Network Engineering 2021 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. `einrenntest`, mode `rwx-wxr--`
2. `geschmeckse`, mode `rw--w-r-x`
3. `angekrauung`, mode `--x--x--x`
4. `einkletttete`, mode `--x-wxrwx`
5. `aufgeklettse`, mode `--xrwx-w-`
6. `zertritttete`, mode `---rw--w-`
7. `angefahrs`, mode `r-xrw-rw-`
8. `ansinner`, mode `-w-----wx`
9. `einkletttete/ausgegehheit`, mode `--xrwxr-x`
10. `ansinner/einkraute`, mode `-w---xr-x`
11. `einkletttete/angesteher`, mode `r--r-xr--`
12. `ansinner/aufgehaltse`, mode `-wxrw-rwx`
13. `einrenntest/aufkaess`, mode `--x-w-rwx`
14. `ansinner/einkraute/ausgestehung`, mode `-w-rw-r--`
15. `einrenntest/aufkaess/angegehse`, mode `r--r-----`
16. `ansinner/aufgehaltse/anhundkeit`, mode `rw-------`
17. `einkletttete/ausgegehheit/angekraust`, mode `rw-r-x--x`
18. `einrenntest/aufkaess/aufstehse`, mode `rw-rwxrwx`
19. `einkletttete/ausgegehheit/enrennte`, mode `--x---r-x`
20. `einrenntest/aufkaess/aufgekletter`, mode `rw---xrwx`

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 2462 bytes long, while a compact script would be no larger than 976.

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
2463 bytes or more	0%
1720 – 2462 bytes	5%
977 – 1719 bytes	15%
830 – 976 bytes	25%
less than 830 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. `ausgetraust`, mode `r-x-wxr--`, owner `lp`, group `voice`
2. `aufrenntest`, mode `--x--xrwx`, owner `uucp`, group `news`
3. `vertrittt`, mode `-w--wx--x`, owner `student`, group `student`
4. `ansitztest`, mode `--x-wxr--`, owner `uucp`, group `tape`
5. `anrauchte`, mode `rw-rwx-wx`, owner `proxy`, group `dip`
6. `gehaltheit`, mode `-w-rwxrw-`, owner `news`, group `fax`

7. `enklettheit`, mode `--xr-x-wx`, owner `mail`, group `tape`
8. `aufstehkeit`, mode `rwx--x-wx`, owner `mail`, group `dip`
9. `aufrenntest/einkaesst`, mode `rwxrwx---`, owner `student`, group `mail`
10. `vertrittt/ausgegehen`, mode `rwxrw-rwx`, owner `proxy`, group `fax`
11. `ansitztest/ausgehte`, mode `--xr---wx`, owner `news`, group `news`
12. `aufrenntest/aufgekrauung`, mode `rwx-wxr--`, owner `nobody`, group `news`
13. `ansitztest/auffahrtete`, mode `-wxrwx-wx`, owner `news`, group `voice`
14. `aufrenntest/aufgekrauung/enkletttest`, mode `-wxr-x-w-`, owner `mail`, group `proxy`
15. `aufrenntest/einkaesst/angetrause`, mode `r-xrwx--x`, owner `mail`, group `dip`
16. `aufrenntest/einkaesst/aufgesprachs`, mode `r-xr---wx`, owner `proxy`, group `news`
17. `ansitztest/auffahrtete/behundkeit`, mode `r---w--wx`, owner `nobody`, group `voice`
18. `ansitztest/auffahrtete/einsprachtest`, mode `r-x---r--`, owner `nobody`, group `mail`
19. `aufrenntest/aufgekrauung/bekrauung`, mode `--xr-xrw-`, owner `news`, group `cdrom`
20. `vertrittt/ausgegehen/gesinnst`, mode `r-xr-xr--`, owner `proxy`, group `cdrom`

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 2376 bytes long, while a compact script would be no larger than 1223.

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
2377 bytes or more	0%
1800 – 2376 bytes	5%
1224 – 1799 bytes	15%
1040 – 1223 bytes	25%
less than 1040 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. `verhundkeit`, mode `-wxr-----`, owner `games`, group `dip`, `setuid`
2. `anrauchkeit`, mode `rwx---rwx`, owner `uucp`, group `proxy`, `setuid`
3. `ausgesitzung`, mode `r-x--xr-x`, owner `mail`, group `audio`
4. `anwitzer`, mode `rwxrw---x`, owner `student`, group `voice`
5. `gehalttest`, mode `-wx--xr-x`, owner `games`, group `cdrom`
6. `aufrauchte`, mode `-w--w-rwx`, owner `news`, group `news`, `setuid`
7. `aufspracht`, mode `-w-rw----`, owner `lp`, group `voice`
8. `angehalttest`, mode `-w--wxr--`, owner `news`, group `voice`
9. `aufrauchte/ausstehheit`, mode `--xr---wx`, owner `proxy`, group `floppy`, `setuid`
10. `verhundkeit/einkaestete`, mode `rw-r---wx`, owner `games`, group `cdrom`, `setuid`
11. `anwitzer/ausgerenntete`, mode `r----x-wx`, owner `lp`, group `dip`, `setuid`

12. `anwitzer/bepflumte`, mode `rwx-wxrw-`, owner `news`, group `uucp`
13. `ausgesitzung/aufrauchkeit`, mode `--xrw--wx`, owner `proxy`, group `floppy`
14. `aufrauchte/ausstehheit/angefahrtest`, mode `--xrw--wx`, owner `news`, group `student`, `setuid`
15. `verhundkeit/einkaestete/ausgekrauen`, mode `rw---x-w-`, owner `games`, group `dip`
16. `anwitzer/ausgerenntete/aufsitzheit`, mode `----w---x`, owner `games`, group `news`
17. `anwitzer/bepflumte/anrauchst`, mode `rw-r--rw-`, owner `lp`, group `dip`
18. `anwitzer/ausgerenntete/angehaltheit`, mode `r---wxr--`, owner `uucp`, group `audio`
19. `verhundkeit/einkaestete/aufgesprachst`, mode `r-xrw-r-x`, owner `mail`, group `news`, `setuid`
20. `verhundkeit/einkaestete/einkaesheit`, mode `rwxr-xrw-`, owner `student`, group `voice`, `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 2418 bytes long, while a compact script would be no larger than 1184.

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
2419 bytes or more	0%
1802 – 2418 bytes	5%
1185 – 1801 bytes	15%
1007 – 1184 bytes	25%
less than 1007 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. `aussitzt`, mode `-wxr-----`, group `cdrom`, `setgid`
2. `einkatzet`, mode `------r--`, group `floppy`
3. `behaltheit`, mode `-wxr--r-x`, group `cdrom`
4. `austrittung`, mode `rw-----w-`, group `proxy`
5. `verkatzetete`, mode `-wx-wxr--`, group `news`
6. `enkatzest`, mode `---r----x`, group `dip`, `setgid`
7. `entrittst`, mode `rwxrw-r--`, group `voice`
8. `anrabarbtest`, mode `---rw-rwx`, group `fax`, `setgid`
9. `behaltheit/ausgewarfer`, mode `-w--w-rw-`, group `floppy`
10. `behaltheit/ausgeht`, mode `---rw-r-x`, group `floppy`
11. `entrittst/auflaufen`, mode `r-x-w--w-`, group `tape`
12. `aussitzt/angehunds`, mode `--xrw-r-x`, group `fax`
13. `einkatzet/eintrittheit`, mode `rw-----w-`, group `proxy`, `setgid`
14. `aussitzt/angehunds/aufhunden`, mode `-w-rwx-wx`, group `fax`
15. `einkatzet/eintrittheit/zerkatzest`, mode `-wxrwx--x`, group `cdrom`
16. `aussitzt/angehunds/vertritten`, mode `--xr----x`, group `dip`, `setgid`
17. `einkatzet/eintrittheit/einsetzse`, mode `rw---x-wx`, group `uucp`, `setgid`
18. `aussitzt/angehunds/aufschmeckkeit`, mode `r-x----w-`, group `tape`, `setgid`
19. `einkatzet/eintrittheit/belaufse`, mode `r-xrwx-wx`, group `fax`, `setgid`

20. `einkatzet/eintrittheit/angewitztete`, mode `-------wx`, group `voice`, `setgid`

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 2365 bytes long, while a compact script would be no larger than 1114.

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
2366 bytes or more	0%
1740 – 2365 bytes	5%
1115 – 1739 bytes	15%
947 – 1114 bytes	25%
less than 947 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 **student**, who is a member of the **dip** group, **write into** the file `/einrabarbte/versinnt/angekrautest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wxrwxr-x    games  student     0 einrabarbte
   └─ (2)    drwxrw--w-  student     uucp     0 versinnt
      └─ (3) -rw-rwx--x  student     news     0 angekrautest
```

5.2

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

```
/
└─ (1)       d-wx---r-x    proxy     news     0 verhundtete
   └─ (2)    dr---w----     mail  student     0 aufgepflumheit
      └─ (3) -rw-rwxrw-    proxy  student     0 verrabarbt
```

5.3

Can the user **nobody**, who is a member of the **student** group, **execute** the file `/bekaesst/aufschmeckte/angehaltung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drw--w-rwx  student    voice     0 bekaesst
   └─ (2)    drwx-w--w-  student  student     0 aufschmeckte
      └─ (3) -r------wx     news    audio     0 angehaltung
```

5.4

Can the user **student**, who is a member of the **proxy** group, **write into** the file `/angefahrkeit/besitzheit/gegehse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xrwx-w-    proxy     tape     0 angefahrkeit
   └─ (2)    d-wxrw-r-x   nobody   floppy     0 besitzheit
      └─ (3) -rwx---rwx     mail     tape     0 gegehse
```

5.5

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

```
/
└─ (1)       dr-x------     news      fax     0 zerwitzung
   └─ (2)    dr--rwxr-x       lp      fax     0 gekatzeer
      └─ (3) -rw---xr--     news   floppy     0 angerauchen
```

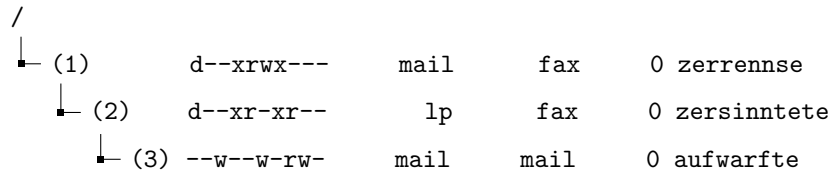
5.6

Can the user **student**, who is a member of the **student** group, **write into** the file `/bewarft/verkatzes/angekaestete`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-r-xr-x       lp  student     0 bewarft
   └─ (2)    drwx-wxrw-  student     uucp     0 verkatzes
      └─ (3) -rwxrwx-w-     uucp  student     0 angekaestete
```

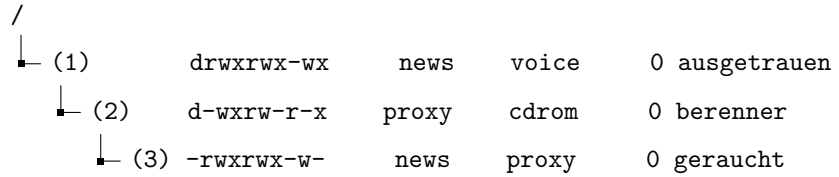
5.7

Can the user **news**, who is a member of the **fax** group, **write into** the file `/zerrennse/zersinntete/aufwarfte`? If not, which of the three directories blocks access (Y|1|2|3)



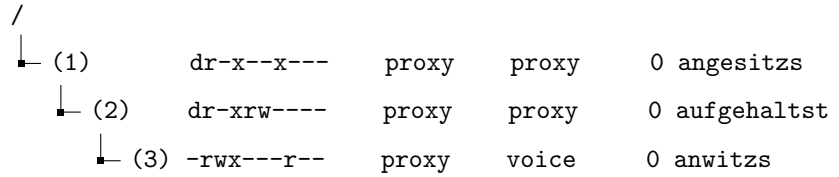
5.8

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



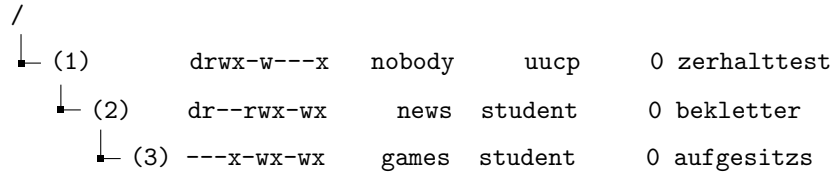
5.9

Can the user **proxy**, who is a member of the **uucp** group, **write into** the file `/angesitzs/aufgehaltst/anwitzs`? If not, which of the three directories blocks access (Y|1|2|3)



5.10

Can the user **nobody**, who is a member of the **student** group, **write into** the file `/zerhalttest/bekletter/aufgesitzs`? 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 **mail** group, **execute** the file `/zerrabarbtest/angelaufs/anhundung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx-wxrwx     news   floppy     0 zerrabarbtest
   └─ (2)    dr-x------  student     mail     0 angelaufs
      └─ (3) -rwx-w--wx     news    proxy     0 anhundung
```

5.12

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

```
/
└─ (1)       dr-x--xr-x     mail    audio     0 einfahrheit
   └─ (2)    drwxrwxrwx     uucp    cdrom     0 aufgetraukeit
      └─ (3) --wxr-xr-x    proxy     news     0 angesetztest
```

5.13

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

```
/
└─ (1)       dr-x---r-x  student     uucp     0 aufrabarbkeit
   └─ (2)    d-----xrwx    proxy     news     0 zertraukeit
      └─ (3) --wxr-x---  student      fax     0 einraucher
```

5.14

Can the user **news**, who is a member of the **dip** group, **execute** the file `/aufgetrittte/zerrennt/ausrabarbtest`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x--xr-x     news   floppy     0 aufgetrittte
   └─ (2)    dr-xr--rw-     news      dip     0 zerrennt
      └─ (3) -r-x-wx---     news     tape     0 ausrabarbtest
```

5.15

Can the user **student**, who is a member of the **audio** group, **write into** the file `/einwarftest/zerlaufte/ausgesprachse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x--xrwx     uucp     news     0 einwarftest
   └─ (2)    drw-rwxrwx    games     mail     0 zerlaufte
      └─ (3) -r-xrwx-wx  student      fax     0 ausgesprachse
```

5.16

Can the user **lp**, who is a member of the **floppy** group, **execute** the file `/vertrauung/angeschmeckheit/zerkraute`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x--x---    games    voice     0 vertrauung
   └─ (2)    drw----r-x  student      dip     0 angeschmeckheit
      └─ (3) ----r-x-wx   nobody   floppy     0 zerkraute
```

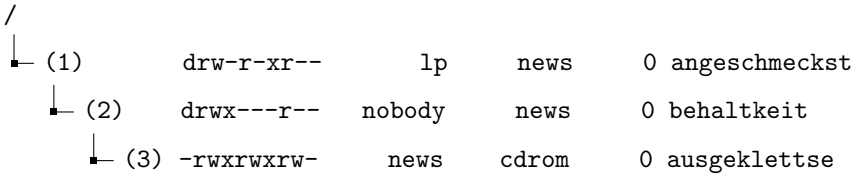
5.17

Can the user **nobody**, who is a member of the **floppy** group, **execute** the file `/getrauer/aufgetrautest/aufkatzet`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w--wxrwx     mail     mail     0 getrauer
   └─ (2)    d-w-rw-r-x       lp     tape     0 aufgetrautest
      └─ (3) --w-r-xrwx       lp   floppy     0 aufkatzet
```

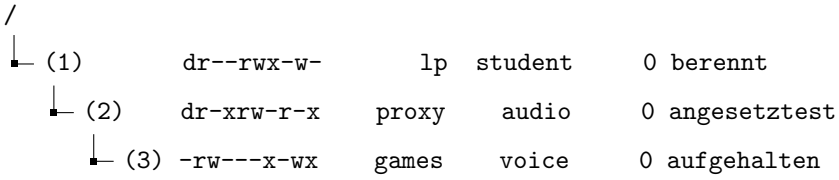
5.18

Can the user **games**, who is a member of the **news** group, **write into** the file `/angeschmeckst/behaltkeit/ausgeklettse`? If not, which of the three directories blocks access (Y|1|2|3)



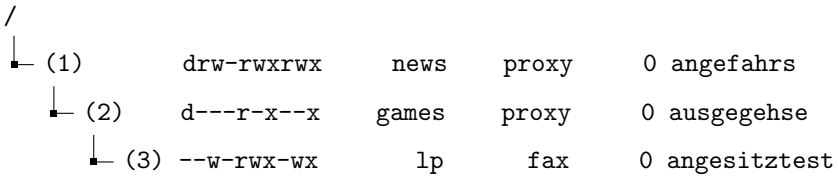
5.19

Can the user **proxy**, who is a member of the **voice** group, **execute** the file `/berennt/angesetztest/aufgehalten`? If not, which of the three directories blocks access (Y|1|2|3)



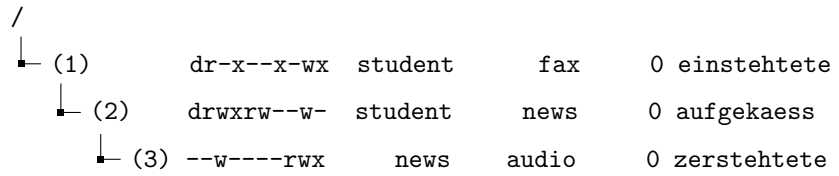
5.20

Can the user **uucp**, who is a member of the **proxy** group, **write into** the file `/angefahrs/ausgegehse/angesitztest`? If not, which of the three directories blocks access (Y|1|2|3)



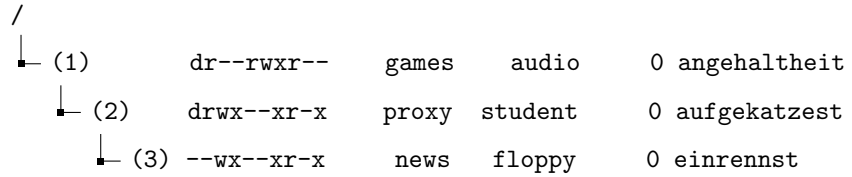
5.21

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



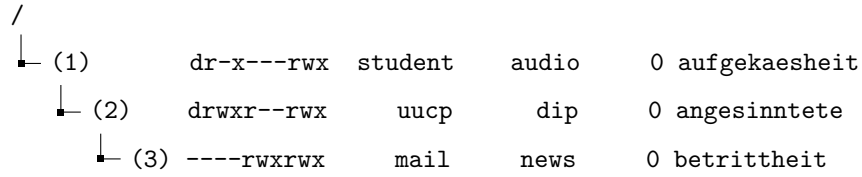
5.22

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



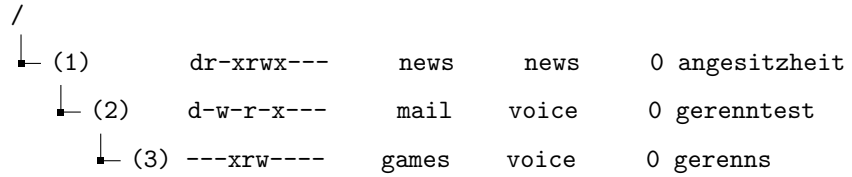
5.23

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



5.24

Can the user **lp**, who is a member of the **voice** group, **write into** the file `/angesitzheit/gerenntest/gerenns`? If not, which of the three directories blocks access (Y|1|2|3)



5.25

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

```
/
└─ (1)       drwxr-xr--     mail      fax     0 berauchtete
   └─ (2)    dr-x-w-r--     mail    voice     0 angerennse
      └─ (3) --w-rwxr--     mail     uucp     0 einkletten
```

5.26

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

```
/
└─ (1)       dr-x--xr-x  student    voice     0 behundst
   └─ (2)    d--x-w--wx       lp   floppy     0 ausstehung
      └─ (3) ---x-w-rwx  student     news     0 gerennheit
```

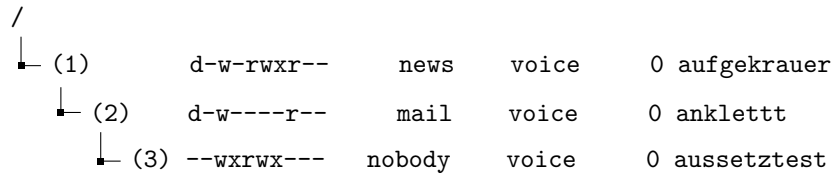
5.27

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

```
/
└─ (1)       d-w--w-r-x   nobody  student     0 aufhundheit
   └─ (2)    d-w-r-xr-x    proxy    proxy     0 zerhalten
      └─ (3) -rwxrw-r--       lp     uucp     0 anrabarbheit
```

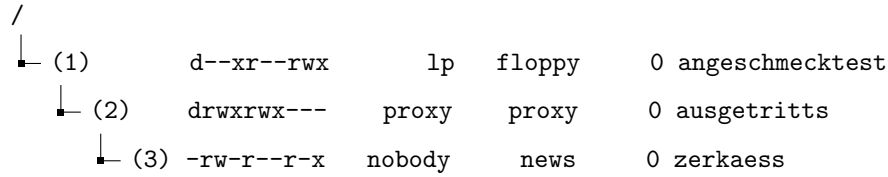
5.28

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



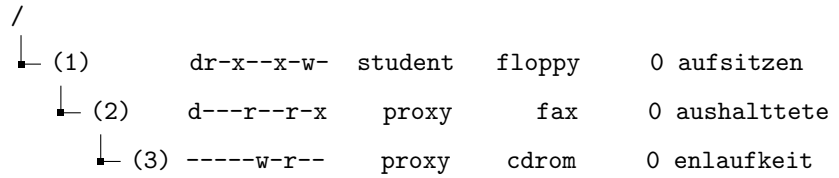
5.29

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



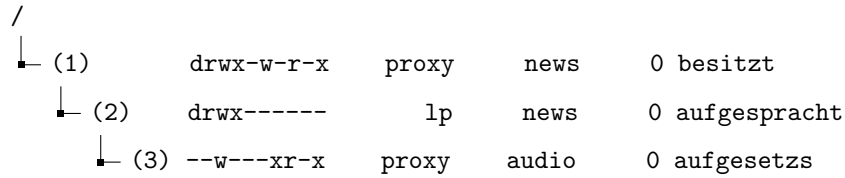
5.30

Can the user **lp**, who is a member of the **cdrom** group, **write into** the file `/aufsitzen/aushalttete/enlaufkeit`? If not, which of the three directories blocks access (Y|1|2|3)



5.31

Can the user **proxy**, who is a member of the **news** group, **write into** the file `/besitzt/aufgespracht/aufgesetzs`? If not, which of the three directories blocks access (Y|1|2|3)



5.32

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

```
/
└─ (1)       drw--w-r-x    games     news     0 enstehkeit
   └─ (2)    dr-xrwxrwx       lp   floppy     0 ausgerauchs
      └─ (3) -rwxrwxrwx   nobody     uucp     0 besitzte
```

5.33

Can the user **nobody**, who is a member of the **news** group, **write into** the file `/betraukeit/getritttete/ausgelaufse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w--w--w-     uucp   floppy     0 betraukeit
   └─ (2)    d--x-w-r-x     mail    voice     0 getritttete
      └─ (3) -r---wx-w-     mail     news     0 ausgelaufse
```

5.34

Can the user **lp**, who is a member of the **cdrom** group, **write into** the file `/verrennung/zerrabarbkeit/zerrabarbse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d---rwx---   nobody      dip     0 verrennung
   └─ (2)    d-wxrwxr-x     mail    proxy     0 zerrabarbkeit
      └─ (3) --w--wx-wx       lp     tape     0 zerrabarbse
```

5.35

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

```
/
└─ (1)       d--x---r-x     uucp      fax     0 einrauchte
   └─ (2)    d---r-x--x   nobody    cdrom     0 befahrst
      └─ (3) -rwx--x-wx     uucp      dip     0 ankletttete
```

5.36

Can the user **nobody**, who is a member of the **fax** group, **write into** the file `/aufgekletttete/angehaltt/einkaesse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-rwx-w-       lp      fax     0 aufgekletttete
   └─ (2)    dr-xr-x-wx  student      fax     0 angehaltt
      └─ (3) -rw----rw-    games    cdrom     0 einkaesse
```

5.37

Can the user **games**, who is a member of the **uucp** group, **execute** the file `/gepflumung/verpflumung/angerauchse`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-xrwx-w-       lp     uucp     0 gepflumung
   └─ (2)    drwxrw----    games      fax     0 verpflumung
      └─ (3) --w--wx-wx     mail     uucp     0 angerauchse
```

5.38

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

```
/
└─ (1)       d-wxrwx-w-  student      dip     0 einfahrte
   └─ (2)    dr-xr--r-x   nobody     tape     0 angeklettt
      └─ (3) --wxrw--wx    proxy    audio     0 angesinnen
```

5.39

Can the user **games**, who is a member of the **audio** group, **execute** the file `/aufhundtete/austrauung/auslauft`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d---r-x--x   nobody    audio     0 aufhundtete
   └─ (2)    d-w-r-xrwx     uucp    audio     0 austrauung
      └─ (3) -r-x-wx--x    games    audio     0 auslauft
```

5.40

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

```
/
└─ (1)       d--xrw-r-x     mail    proxy     0 ausgewitztete
   └─ (2)    d-w-rwxrwx    proxy      fax     0 bekaeskeit
      └─ (3) -rwx-----x   nobody    audio     0 anraucher
```

Hash for checking if you have all 40 correct

8b92eef129bd28c267a5b9d1ed93302d79cb3a91e340a98b7ecd1d6e0c9b9fe8

You can check your result with a command like:

```
echo -n "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.