

## 系統程式設計

### Lab5 setjmp/longjmp

學號: 405410117

姓名: 郭紘安

1. Where are the error punctuations?

- (1)At least one '@'
- (2)Can't more than one '@'
- (3)'#' isn't allowed
- (4)'\*' isn't allowed
- (5)'..' isn't allowed
- (6)Should be at least one '.' behind the '@' character

2. What is the error message format?

(you must not print any message after you print error message)

Lab5\_stu.c 中

```
if (i == 1)          //(1)At least one '@'
    printf("Email format error: at least one @ \n");
else if(i == 2)      //(2)Can't more than one '@'
    printf("Email format error: more than one @ \n");
else if(i == 3)      //(3) '#' isn't allowed
    printf("Email format error: can't exist # \n");
else if(i == 4)      //(4)'*' isn't allowed
    printf("Email format error: can't exist * \n");
else if(i == 5)      //(5) '..' isn't allowed
    printf("Email format error: can't exist .. \n");
else if(i == 6)      //(6)Should be at least one '.' behind the
'@' character
    printf("Email format error: can't exist at least one .
behind the @ \n");
```

### 3. How did you use the setjmp/longjmp function?

main function 中使用 setjmp(jmpbuffer)來當判斷完有沒有錯誤的跳回

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```
int main(void)
{
    char    line[MAXLINE];
    FILE*   fp;
    fp = fopen(FILENAME, "r");
    int i;
    if((i = setjmp(jmpbuffer)) != 0){
        if (i == 1)
            printf("Email format error: at least one @ \n");
        else if(i == 2)
            printf("Email format error: more than one @ \n");
        else if(i == 3)
            printf("Email format error: can't exist # \n");
        else if(i == 4)
            printf("Email format error: can't exist * \n");
        else if(i == 5)
            printf("Email format error: can't exist .. \n");
        else if(i == 6)
            printf("Email format error: can't exist at least one . behind the @ \n");
    }
    while (fgets(line, MAXLINE, fp) != NULL)
    {
        printf("-----\n");
        printf("%s", line);
        do_line(line);
    }
    exit(0);
}
```

function compare\_at

當 at least one '@' error 發生時

使用 longjmp(jmpbuffer, 1) 回傳 1 給 i 並且輸出(1)的 error message

當 more than one '@' error 發生時

使用 longjmp(jmpbuffer, 2) 回傳 2 給 i 並且輸出(2)的 error message

```
void compare_at(char *str)
{
    int counter = 0;
    char* cptr;
    char* temp;
    if((cptr = strchr(str, '@')) == NULL)
        longjmp(jmpbuffer, 1); //at least one @
    temp = cptr;
    while((cptr = strchr(temp, '@')) != NULL)
    {
        printf ("@ found at %ld\n", cptr-str+1);
        counter++;
        temp = cptr+1;
    }
    if(counter > 1)
        longjmp(jmpbuffer, 2); //more than one @
    compare_sharp(str);
    return;
}
```

function compare\_sharp

當'#' isn't allowed error 發生時

使用 longjmp(jmpbuffer,3) 回傳 3 給 i 並且輸出(3)的 error message

```
void compare_sharp(char *str)
{
    int counter = 0;
    char* cptr;

    char* temp;
    temp = str;
    while((cptr = strchr(temp,'#')) != NULL)
    {
        printf("# found at %ld(error occur)\n",cptr-str+1);
        counter++;
        temp = cptr+1;
    }

    if((cptr = strchr(str,'#')) != NULL)
        longjmp(jmpbuffer, 3); //can't exist #
    compare_asterisk(str);
    return;
}
```

function compare\_asterisk

當'\*' isn't allowed error 發生時

使用 longjmp(jmpbuffer,4) 回傳 4 給 i 並且輸出(4)的 error message

```
void compare_asterisk(char *str)
{
    int counter = 0;
    char* cptr;

    char* temp;
    temp = str;
    while((cptr = strchr(temp,'*')) != NULL)
    {
        printf("* found at %ld(error occur)\n",cptr-str+1);
        counter++;
        temp = cptr+1;
    }

    if((cptr = strchr(str,'*')) != NULL)
        longjmp(jmpbuffer, 4); //can't exist *
    compare_doubleDot(str);
    return;
}
```

function compare\_doubleDot

當'..' isn't allowed error 發生時

使用 longjmp(jumpbuffer,5) 回傳 5 給 i 並且輸出(5)的 error message

```
void compare_doubleDot(char *str)
{
    int counter = 0;
    char* cptr;

    char* temp;
    temp = str;
    while((cptr = strstr(temp, "..")) != NULL)
    {
        printf (".. found at %ld(error occur)\n", cptr-str+1);
        counter++;
        temp = cptr+1;
    }

    if((cptr = strstr(str, "..")) != NULL)
    {
        longjmp(jumpbuffer, 5); //can't exist ..
    }
    compare_dot(str);
    return;
}
```

function compare\_dot

當 Should be at least one '.' behind the '@' character

error 發生時

使用 longjmp(jumpbuffer,6) 回傳 6 給 i 並且輸出(6)的 error message

```
void compare_dot(char *str)
{
    char* cptr1;
    char* cptr2;
    cptr1 = strchr(str, '@');
    cptr2 = strchr(str, '.');
    if(cptr1 > cptr2) {
        longjmp(jumpbuffer, 6);
    }
    return;
}
```

#### 4. Final result.

```
andy@ubuntu: ~/SP/Lab5
andy@ubuntu:~/SP/Lab5$ ./exe_lab5
-----
spta@embedded.cs.ccu.edu.tw
@ found at 5
valid email address!
-----
twetrewt.terthbbb.com.tw
Email format error: at least one @
-----
spta@embed@ded.cs.ccu.edu.tw
@ found at 5
@ found at 11
@ found at 21
Email format error: more than one @
-----
pv#pig@hot#mail.com
@ found at 7
# found at 3(error occur)
# found at 11(error occur)
Email format error: can't exist #
-----
pvpig@hot*mail.com
@ found at 6
* found at 10(error occur)
Email format error: can't exist *
-----
aaawww@ccu.cs..edu.tw
@ found at 7
.. found at 14(error occur)
Email format error: can't exist ..
-----
EA.EA@ccucsedutw@ found at 6
Email format error: can't exist at least one . behind the @
andy@ubuntu:~/SP/Lab5$
```