Network Engineering 2019 Exercises - Unit 1

1 Basic POSIX file permissions

Write a shell-script called `unit1-solution1.sh` that creates **directories** inside a directory called `unit1exercise1` with the following properties, and then creates a **compressed tar file** called `unit1-solution1.tgz`

1. `anfahrs`, mode `------rw-`
2. `angesprachen`, mode `r---wxrw-`
3. `angestehte`, mode `---rw----`
4. `angegehse`, mode `-w-rwx-w-`
5. `belaufheit`, mode `rwx------`
6. `aufwarfheit`, mode `r-x-wx---`
7. `ensitzung`, mode `-w--wx---`
8. `angekraust`, mode `r---wxrw-`
9. `angestehte/ansetzer`, mode `-w--wx-w-`
10. `angegehse/engehheit`, mode `--x--x-wx`
11. `aufwarfheit/auftrauer`, mode `r-x--x--x`
12. `anfahrs/ansprachte`, mode `-wx-w--wx`
13. `ensitzung/ensitzen`, mode `--xr-xr--`
14. `anfahrs/ansprachte/aufkrauheit`, mode `r--r-x--x`
15. `ensitzung/ensitzen/behaltst`, mode `-wx---r--`
16. `ensitzung/ensitzen/enkatzetest`, mode `--x-wx--x`
17. `angestehte/ansetzer/angegehse`, mode `r--r-xrwx`
18. `anfahrs/ansprachte/bewarfte`, mode `r--rwx-w-`
19. `aufwarfheit/auftrauer/enkaesst`, mode `-wxr-x-w-`
20. `angegehse/engehheit/einlaufte`, mode `r--r--r-x`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2334 bytes long, while a compact script would be no larger than 942.

Grading for this exercise for you is according to the following guide:

Requirement	Percentage
Correctness of solution	60%
Compactness of solution	40%

The compactness scores are according to the following table:

Length of script	Percentage
2335 bytes or more	0%
1639 – 2334 bytes	5%
943 – 1638 bytes	15%
801 – 942 bytes	25%
less than 801 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1-solution1.tgz unit1exercise1
./unit1-exercise-1-grade.sh unit1-solution1.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution1.tgz unit1exercise1
git add unit1-solution1.sh unit1-solution1.tgz
git commit unit1-solution1.sh unit1-solution1.tgz
git push origin master
```

2 User and groups

Write a shell-script called `unit1-solution2.sh` that creates **directories** inside a directory called `unit1exercise2` with the following properties, and then creates a **compressed tar file** called `unit1-solution2.tgz`

1. `anlaufst`, mode `--xr-xr--`, owner `uucp`, group `tape`
2. `anpflumst`, mode `----wx--x`, owner `lp`, group `mail`
3. `bekatzekeit`, mode `rw---x-w-`, owner `news`, group `cdrom`
4. `einkletten`, mode `-w--w-r--`, owner `uucp`, group `uucp`
5. `zersitzheit`, mode `r-x-wxrwx`, owner `news`, group `audio`
6. `angerauchst`, mode `-w--wx-w-`, owner `nobody`, group `mail`

7. `verrenner`, mode `--x-w---x`, owner `uucp`, group `dip`
8. `angehaltkeit`, mode `-w-r---wx`, owner `games`, group `student`
9. `bekatzekeit/angehkeit`, mode `--xr--r-x`, owner `lp`, group `voice`
10. `bekatzekeit/angehunden`, mode `--xrw-r--`, owner `nobody`, group `proxy`
11. `anpflumst/aufsinnte`, mode `rwx--xr-x`, owner `proxy`, group `proxy`
12. `angerauchst/angehalten`, mode `r-xr-----`, owner `uucp`, group `uucp`
13. `bekatzekeit/betritttete`, mode `-w-------`, owner `student`, group `mail`
14. `anpflumst/aufsinnte/aufwarfst`, mode `-wxrwxr--`, owner `news`, group `proxy`
15. `bekatzekeit/angehkeit/auspflumer`, mode `--x---r--`, owner `mail`, group `mail`
16. `bekatzekeit/betritttete/angesteher`, mode `r--rw--w-`, owner `student`, group `proxy`
17. `angerauchst/angehalten/angeraucher`, mode `-wxr-x-w-`, owner `games`, group `voice`
18. `bekatzekeit/betritttete/verschmecken`, mode `-wx-w-rwx`, owner `games`, group `fax`
19. `angerauchst/angehalten/ausgetrauung`, mode `r-xrw--wx`, owner `mail`, group `student`
20. `bekatzekeit/angehunden/versinnkeit`, mode `r---w-r-x`, owner `games`, group `fax`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2379 bytes long, while a compact script would be no larger than 1206.

Grading for this exercise for you is according to the following guide:

Requirement	Percentage
Correctness of solution	60%
Compactness of solution	40%

The compactness scores are according to the following table:

Length of script	Percentage
2380 bytes or more	0%
1793 – 2379 bytes	5%
1207 – 1792 bytes	15%
1026 – 1206 bytes	25%
less than 1026 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1-solution2.tgz unit1exercise2
./unit1-exercise-2-grade.sh unit1-solution2.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution2.tgz unit1exercise2
git add unit1-solution2.sh unit1-solution2.tgz
git commit unit1-solution2.sh unit1-solution2.tgz
git push origin master
```

3 Set-user and Set-group ID

Write a shell-script called `unit1-solution3.sh` that creates **directories** inside a directory called `unit1exercise3` with the following properties, and then creates a **compressed tar file** called `unit1-solution3.tgz`

1. `aufgestehheit`, mode `----wxrw-`, owner `proxy`, group `audio`
2. `angetraut`, mode `-w-rw--wx`, owner `nobody`, group `audio`
3. `geschmecktest`, mode `--x-w-r-x`, owner `news`, group `fax`
4. `bewarfen`, mode `--xrw---x`, owner `nobody`, group `uucp`, `setuid`
5. `ansinntete`, mode `-w--w-r-x`, owner `nobody`, group `news`
6. `auftrittung`, mode `rwx--x---`, owner `lp`, group `proxy`
7. `verrennheit`, mode `-w-r-xr--`, owner `news`, group `fax`
8. `ausgehs`, mode `-wxrwxrw-`, owner `news`, group `uucp`
9. `verrennheit/ausgetraust`, mode `r-xr--r--`, owner `uucp`, group `voice`
10. `geschmecktest/ausgehaltung`, mode `-----xrwx`, owner `mail`, group `floppy`, `setuid`
11. `auftrittung/angehundung`, mode `-wxrwxrwx`, owner `nobody`, group `proxy`
12. `bewarfen/gesinnen`, mode `r---w-rwx`, owner `student`, group `uucp`, `setuid`

13. `bewarfen/aufsprachtest`, mode `rwx-wxrwx`, owner `proxy`, group `proxy`
14. `bewarfen/gesinnen/einfahrtest`, mode `---rwxrw-`, owner `nobody`, group `cdrom`, `setuid`
15. `bewarfen/aufsprachtest/aufgekaest`, mode `---r-x-wx`, owner `games`, group `tape`, `setuid`
16. `geschmecktest/ausgehaltung/behaltheit`, mode `-wx-w-rw-`, owner `uucp`, group `proxy`, `setuid`
17. `auftrittung/angehundung/einhalttest`, mode `--xrwxr-x`, owner `student`, group `news`
18. `geschmecktest/ausgehaltung/verkrautete`, mode `rw--wx--x`, owner `uucp`, group `tape`, `setuid`
19. `bewarfen/gesinnen/aufkaestete`, mode `-wx-w--w-`, owner `nobody`, group `dip`, `setuid`
20. `auftrittung/angehundung/verhunds`, mode `r-xr--r-x`, owner `student`, group `proxy`, `setuid`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2408 bytes long, while a compact script would be no larger than 1244.

Grading for this exercise for you is according to the following guide:

Requirement	Percentage
Correctness of solution	60%
Compactness of solution	40%

The compactness scores are according to the following table:

Length of script	Percentage
2409 bytes or more	0%
1827 – 2408 bytes	5%
1245 – 1826 bytes	15%
1058 – 1244 bytes	25%
less than 1058 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1-solution3.tgz unit1exercise3
./unit1-exercise-3-grade.sh unit1-solution3.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution3.tgz unit1exercise3
git add unit1-solution3.sh unit1-solution3.tgz
git commit unit1-solution3.sh unit1-solution3.tgz
git push origin master
```

4 Set-group ID Directories

Write a shell-script called `unit1-solution4.sh` that creates **directories** inside a directory called `unit1exercise4` with the following properties, and then creates a **compressed tar file** called `unit1-solution4.tgz`

1. `bekatzetest`, mode `--xr-xrwx`, group `fax`, `setgid`
2. `auskatzete`, mode `--------x`, group `dip`
3. `ausgehundtest`, mode `rwx-w-rw-`, group `cdrom`
4. `einkletttete`, mode `-wxr----x`, group `fax`, `setgid`
5. `angefahrung`, mode `--xr----x`, group `cdrom`, `setgid`
6. `ausgehaltse`, mode `---r--rwx`, group `mail`, `setgid`
7. `gerabarbst`, mode `-w-r--rwx`, group `voice`, `setgid`
8. `angesitzte`, mode `rw--wx---`, group `tape`, `setgid`
9. `angefahrung/gerenntete`, mode `r-x-wx--x`, group `tape`
10. `auskatzete/aufstehen`, mode `----w---x`, group `mail`
11. `ausgehaltse/zersitzen`, mode `rwxrwxrw-`, group `voice`
12. `ausgehundtest/eingehtete`, mode `r---wxrwx`, group `news`
13. `auskatzete/aussetzs`, mode `--xr---w-`, group `audio`, `setgid`
14. `ausgehaltse/zersitzen/gehundtest`, mode `--xrwx-w-`, group `news`
15. `auskatzete/aussetzs/einlaufung`, mode `--xrwx-wx`, group `audio`
16. `ausgehaltse/zersitzen/ausgesinns`, mode `----w-rw-`, group `tape`, `setgid`
17. `auskatzete/aufstehen/auswarfkeit`, mode `-wx-wxr-x`, group `fax`, `setgid`
18. `auskatzete/aufstehen/ensetzkeit`, mode `---rwx--x`, group `tape`
19. `angefahrung/gerenntete/enhundtest`, mode `r-xr-xrw-`, group `tape`, `setgid`

20. `ausgehundtest/eingehtete/enklettheit`, mode `rw--w-r--`, group `proxy`

Your work will be **automatically marked** by comparing the contents of the compressed tar file against a template. Therefore it is important that you have every detail correct.

This exercise can be be completed using the `cd`, `mkdir`, `chown`, `chmod` and `sudo` shell commands, although you can use other shell commands if you wish.

An unsophisticated script to complete this would be 2421 bytes long, while a compact script would be no larger than 1101.

Grading for this exercise for you is according to the following guide:

Requirement	Percentage
Correctness of solution	60%
Compactness of solution	40%

The compactness scores are according to the following table:

Length of script	Percentage
2422 bytes or more	0%
1762 – 2421 bytes	5%
1102 – 1761 bytes	15%
936 – 1101 bytes	25%
less than 936 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1-solution4.tgz unit1exercise4
./unit1-exercise-4-grade.sh unit1-solution4.sh
```

To submit your solution (which you can do as many times as you like), use a command like:

```
sudo tar zcf unit1-solution4.tgz unit1exercise4
git add unit1-solution4.sh unit1-solution4.tgz
git commit unit1-solution4.sh unit1-solution4.tgz
git push origin master
```

5 Interpreting File Permissions

For each of the following exercises, determine whether the given file or directory can be accessed in the manner described. Remember that file or directory access can be mediated by owner, group or other permissions, and that the first matching item applies.

As you have a 50% chance of getting each item correct, you must score more than 50% to obtain a positive result for this section. There are 40 questions, and your score will be $(n - 20)/20$, where n is the number of correct responses.

You should record your answers in a single text file called unit1-answers.txt, consisting of 40 consecutive `Y`, `1`, `2` or `3` characters on a single line.

To submit your answers (which you can do as many times as you like), commit your answer file to your git repository, and push it to github, e.g.:
`git add unit1-answers.txt ; git commit unit1-answers.txt ; git push origin master`

At the end of this section there is a hash which reflects the hash of the correct result of all 40 questions. You can use this to check if you have all answers correct. However, it will not tell you how many you have correct (that would let you work out which ones were wrong through a process of elimination.

5.1

Can the user **lp**, who is a member of the **voice** group, **execute** the file `/angerabarber/enlaufer/ausgerabarbk`
If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drw--w-r-x     news      fax     0 angerabarber
   └─ (2)    d---rwx-wx  student    voice     0 enlaufer
      └─ (3) --wx--x---    proxy    voice     0 ausgerabarbkeit
```

5.2

Can the user **news**, who is a member of the **student** group, **read from** the file `/ensprachse/verkletttest/angekatzetete`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wxr-xr-x    proxy  student     0 ensprachse
   └─ (2)    drwx-w-r--     news     news     0 verkletttest
      └─ (3) -rwxr--r-x     uucp    audio     0 angekatzetete
```

5.3

Can the user **student**, who is a member of the **student** group, **execute** the file `/besprachse/entrautete/verfahrse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wx-w-r-x    games    audio     0 besprachse
   └─ (2)    d----w-r-x       lp    proxy     0 entrautete
      └─ (3) -rwx--xr-x       lp  student     0 verfahrse
```

5.4

Can the user **uucp**, who is a member of the **floppy** group, **write to** the file `/ausstehung/versprachte/beklettest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx-wxr-x     uucp    proxy     0 ausstehung
   └─ (2)    drwxrwx--x    games   floppy     0 versprachte
      └─ (3) ---x-w-rw-     uucp     uucp     0 beklettest
```

5.5

Can the user **news**, who is a member of the **uucp** group, **write to** the file `/verlaufheit/auslauftest/aussprachheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drw--wxr-x    games    proxy     0 verlaufheit
   └─ (2)    dr--rwx-wx       lp     uucp     0 auslauftest
      └─ (3) --w----rw-     news     uucp     0 aussprachheit
```

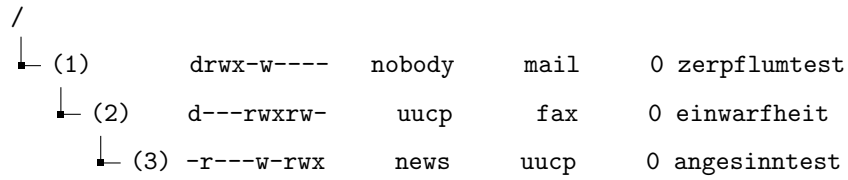
5.6

Can the user **nobody**, who is a member of the **cdrom** group, **read from** the file `/ausgerauchung/zerrabarbtest/einkaeskeit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xrw-rwx   nobody  student     0 ausgerauchung
   └─ (2)    d--x------       lp    cdrom     0 zerrabarbtest
      └─ (3) -rw-r----x    proxy    cdrom     0 einkaeskeit
```

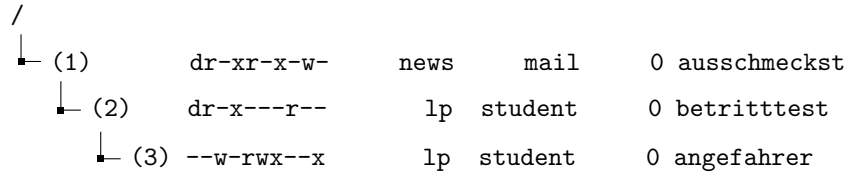
5.7

Can the user **mail**, who is a member of the **fax** group, **execute** the file `/zerpflumtest/einwarfheit/angesinntest`? If not, which of the three directories blocks access (Y|1|2|3)



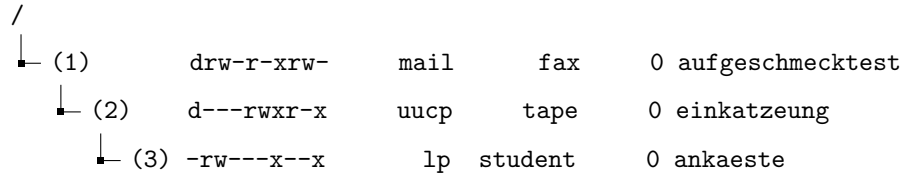
5.8

Can the user **news**, who is a member of the **student** group, **write to** the file `/ausschmeckst/betritttest/angefahrer`? If not, which of the three directories blocks access (Y|1|2|3)



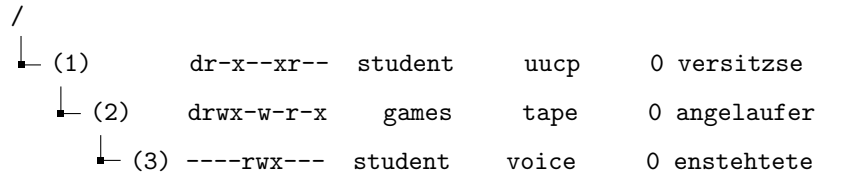
5.9

Can the user **lp**, who is a member of the **fax** group, **execute** the file `/aufgeschmecktest/einkatzeung/ankaes`
If not, which of the three directories blocks access (Y|1|2|3)



5.10

Can the user **student**, who is a member of the **floppy** group, **write to** the file `/versitzse/angelaufer/enstehtete`? If not, which of the three directories blocks access (Y|1|2|3)



5.11

Can the user **news**, who is a member of the **fax** group, **read from** the file `/aufgerennheit/zertrittst/ausgerabarber`? If not, which of the three di-

rectories blocks access (Y|1|2|3)

```
/
└─ (1)       d---rwxrwx       lp    audio     0 aufgerennheit
   └─ (2)    d--x--xr-x    proxy      dip     0 zertrittst
      └─ (3) ---xr-xrwx     news  student     0 ausgerabarber
```

5.12

Can the user **news**, who is a member of the **student** group, **read from** the file `/zerhundtete/besetztest/aufkaesung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w--wxr-x   nobody    audio     0 zerhundtete
   └─ (2)    dr-xrwx-w-   nobody  student     0 besetztest
      └─ (3) -r-x-wxr--     news    proxy     0 aufkaesung
```

5.13

Can the user **nobody**, who is a member of the **fax** group, **execute** the file `/einklettse/aufrabarbkeit/zersinns`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x-wxr-x     mail     mail     0 einklettse
   └─ (2)    dr--r-x--x    games      fax     0 aufrabarbkeit
      └─ (3) -r--rwx-w-   nobody    proxy     0 zersinns
```

5.14

Can the user **mail**, who is a member of the **floppy** group, **write to** the file `/einkaestest/aufsteht/angekletttest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx-w----    proxy      fax     0 einkaestest
   └─ (2)    drwxr--rw-     mail  student     0 aufsteht
      └─ (3) -rw-r-x--x     mail    audio     0 angekletttest
```

5.15

Can the user **uucp**, who is a member of the **student** group, **write to** the file `/angehaltung/angesitzung/zerrabarbst`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx--xrw-    uucp    audio     0 angehaltung
   └─ (2)    dr--rwx---    proxy   student   0 angesitzung
      └─ (3) -r-xrwxrw-    uucp    cdrom     0 zerrabarbst
```

5.16

Can the user **news**, who is a member of the **tape** group, **write to** the file `/angekaesung/besetzt/auflauft`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x-wx-w-    proxy     fax     0 angekaesung
   └─ (2)    dr-xr-xrw-    news      uucp    0 besetzt
      └─ (3) -rw-------    news      proxy   0 auflauft
```

5.17

Can the user **mail**, who is a member of the **student** group, **execute** the file `/angesitzs/anlaufte/ensteher`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-r-x--x    games   student   0 angesitzs
   └─ (2)    d-wx-wxr-x    uucp    dip       0 anlaufte
      └─ (3) --wx-wx-w-    mail    floppy    0 ensteher
```

5.18

Can the user **mail**, who is a member of the **news** group, **read from** the file `/gepflumse/gesetzse/ausrenntest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
|
+- (1)       dr--r-x--x     news     news     0 gepflumse
   |
   +- (2)    dr-xr-xrw-     mail   floppy     0 gesetzse
      |
      +- (3) -r---wxrw-     mail     tape     0 ausrenntest
```

5.19

Can the user **student**, who is a member of the **student** group, **write to** the file `/zerhaltung/ausfahrst/einsitzse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
|
+- (1)       dr-x-wx--x  student    voice     0 zerhaltung
   |
   +- (2)    drw-rwxr--    proxy  student     0 ausfahrst
      |
      +- (3) ----rw-r--   nobody  student     0 einsitzse
```

5.20

Can the user **mail**, who is a member of the **voice** group, **execute** the file `/enkraus/angelaufung/gesitzs`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
|
+- (1)       dr-x-w-rwx       lp    audio     0 enkraus
   |
   +- (2)    d-wxr--r-x    proxy     mail     0 angelaufung
      |
      +- (3) -rw-r-xr-x     mail      dip     0 gesitzs
```

5.21

Can the user **uucp**, who is a member of the **dip** group, **write to** the file `/enkrauen/ansetztest/bekraust`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
|
+- (1)       drwx---r-x     uucp    audio     0 enkrauen
   |
   +- (2)    d-w---xrwx  student     mail     0 ansetztest
      |
      +- (3) -----w-rw-     mail     news     0 bekraust
```

5.22

Can the user **nobody**, who is a member of the **floppy** group, **write to** the file `/einsprachtest/enstehst/angehaltheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wx---rwx    games     uucp     0 einsprachtest
   └─ (2)    drwx-w-r-x  student     mail     0 enstehst
      └─ (3) ---x-wx-w-     uucp      dip     0 angehaltheit
```

5.23

Can the user **mail**, who is a member of the **uucp** group, **execute** the file `/gerabarbtete/betrittung/auswitzung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxrwxrw-   nobody     uucp     0 gerabarbtete
   └─ (2)    d-wx--xr-x    proxy     news     0 betrittung
      └─ (3) -r-xrwx--x   nobody     uucp     0 auswitzung
```

5.24

Can the user **uucp**, who is a member of the **news** group, **write to** the file `/versprachheit/enhaltkeit/gesinnt`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x----w-   nobody     tape     0 versprachheit
   └─ (2)    drwxr-xr-x     uucp     news     0 enhaltkeit
      └─ (3) --w--wx--x     uucp     tape     0 gesinnt
```

5.25

Can the user **nobody**, who is a member of the **proxy** group, **write to** the file `/angehundse/ausgesetzt/enfahrer`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr-x-w-  student    proxy     0 angehundse
   └─ (2)    dr-x----w-  student    proxy     0 ausgesetzt
      └─ (3) --w-rwxrw-       lp    cdrom     0 enfahrer
```

5.26

Can the user **nobody**, who is a member of the **voice** group, **execute** the file `/angekaeskeit/auskrause/entrittte`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx-wx-w-     news     news     0 angekaeskeit
   └─ (2)    dr-xr--rw-   nobody     mail     0 auskrause
      └─ (3) ---xrwx-w-   nobody     mail     0 entrittte
```

5.27

Can the user **nobody**, who is a member of the **dip** group, **write to** the file `/angetritttest/besinnte/auskrautete`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x-w-rwx   nobody      fax     0 angetritttest
   └─ (2)    drw-rw-r-x  student    audio     0 besinnte
      └─ (3) --wxrw--w-       lp      dip     0 auskrautete
```

5.28

Can the user **student**, who is a member of the **voice** group, **write to** the file `/einlaufer/aufgesinnse/eingeher`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr-xrwx       lp    proxy     0 einlaufer
   └─ (2)    drwx-w-rwx  student     news     0 aufgesinnse
      └─ (3) -----wx-w-  student    cdrom     0 eingeher
```

5.29

Can the user **mail**, who is a member of the **cdrom** group, **write to** the file `/ausfahrte/einrabarbte/bewitzheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xrwx---     uucp   floppy     0 ausfahrte
   └─ (2)    dr--r-xrw-   nobody    cdrom     0 einrabarbte
      └─ (3) -rwx--xrw-     mail  student     0 bewitzheit
```

5.30

Can the user **lp**, who is a member of the **student** group, **write to** the file `/aussprachse/bepflumse/enlaufs`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--xr-x---     uucp  student     0 aussprachse
   └─ (2)    drwxrw-r--       lp      fax     0 bepflumse
      └─ (3) --w--w-r-x       lp      dip     0 enlaufs
```

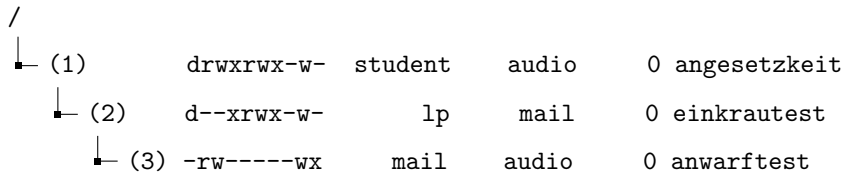
5.31

Can the user **uucp**, who is a member of the **mail** group, **execute** the file `/ausgeklettst/aufsetzs/versitzer`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr--rwx-w-    games   floppy     0 ausgeklettst
   └─ (2)    drwx-w--wx     uucp      fax     0 aufsetzs
      └─ (3) ----rw---x     mail     tape     0 versitzer
```

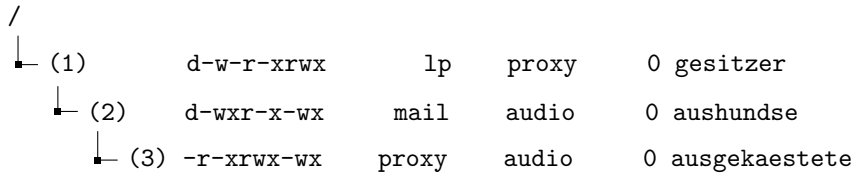
5.32

Can the user **mail**, who is a member of the **mail** group, **read from** the file `/angesetzkeit/einkrautest/anwarftest`? If not, which of the three directories blocks access (Y|1|2|3)



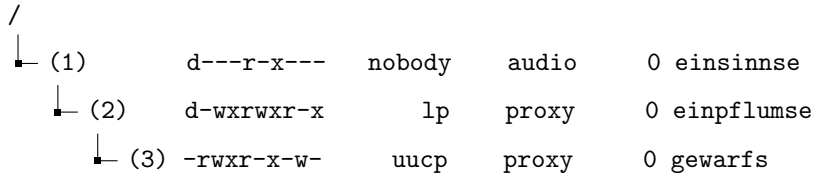
5.33

Can the user **uucp**, who is a member of the **audio** group, **write to** the file `/gesitzer/aushundse/ausgekaestete`? If not, which of the three directories blocks access (Y|1|2|3)



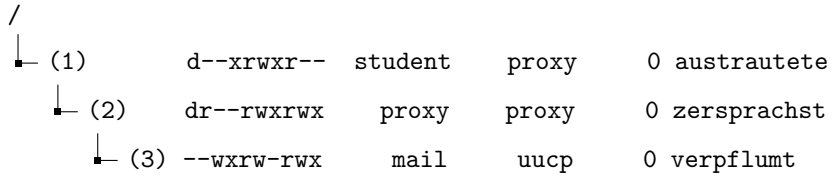
5.34

Can the user **student**, who is a member of the **proxy** group, **read from** the file `/einsinnse/einpflumse/gewarfs`? If not, which of the three directories blocks access (Y|1|2|3)



5.35

Can the user **mail**, who is a member of the **proxy** group, **read from** the file `/austrautete/zersprachst/verpflumt`? If not, which of the three directories blocks access (Y|1|2|3)



5.36

Can the user **games**, who is a member of the **floppy** group, **read from** the file `/bekrauen/engeht/enlaufte`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr-x---    games      fax     0 bekrauen
   └─ (2)    dr-xr-x-wx  student   floppy     0 engeht
      └─ (3) --wx--xr-x    proxy     uucp     0 enlaufte
```

5.37

Can the user **student**, who is a member of the **proxy** group, **read from** the file `/ausgeschmeckheit/zerwarfst/verrauchkeit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr--rwx  student     tape     0 ausgeschmeckheit
   └─ (2)    d---r-x---     uucp    proxy     0 zerwarfst
      └─ (3) --wxrw-rwx       lp    audio     0 verrauchkeit
```

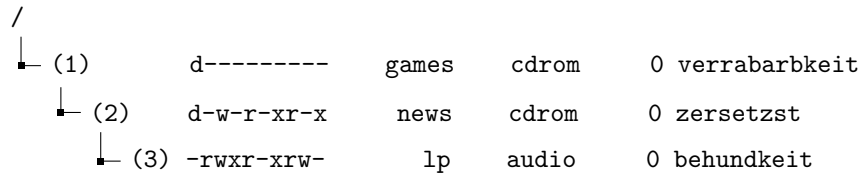
5.38

Can the user **news**, who is a member of the **proxy** group, **execute** the file `/beschmeckkeit/versprachse/ansteher`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxrwx-w-   nobody    proxy     0 beschmeckkeit
   └─ (2)    d-wx-w-rwx     uucp    proxy     0 versprachse
      └─ (3) ---xrwxr-x       lp    proxy     0 ansteher
```

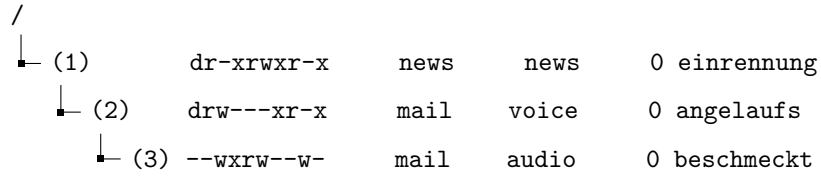
5.39

Can the user **lp**, who is a member of the **proxy** group, **write to** the file `/verrabarbkeit/zersetzst/behundkeit`? If not, which of the three directories blocks access (Y|1|2|3)



5.40

Can the user **games**, who is a member of the **audio** group, **read from** the file `/einrennung/angelaufs/beschmeckt`? If not, which of the three directories blocks access (Y|1|2|3)



Hash for checking if you have all 40 correct

d2635936800238cc950c2c9c2acf9e6d2d8340133da4633ba6a70e4ff0c54b47

You can check your result with a command like:

```
echo "2YY13YY2YYYY3Y3YY2Y22YY11Y2Y1YY2YYY3Y3YY" | \
       shasum -a 512 | cut -c1-64
```

(But don't forget to put your string of Y's and N's in place of those)

If the output of that command matches the hash at the end of this section, then you almost certainly have all 40 correct.