Compute System Administration Homework 2: Shell Script

zswu

Requirements

- 2-1: Filesystem Statistics (20%)
- 2-2: Course Registration System (60%+20%)
  - Basic School Timetable Simulator ❤
  - Bonus
- Modify code by yourself at demo (20%)
- Please write the scripts in Bourne Shell (sh)
  - No score if you use csh, bash or other languages.
- Due date: 2018/10/17 12:00
  - Upload ${student_ID}.tar on New E3 (http://e3new.nctu.edu.tw)

2-1: Filesystem Statistics

```
$ wget https://github.com/Thomas-Tsai/partclone/archive/0.2.89.tar.gz  -O - | tar jxf -
--2016-09-29 10:32:25--  https://github.com/Thomas-Tsai/partclone/archive/0.2.89.tar.gz
正在查找主機 github.com (github.com)... 192.30.253.113
正在連接 github.com (github.com)|192.30.253.113|:443... 連上了。
已送出 HTTP 要求，正在等候回應... 302 Found
位置: https://codeload.github.com/Thomas-Tsai/partclone/tar.gz/0.2.89 [跟隨至新的 URL]
--2016-09-29 10:32:26--  https://codeload.github.com/Thomas-Tsai/partclone/tar.gz/0.2.89
正在查找主機 codeload.github.com (codeload.github.com)... 192.30.253.120
正在連接 codeload.github.com (codeload.github.com)|192.30.253.120|:443... 連上了。
已送出 HTTP 要求，正在等候回應... 200 OK
長度: 1051296 (1.0M) [application/x-gzip]
Saving to: ‘STDOUT’

-                                   100%[=================================================

2016-09-29 10:32:30 (362 KB/s) - written to stdout [1051296/1051296]

$ cd partclone-0.2.89/
$ ../../sahw2-1.sh
1:402607 Makefile.in
2:312642 configure
3:173953 xfs_bmap.c
4:118770 ChangeLog
5:111736 extent-tree.c
Dir num: 24
File num:428
Total: 4992643
```

2-1: Filesystem Statistics – Requirement (1/3)

- Inspect the current directory(“.”) and all sub-directory.
- Calculate the number of directories.
- Do not include ‘.’ and ‘..’
- Calculate the number of files.
- Calculate the sum of all file size.
- List the top 5 biggest files.
- Only consider the regular file. Do not count in the link, FIFO, block device... etc.

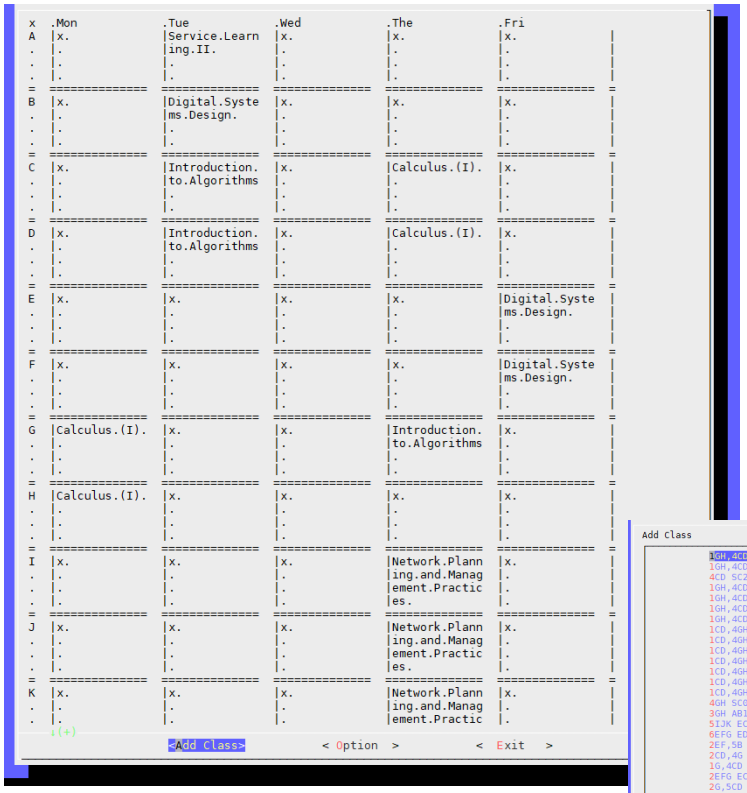
2-1: Filesystem Statistics – Requirement (2/3)

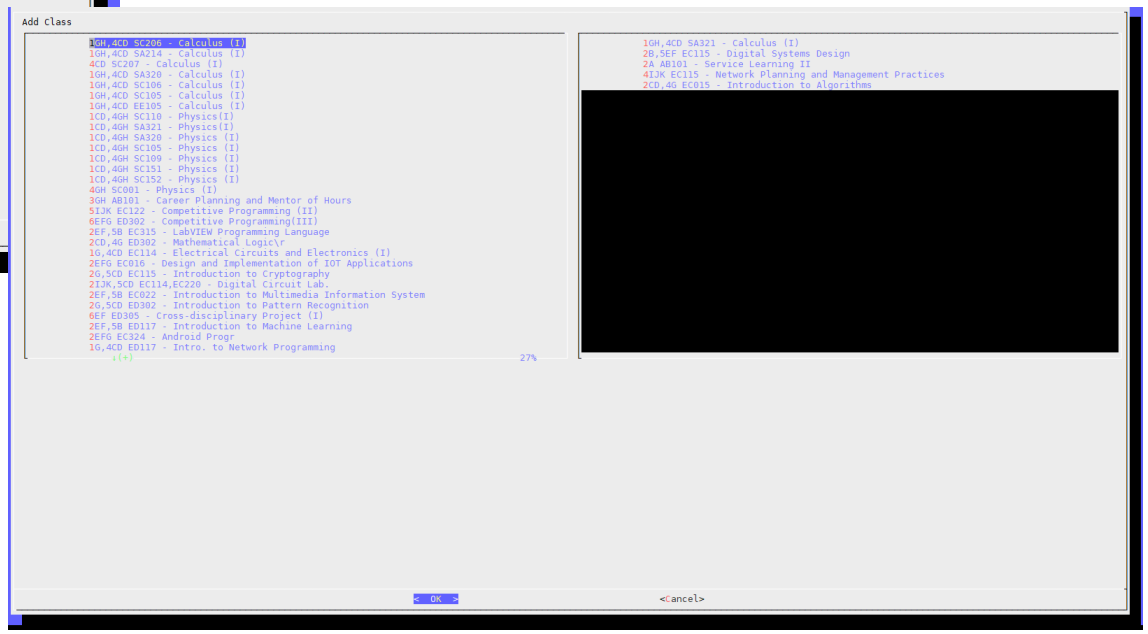
- Use one-line command
- No temporary file or shell variables.
- No “&&” “||” “>” “>>” “<” “;” “&”, but you can use them in the awk command. Actually, you don’t need them to finish this homework.
- Only pipes are allowed.
- Hint: ls(1) with -A and -R

2-1: Filesystem Statistics – Requirement (3/3)

- Grade
  - File is executable. (4%)
  - List top 5 file size and name. (4%)
  - Dir num is correct. (4%)
  - File num is correct. (4%)
  - Total size is correct. (4%)

2-2: Course Registration System (CRS)



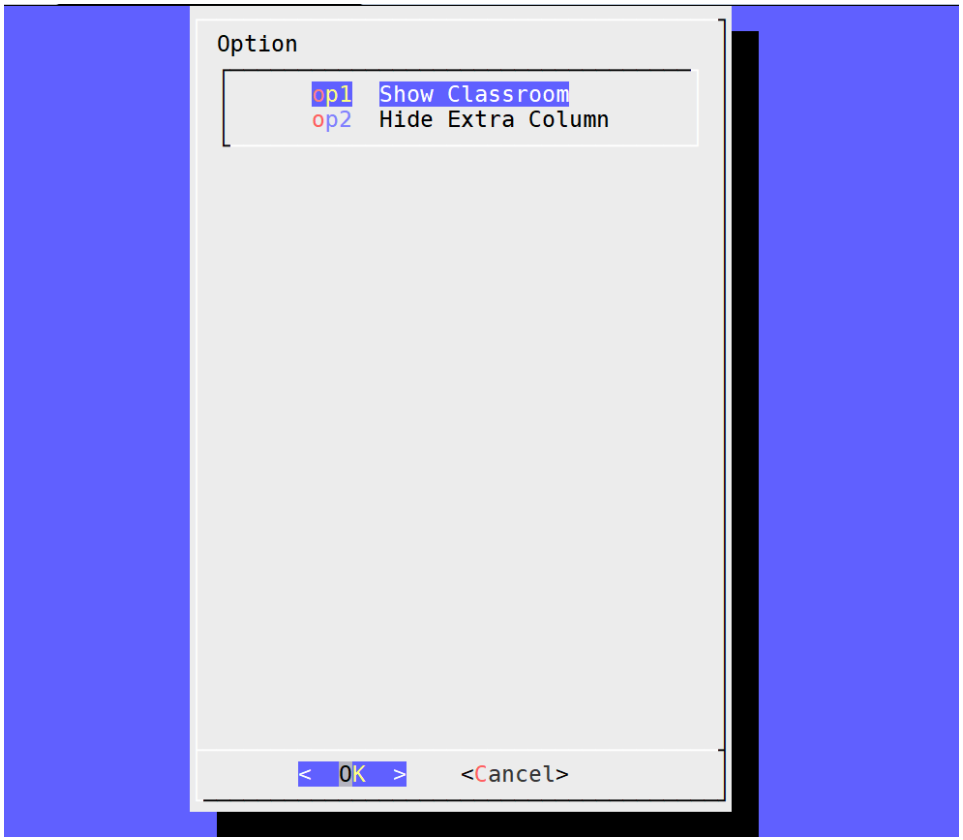


2-2: CRS – Requirements

- Download timetable from timetable.nctu.edu.tw using curl, do this step only when no data kept at local. (15%)
- CRS needs to list all courses，Keep record of all selected courses and options (including after program restart)，no modification if user select cancel while saving. (15%)
- Check time conflict and ask user to solve the conflict by reselect courses. (15%)
- Options for display course title or classroom number / display Sat.、Sun.、NMXY … less important time or not. (3%+3%)
- Output aligned chart(3%), can display multi-line per grid. (6%)
- Python … all other language and Shell except sh are restricted. Available packages are based on Workstation(bsd1~4)。

2-2: CRS

- **Option should at least contain these two functions。**



2-2: CRS – Dialog

Dialog is a program that will let you to present a variety of questions or display messages using dialog boxes from a shell script.

These types of dialog boxes are implemented (though not all are necessarily compiled into dialog):

buildlist, calendar, checklist, dselect, editbox, form, fselect, gauge, infobox, inputbox, inputmenu, menu, mixedform, mixedgauge, msgbox (message), passwordbox, pause, prgbox, programbox, progressbox, radiolist, rangebox, passwordform, tailbox, tailboxbg, textbox, timebox, treeview, and yesno (yes/no).

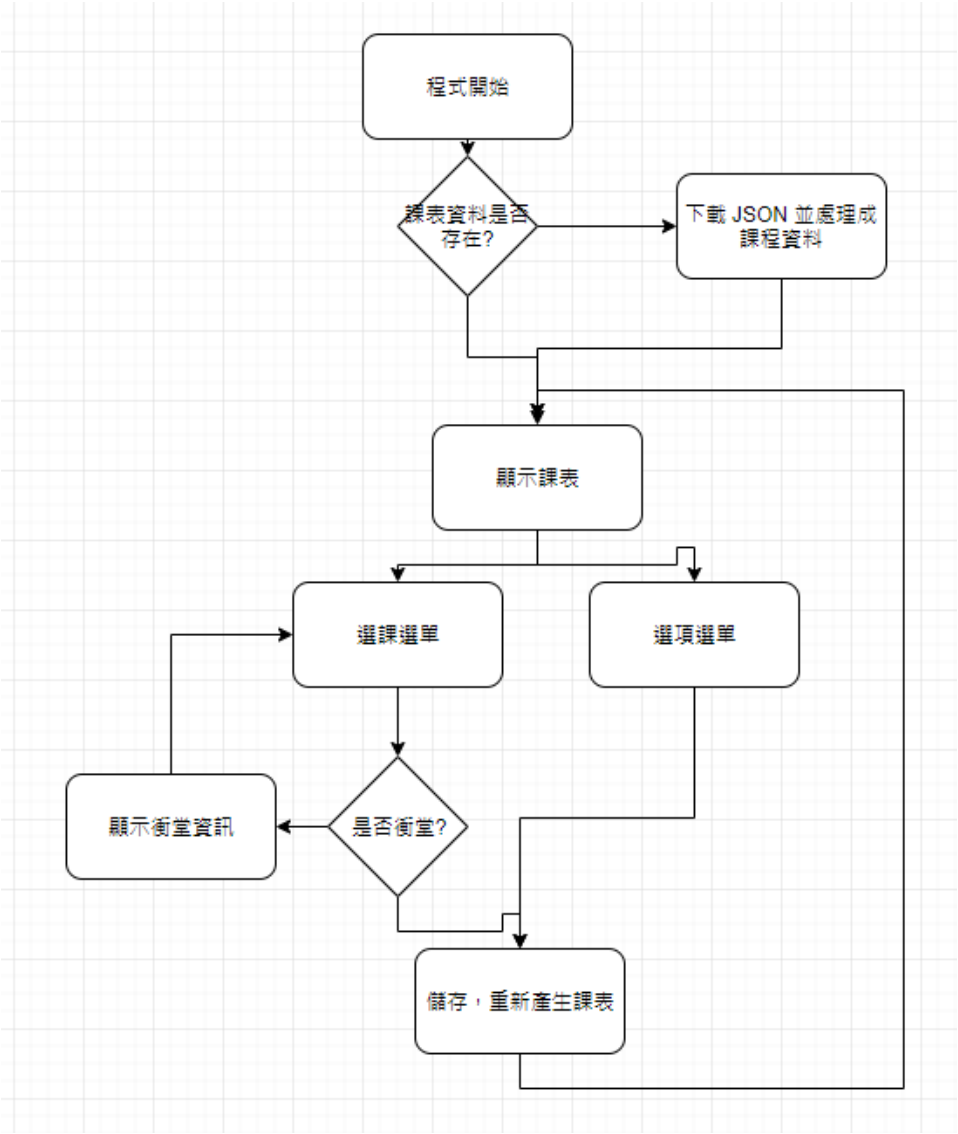
2-2: CRS – Hint (1/2)

- JSON file of timetable can be download with :
  - curl 'https://timetable.nctu.edu.tw/?r=main/get_cos_list' --data 'm_acy=107&m_sem=1&m_degree=3&m_dep_id=17&m_group=**&m_grade=**&m_class=**&m_option=**&m_crsname=**&m_teaname=**&m_cos_id=**&m_cos_code=**&m_crstime=**&m_crsoutline=**&m_costype=**'
- Will download timetable of CS courses, please complete homework base on this timetable, JSON parsing should be done with build-in tools.
- If trouble occurs while curling timetable, please generate the timetable manually to complete the rest parts. Scores will not be count for this part (15%).

2-2: CRS – Hint (2/2)

- Use English course name.
- Display all classroom number in every grid if the course uses multiple classrooms.
- No further restricts besides align all fields.

2-2: CRS – Recommend Workflow



2-2: CRS – Bonus

- Course for free time
  (**Show all current available courses**)。(10%)
- Course searching
  - Input: part of the course name, Output: **all courses containing the search word in the course name.** (5%)
  - **Input: part of the course time, Output: all courses containing the search time. (5%)**
    - **Ex. Input: 4GH, Output: courses of 4GH、1B4GH …etc, but not courses with only 4G or 4H.**

Help!

- Email to ta@nasa.cs.nctu.edu.tw
- New E3 https://e3new.nctu.edu.tw
- Office hour: 3GH at EC318

- Q：Why this assignment？
  A ：Fun.😁