System Programming
Lab 7
setjmp/longjmp

Lecturer：Professor Pao-Ann Hsiung

Teaching Assistant: 湯凱鈞 & Adarsh

Embedded Systems Laboratory
National Chung Cheng University
Chiayi, Taiwan-62102

Outline

- setjmp/longjmp
- Requirements
- Turn In
- Download

setjmp/longjmp

Figure 7.11

```
#include "apue.h"
#include <setjmp.h>

#define  TOK_ADD            5

jmp_buf             jmpbuffer;

int
main(void)
{
      char              line[MAXLINE];

      if (setjmp(jmpbuffer) != 0)
            printf("error");
      while (fgets(line, MAXLINE, stdin) != NULL)
            do_line(line);
```

Figure 7.11(cont'd)

```
        exit(0);
}

 . . .

void
cmd_add(void)
{
        int             token;

        token = get_token();
        if (token < 0)          /* an error has occurred */
                longjmp(jmpbuffer, 1);
        /* rest of processing for this command */
}
```

setjmp

- #include <setjmp.h>
- Int setjmp (jmp_buf env);
  - Stores current state of main at the start of program exec.
  - Returns: 0 if called directly, nonzero if returning from a call to longjmp.
  - EX:
    - jmp_buf jmpbuffer;
    - int i = setjmp(jmpbuffer);

longjmp

- #include <setjmp.h>
- void longjmp (jmp_buf env, int val);
  - Return to the setjmp()
  - val is a nonzero value that becomes the return value from setjmp.
  - EX:
    - longjmp(jmpbuffer, 1);
    - longjmp(jmpbuffer, 2);

Compare function

- Character compare:
  - char* strchr(char * str, int character);
  - EX:
    - char* cptr = strchr(str,'@');
- String compare:
  - char* strstr(char * str1, char * str2);
  - EX:
    - char* cptr= strstr(str,"..");

Requirements

Requirements

- Use setjmp/longjmp to implement a checker program for email addresses.
- Print out messages to show the errors detected.
- You need to implement only the given checking rules, i.e., you do not need to confirm everything.

Requirements(cont'd)

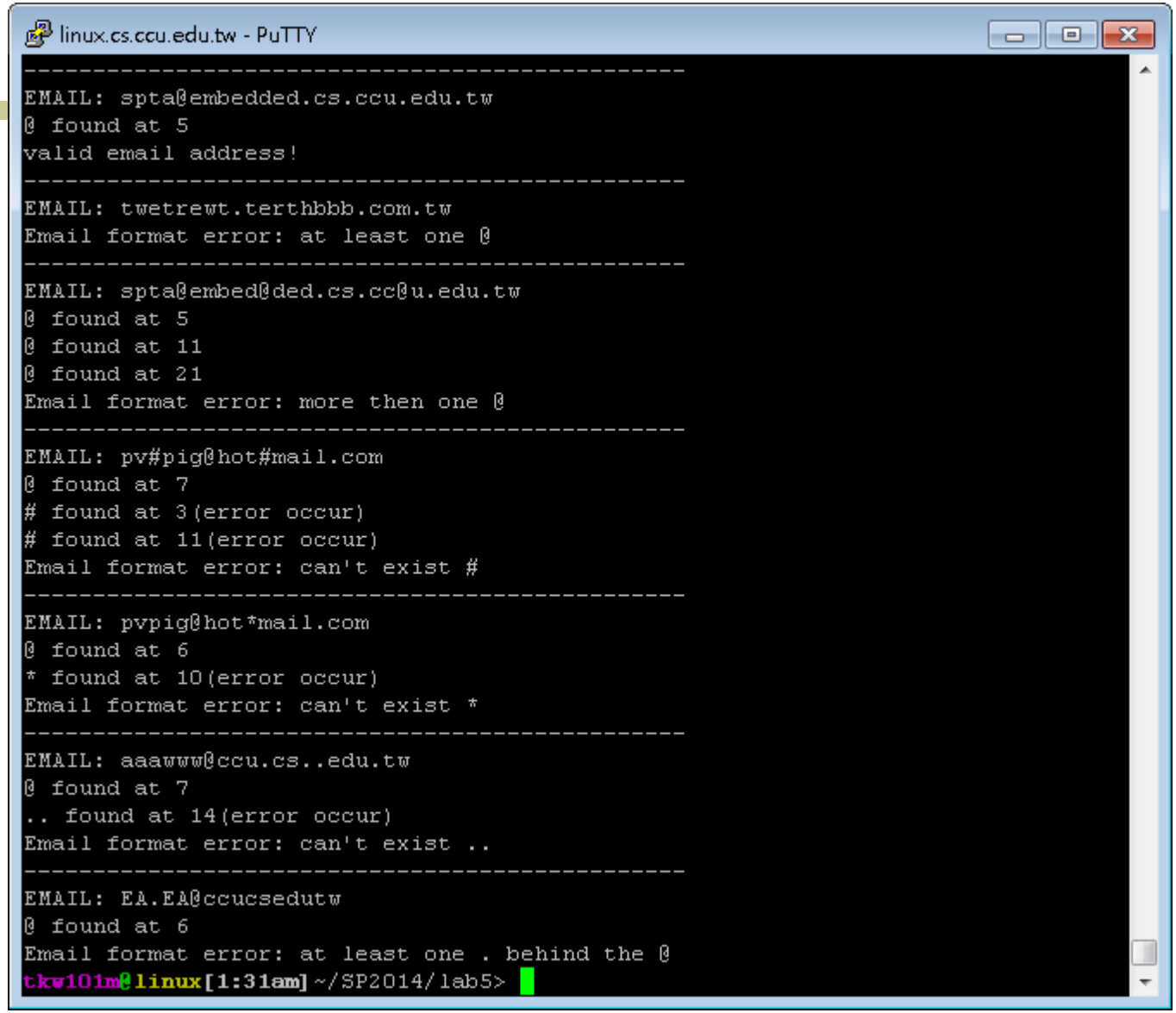
- Email checking rules:
  - One and only one '@' is allowed.
  - Special characters such as sharp'#', Asterisk '*', doubleDot ".." are not allowed.
  - There should be at least one '.' behind the '@' character.

Example

- Example
  - spta@embed@ded..cs.ccu.edu.tw
    - @ found at 5
    - @ found at 11
    - Email format error: more than one @

Result of Requirements

- Submit the following in table (Answers.doc):
  - Where are the errors located?
  - What is the error message format?
    - (you must not print any message after you print error)
  - How did you use the setjmp/longjmp functions?
  - Final results.
    - Please attach screenshot !


linux.cs.ccu.edu.tw - PuTTY
EMAIL: spta@embedded.cs.ccu.edu.tw
@ found at 5
valid email address!
EMAIL: twetrewt.terthbbb.com.tw
Email format error: at least one @
EMAIL: spta@embed@ded.cs.cc@u.edu.tw
@ found at 5
@ found at 11
@ found at 21
Email format error: more then one @
EMAIL: pv#pig@hot#mail.com
@ found at 7
# found at 3(error occur)
# found at 11(error occur)
Email format error: can't exist #
EMAIL: pvpig@hot*mail.com
@ found at 6
* found at 10(error occur)
Email format error: can't exist *
EMAIL: aaawww@ccu.cs..edu.tw
@ found at 7
.. found at 14(error occur)
Email format error: can't exist ..
EMAIL: EA.EA@ccucsedutw
@ found at 6
Email format error: at least one . behind the @
tkw101m@linux[1:31am]~/SP2014/lab5>

Turn In

Turn In

- The E-course2
  - https://ecourse2.ccu.edu.tw/
- Upload 學號.zip into “Lab_7”
  - Source files
  - Answers.pdf
- Due date
  - 2023/05/25 23:59:59 遲交*0.8 超過一週*0.6

Turn In (cont'd)

- TA's email:
  - 湯凱鈞：4685231GF@gmail.com
  - Adarsh: vtu10666@veltechuniv.edu.in