEYBOARD CONFIGURATION FILE

# Consult the keyboard(5) manual page.

XKBMODEL="pc105"
XKBLAYOUT="us"
XKBVARIANT=""
XKBOPTIONS=""

BACKSPACE="guess"

~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"/etc/default/keyboard" 12L, 152C                    12,0-1        All
```

默认配置

```
# KEYBOARD CONFIGURATION FILE

# Consult the keyboard(5) manual page.

XKBMODEL="pc105"
XKBLAYOUT="us"
XKBVARIANT=""
XKBOPTIONS=""

BACKSPACE="guess"

XKBOPTIONS="ctrl:nocaps"
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
```

添加修改配置

12,23 All

```
jqlg@X1:~$ sudo dpkg-reconfigure keyboard-configuration
```

进入键盘配置的图形界面

Package configuration

Configuring keyboard-configuration

Please select the model of the keyboard of this machine.

Keyboard model:

```
   Dell SK-8125
   Dell SK-8135
   Dell USB Multimedia
   Dexxa Wireless Desktop
   Diamond 9801/9802
   Do not configure keyboard; keep kernel keymap
   DTK2000
   eMachines m6800 laptop
   Ennyah DKB-1008
   Everex STEPnote
   FL90
   Fujitsu-Siemens Amilo laptop
   Generic 101-key PC
   Generic 102-key PC (intl.)
   Generic 104-key PC
   Generic 105-key PC (intl.)
```

Tab移动到OK，下一步

<Ok> <Cancel>

Package configuration

Configuring keyboard-configuration

The current keyboard options in the configuration file /etc/default/keyboard are defined as XKBOPTIONS="ctrl:nocaps".

If you choose to keep these options, no questions about the keyboard options will be asked.

Keep current keyboard options in the configuration file?

<Yes> <No>

```
jqlg@X1:~$ sudo vim /etc/default/keyboard
jqlg@X1:~$ sudo dpkg-reconfigure keyboard-configuration
Your console font configuration will be updated the next time your system
boots. If you want to update it now, run 'setupcon' from a virtual console.
update-initramfs: deferring update (trigger activated)
Processing triggers for initramfs-tools (0.136ubuntu6.7) ...
update-initramfs: Generating /boot/initrd.img-5.15.0-56-generic
jqlg@X1:~$
```

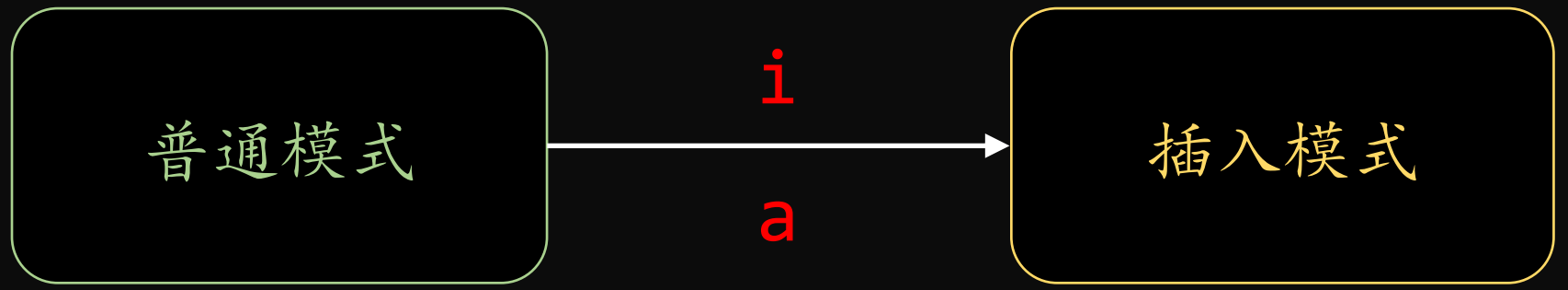

```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Keyboard Layout]
"Scancode Map"=hex:00,00,00,00,00,00,00,00,02,00,00,00,1d,00,3a,00,00,00,00,00
```

```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0
}

```

```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return ;0
}

```

-- INSERT --   6,13   All

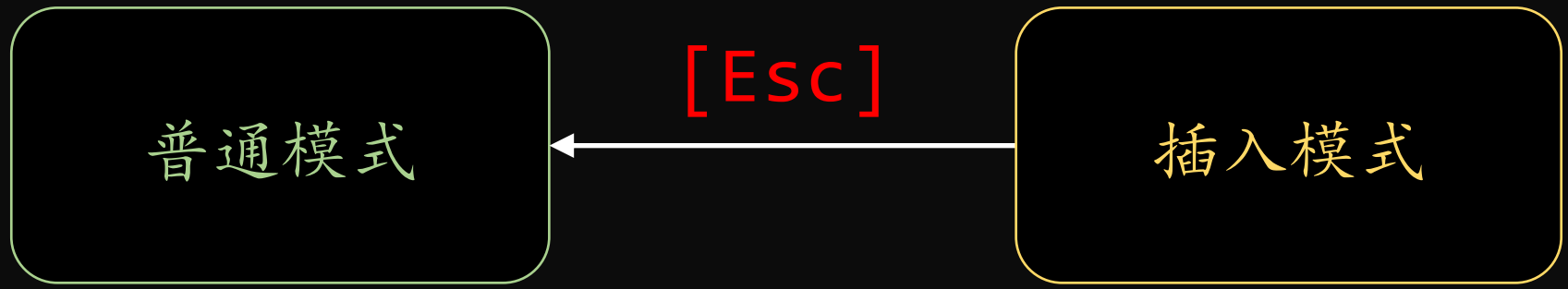
```c
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0;
}
```



a（append） - 从光标所在的下一个字符处开始插入

A - 从光标所在行的最后一个字符处开始插入

```
6 set number
5 set relativenumber
4
3 map H ^
2 map L $
1
7   :imap jj <ESC>
1
```



方法一: [Esc] <-> <Ctrl> + <[>

方法二: [Esc] <-> jj