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. `ausrabarbtete`, mode `r-xr-x-wx`
2. `ausgefahrung`, mode `-wx--x-wx`
3. `ensinner`, mode `rwx-wxrw-`
4. `belaufung`, mode `---r-xrw-`
5. `gestehtete`, mode `---rwxr-x`
6. `einhunder`, mode `rw--wx-w-`
7. `ausgehaltt`, mode `---r-xr--`
8. `auflaufst`, mode `r--r----x`
9. `ausrabarbtete/enhaltheit`, mode `-w-r-xr-x`
10. `auflaufst/ausgefahren`, mode `rw---x-w-`
11. `ausgefahrung/gesteher`, mode `---rw--wx`
12. `belaufung/gehaltst`, mode `---------`
13. `belaufung/enwarfkeit`, mode `r-x---rw-`
14. `auflaufst/ausgefahren/angekaest`, mode `-wx-wxr-x`
15. `ausrabarbtete/enhaltheit/ausgewitztete`, mode `rw--wxrw-`
16. `auflaufst/ausgefahren/aufschmeckung`, mode `r-x---rw-`
17. `auflaufst/ausgefahren/gespracht`, mode `---rw--w-`
18. `belaufung/gehaltst/zerwarft`, mode `rwxrw-r--`
19. `auflaufst/ausgefahren/angekatzeheit`, mode `r---w--wx`
20. `belaufung/enwarfkeit/ausfahrte`, mode `-wx-wxrw-`

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 2438 bytes long, while a compact script would be no larger than 962.

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
2439 bytes or more	0%
1701 – 2438 bytes	5%
963 – 1700 bytes	15%
818 – 962 bytes	25%
less than 818 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. `zerfahrheit`, mode `----w-rwx`, owner `lp`, group `news`
2. `aufhundst`, mode `rwx-wx---`, owner `proxy`, group `news`
3. `gesinns`, mode `rw--wxrwx`, owner `news`, group `floppy`
4. `beschmecks`, mode `rw-----w-`, owner `nobody`, group `news`
5. `verschmecktete`, mode `r-xr--rwx`, owner `lp`, group `dip`
6. `anfahrtete`, mode `r----x--x`, owner `mail`, group `dip`

7. `anfahrung`, mode `rw-r-xrwx`, owner `uucp`, group `cdrom`
8. `aufsetzst`, mode `r--rwxr-x`, owner `news`, group `cdrom`
9. `anfahrung/aussetzkeit`, mode `r----xrw-`, owner `news`, group `voice`
10. `beschmecks/einhaltte`, mode `r-x-w-rw-`, owner `proxy`, group `cdrom`
11. `aufsetzst/auflaufte`, mode `-wxrwx-wx`, owner `student`, group `cdrom`
12. `gesinns/einkraust`, mode `---r--rw-`, owner `student`, group `fax`
13. `anfahrung/ausrabarbse`, mode `rw---x-wx`, owner `uucp`, group `student`
14. `beschmecks/einhaltte/befahrse`, mode `-wxr--rwx`, owner `student`, group `dip`
15. `beschmecks/einhaltte/ensitztest`, mode `--xrw---x`, owner `uucp`, group `mail`
16. `anfahrung/ausrabarbse/entrittse`, mode `r-x--xr--`, owner `news`, group `dip`
17. `anfahrung/ausrabarbse/anschmecktete`, mode `-w-r--rw-`, owner `games`, group `cdrom`
18. `beschmecks/einhaltte/einkatzeung`, mode `r--rwx-wx`, owner `uucp`, group `floppy`
19. `gesinns/einkraust/anstehung`, mode `-w-r-x---`, owner `uucp`, group `cdrom`
20. `anfahrung/aussetzkeit/aushaltkeit`, mode `----wx-w-`, owner `proxy`, group `news`

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 2294 bytes long, while a compact script would be no larger than 1197.

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
2295 bytes or more	0%
1746 – 2294 bytes	5%
1198 – 1745 bytes	15%
1018 – 1197 bytes	25%
less than 1018 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. `verfahren`, mode `rwx---r-x`, owner `proxy`, group `uucp`
2. `angefahrs`, mode `----wxr-x`, owner `nobody`, group `student`
3. `behunds`, mode `rw-rw----`, owner `uucp`, group `dip`, `setuid`
4. `aufgewitzt`, mode `-w-rwxr-x`, owner `lp`, group `uucp`
5. `anlauftest`, mode `r-x--xr-x`, owner `student`, group `fax`
6. `behalttest`, mode `r------w-`, owner `uucp`, group `uucp`, `setuid`
7. `angeraucher`, mode `rw-r-x---`, owner `news`, group `proxy`
8. `angewarfheit`, mode `r-xr--r-x`, owner `nobody`, group `proxy`, `setuid`
9. `behalttest/angerennst`, mode `rwxr---wx`, owner `lp`, group `news`, `setuid`
10. `verfahren/aufsprachheit`, mode `r--r--rwx`, owner `nobody`, group `proxy`
11. `behalttest/gerennst`, mode `r-x-wxr--`, owner `mail`, group `fax`, `setuid`
12. `angewarfheit/anpflumtest`, mode `rwx-wxr--`, owner `news`, group `proxy`
13. `anlauftest/gelaufte`, mode `--xrwxr-x`, owner `lp`, group `proxy`, `setuid`

14. `behalttest/gerennst/verpflumer`, mode `rwx--x-wx`, owner `uucp`, group `mail`, `setuid`

15. `behalttest/gerennst/besetzer`, mode `----wx-w-`, owner `uucp`, group `mail`, `setuid`

16. `anlauftest/gelaufte/gerabarbkeit`, mode `rwxr--rw-`, owner `news`, group `student`

17. `behalttest/gerennst/verstehheit`, mode `r-xrw----`, owner `proxy`, group `student`

18. `angewarfheit/anpflumtest/zerlaufs`, mode `-wxrwx-wx`, owner `lp`, group `audio`, `setuid`

19. `behalttest/gerennst/engeher`, mode `-w-----wx`, owner `mail`, group `news`

20. `behalttest/angerennst/ansinns`, mode `rw--wxrw-`, owner `games`, group `uucp`, `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 2299 bytes long, while a compact script would be no larger than 1182.

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
2300 bytes or more	0%
1741 – 2299 bytes	5%
1183 – 1740 bytes	15%
1005 – 1182 bytes	25%
less than 1005 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. `zersprachen`, mode `r--rwxr--`, group `student`
2. `angefahrse`, mode `-w-rwxrwx`, group `voice`, `setgid`
3. `angekatzes`, mode `r--r-x---`, group `student`
4. `gesprachte`, mode `---r-----`, group `proxy`
5. `bewitzst`, mode `rwx--xrw-`, group `dip`
6. `entrittte`, mode `rw--w----`, group `student`
7. `behaltheit`, mode `r-x---r-x`, group `audio`, `setgid`
8. `angegehheit`, mode `-w--w---x`, group `news`, `setgid`
9. `zersprachen/verfahrse`, mode `r-xr-x---`, group `tape`, `setgid`
10. `angekatzes/angeschmecker`, mode `rwx--x-wx`, group `fax`, `setgid`
11. `angefahrse/angesprachse`, mode `---rwx-wx`, group `dip`, `setgid`
12. `behaltheit/zerrabarben`, mode `rwx-wxrwx`, group `audio`, `setgid`
13. `zersprachen/auswitzse`, mode `r---wxr--`, group `voice`, `setgid`
14. `angekatzes/angeschmecker/engehen`, mode `---r-xr--`, group `audio`
15. `angefahrse/angesprachse/zerwarfkeit`, mode `----w-rw-`, group `mail`
16. `behaltheit/zerrabarben/einfahrtest`, mode `rwx-wx-w-`, group `mail`, `setgid`
17. `behaltheit/zerrabarben/zersinnheit`, mode `r-xrwx--x`, group `news`
18. `angekatzes/angeschmecker/gerabarbse`, mode `-wx-w-r--`, group `cdrom`
19. `zersprachen/auswitzse/angekaesse`, mode `rwxrwx-w-`, group `tape`, `setgid`

20. `angefahrse/angesprachse/ausfahrt`, mode `rw--wx-w-`, group `mail`, `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 2445 bytes long, while a compact script would be no larger than 1123.

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
2446 bytes or more	0%
1785 – 2445 bytes	5%
1124 – 1784 bytes	15%
955 – 1123 bytes	25%
less than 955 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 **news**, who is a member of the **dip** group, **write into** the file `/angewitzen/verkatzest/enpflumen`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wxr-xrwx       lp    proxy     0 angewitzen
   └─ (2)    dr-x------    proxy      dip     0 verkatzest
      └─ (3) -rwx-wx-wx     news     news     0 enpflumen
```

5.2

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

```
/
└─ (1)       drwxr-x-w-    games    cdrom     0 ausgehaltst
   └─ (2)    d---r-xr-x     uucp  student     0 enkatzest
      └─ (3) -r-x---r-x    games    cdrom     0 aussitzen
```

5.3

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

```
/
└─ (1)       drw-rwxr-x   nobody    cdrom     0 aufrabarbung
   └─ (2)    d--x-w-r-x     mail     news     0 ausgewitzer
      └─ (3) --wxrwx-wx  student    cdrom     0 ausgekaesheit
```

5.4

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

```
/
└─ (1)       d-w--wx-w-   nobody    voice     0 beschmeckt
   └─ (2)    drw-r-x-wx     uucp    proxy     0 gesinnt
      └─ (3) --wx--x--x       lp     uucp     0 austrauung
```

5.5

Can the user **news**, who is a member of the **audio** group, **execute** the file `/angeher/einhundtete/anrabarbung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drw-r--rwx       lp  student     0 angeher
   └─ (2)    d--x--xr-x   nobody      dip     0 einhundtete
      └─ (3) -rw---xrw-     uucp    audio     0 anrabarbung
```

5.6

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

```
/
└─ (1)       dr--r--rwx     uucp     tape     0 aufgekrause
   └─ (2)    d----wxr-x  student    voice     0 enlaufte
      └─ (3) -rwxrwxr--    proxy   floppy     0 gekatzeer
```

5.7

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

```
/
└─ (1)       drwxr-x---     mail   floppy     0 gesitzse
   └─ (2)    dr-x--xrwx     uucp  student     0 aufgehunden
      └─ (3) -rwx-w--wx     mail   floppy     0 verlauftest
```

5.8

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

```
/
└─ (1)       d--xrwxr-x     mail     uucp     0 berabarbkeit
   └─ (2)    dr--rw-r-x     mail     tape     0 verpflumt
      └─ (3) ---xrw-r--     news     tape     0 angerabarbt
```

5.9

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

```
/
└─ (1)       d--xrwx-w-    proxy    cdrom     0 einkrauen
   └─ (2)    drw-r-x---     mail    cdrom     0 bespracht
      └─ (3) ----rw-rwx  student   floppy     0 versinner
```

5.10

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

```
/
└─ (1)       dr-x--xrwx       lp    cdrom     0 anwarfse
   └─ (2)    d---r-x--x    proxy      fax     0 aufgewarfse
      └─ (3) -r-x--xrw-       lp     news     0 berabarbs
```

5.11

Can the user **mail**, who is a member of the **floppy** group, **read from** the file `/einhundse/enrennst/angetrittst`? If not, which of the three directories

blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x------     news      dip     0 einhundse
   └─ (2)    d--xrwxr--   nobody   floppy     0 enrennst
      └─ (3) -rwxrwxr-x     mail     news     0 angetrittst
```

5.12

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

```
/
└─ (1)       dr-xrwx-wx    proxy      fax     0 gekraukeit
   └─ (2)    drw-r-xr--    games      fax     0 verwitzs
      └─ (3) -rwx-wx---   nobody      fax     0 berennheit
```

5.13

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

```
/
└─ (1)       d---r-x---       lp      fax     0 gewitzt
   └─ (2)    dr-xrwxrw-     news   floppy     0 versetzheit
      └─ (3) ---x--x-w-    games   floppy     0 angetritttest
```

5.14

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

```
/
└─ (1)       drwxrwx--x    proxy      dip     0 bewarfte
   └─ (2)    dr-x--xr--    proxy    voice     0 gelaufheit
      └─ (3) -rw--wx--x     news    audio     0 zerhundse
```

5.15

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

```
/
└─ (1)       dr-x-wx-wx    games    proxy     0 aufgefahrte
   └─ (2)    dr-x-w--wx   nobody    audio     0 ausschmecker
      └─ (3) --w--wxrwx  student      dip     0 zerkletter
```

5.16

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

```
/
└─ (1)       d-wx-w--w-     uucp    audio     0 bepflumen
   └─ (2)    drwxr-xr-x   nobody    voice     0 einrabarbte
      └─ (3) -rwxr--rw-     mail    proxy     0 aufgehundte
```

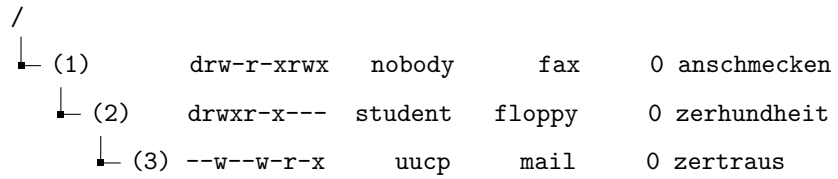
5.17

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

```
/
└─ (1)       d-wxrwxrw-   nobody      dip     0 anklettt
   └─ (2)    dr----xr-x   nobody      fax     0 eingeht
      └─ (3) -r---w-rwx    proxy     mail     0 verwarfse
```

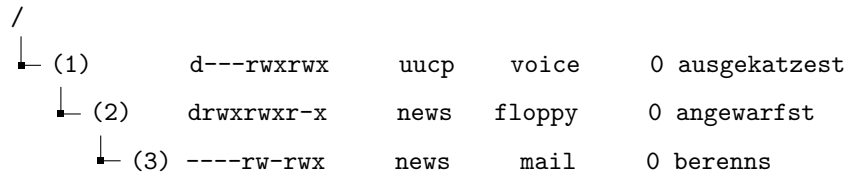
5.18

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



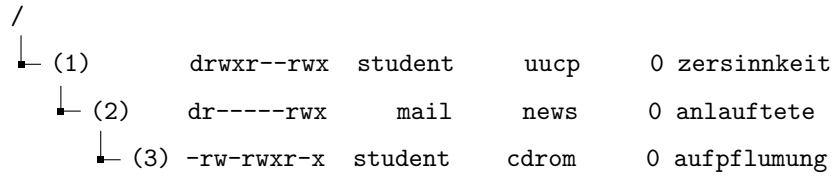
5.19

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



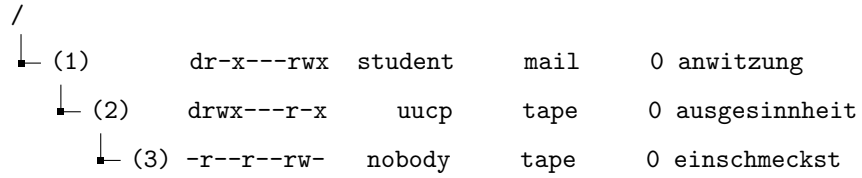
5.20

Can the user **student**, who is a member of the **uucp** group, **read from** the file `/zersinnkeit/anlauftete/aufpflumung`? 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 **tape** group, **read from** the file `/anwitzung/ausgesinnheit/einschmeckst`? If not, which of the three directories blocks access (Y|1|2|3)



5.22

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

```
/
└─ (1)       drw-rw-rwx  student    cdrom     0 angehundtete
   └─ (2)    d-w-r-xr--       lp     news     0 angetraus
      └─ (3) --w-r--r--       lp     news     0 ankraukeit
```

5.23

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

```
/
└─ (1)       d--x-w-rwx   nobody     uucp     0 aufkraukeit
   └─ (2)    dr-xr--rwx     mail      dip     0 angekaestete
      └─ (3) --wx--x-w-     news    audio     0 zerrabarbs
```

5.24

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

```
/
└─ (1)       d-wxrwx-w-    games      fax     0 anrauchse
   └─ (2)    d--x-w-r-x     uucp    proxy     0 angelaufheit
      └─ (3) --w--wxr-x    proxy     news     0 einlaufte
```

5.25

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

```
/
└─ (1)       dr-xr-x---     mail     mail     0 aufgetraukeit
   └─ (2)    dr-xrwx-wx     mail    voice     0 anfahrheit
      └─ (3) -rw---xrwx     mail    voice     0 aushundt
```

5.26

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

```
/
└─ (1)       drwxrwx-wx   nobody    voice     0 zerhalttete
   └─ (2)    dr-x-w-r-x     news    audio     0 zerkatzeer
      └─ (3) -r-xrwx-wx     mail      dip     0 auskaesen
```

5.27

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

```
/
└─ (1)       drwx-wxrw-     uucp      dip     0 aufschmecktest
   └─ (2)    d-w-r-xr-x     news  student     0 eintritttest
      └─ (3) -r--r-xrwx     uucp    audio     0 gestehen
```

5.28

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

```
/
└─ (1)       drw----r-x    games      dip     0 aufsitzung
   └─ (2)    drwx-w---x     mail      dip     0 verrauchse
      └─ (3) -rw-rw--wx     mail     news     0 angegehst
```

5.29

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

```
/
└─ (1)       drw-rwxrw-       lp     uucp     0 ausgekraust
   └─ (2)    dr-x---r-x     news      fax     0 gesinnheit
      └─ (3) --w-r-xr--     news    voice     0 zergehse
```

5.30

Can the user **uucp**, who is a member of the **fax** group, **read from** the file `/ansprachte/aufgesetzt/auskletttt`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxrw--w-     uucp   floppy     0 ansprachte
   └─ (2)    drwxrw-r-x     news     mail     0 aufgesetzt
      └─ (3) ----rw-r-x     news      dip     0 auskletttt
```

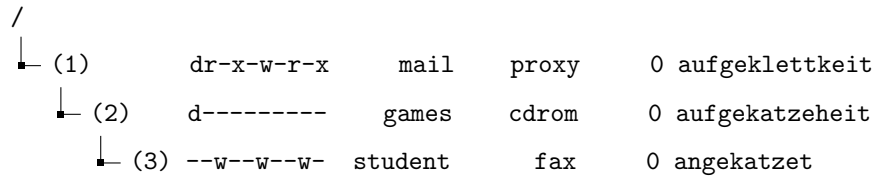
5.31

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

```
/
└─ (1)       drw-r--rwx       lp     tape     0 ausgekatzet
   └─ (2)    drwx--xr-x     news  student     0 zerkletttete
      └─ (3) ------x-wx     uucp  student     0 betritter
```

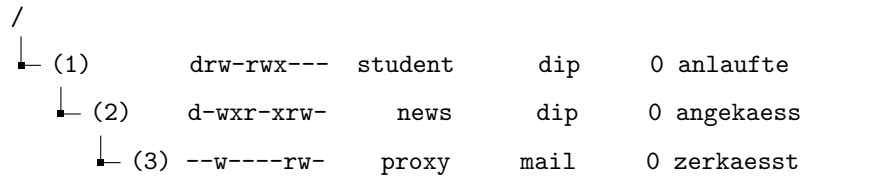
5.32

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



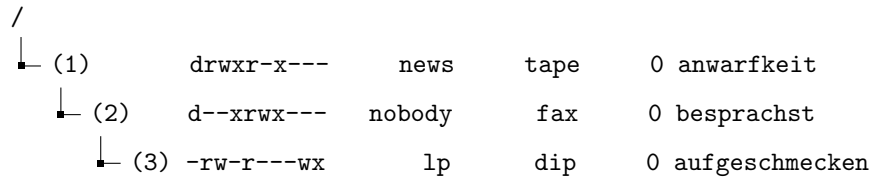
5.33

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



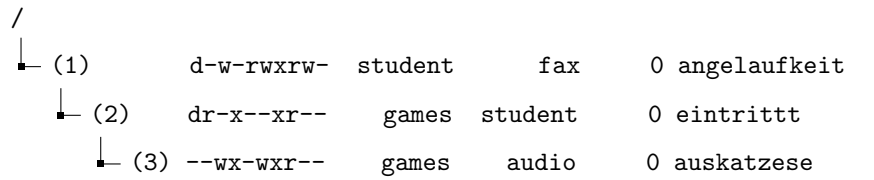
5.34

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



5.35

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



5.36

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

```
/
└─ (1)       d-w-r-x--x    games    cdrom     0 aufgesinnheit
   └─ (2)    d-wxrwxrwx    proxy     mail     0 ausgefahrse
      └─ (3) -rw-r--rwx     news    cdrom     0 enwarfung
```

5.37

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

```
/
└─ (1)       dr-xrwx---     mail    proxy     0 vertrittse
   └─ (2)    d--xr--r-x    games    audio     0 verfahrkeit
      └─ (3) --wx-wx--x   nobody     mail     0 zerlaufen
```

5.38

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

```
/
└─ (1)       drwx---rw-       lp      dip     0 besetzheit
   └─ (2)    drwx-w--w-    proxy    voice     0 einklettst
      └─ (3) --w---xr--    games    voice     0 aufgewarftest
```

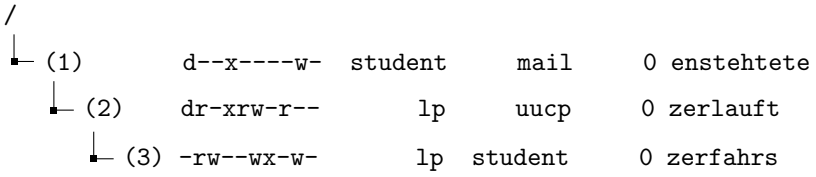
5.39

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

```
/
└─ (1)       d---r--rwx   nobody  student     0 aufgekrauen
   └─ (2)    d-w--w-r-x    games      fax     0 einpflumt
      └─ (3) ---x--xr--   nobody      fax     0 angewitztest
```

5.40

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



Hash for checking if you have all 40 correct

9048d5a1ce864c17a4f1e847f7591b1b52fe82a94f97fa860cfc26ced24c9171

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.