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. `aushundtest`, mode `-w-rw-rwx`
2. `zerpflumst`, mode `rwx-w-r-x`
3. `aufsitzung`, mode `rwx----w-`
4. `enfahrer`, mode `r--r---wx`
5. `zerrennheit`, mode `-w------x`
6. `besprachs`, mode `r--r-----`
7. `begehse`, mode `r--r-----`
8. `aufgeschmeckheit`, mode `---rwx-w-`
9. `zerrennheit/antrauung`, mode `r-----r-x`
10. `enfahrer/zerhundtete`, mode `r--rwx-wx`
11. `enfahrer/angegehst`, mode `r-x---r--`
12. `besprachs/ausfahrte`, mode `-w--wxr--`
13. `begehse/bekraukeit`, mode `r-----r-x`
14. `enfahrer/zerhundtete/gelauftest`, mode `-wxr-x-w-`
15. `zerrennheit/antrauung/besetzkeit`, mode `-w--wx---`
16. `enfahrer/zerhundtete/ausgekaesst`, mode `---r--r--`
17. `begehse/bekraukeit/angewarfkeit`, mode `-wxr-x-wx`
18. `enfahrer/zerhundtete/aufgehundtete`, mode `r--------`
19. `besprachs/ausfahrte/ausrauchheit`, mode `-w----r--`
20. `zerrennheit/antrauung/einsetzkeit`, mode `--x-w-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 2419 bytes long, while a compact script would be no larger than 975.

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
2420 bytes or more	0%
1698 – 2419 bytes	5%
976 – 1697 bytes	15%
829 – 975 bytes	25%
less than 829 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. `besetzst`, mode `----w----`, owner `games`, group `voice`
2. `ausgetrautete`, mode `-wx-wx--x`, owner `news`, group `floppy`
3. `angewarftest`, mode `r--rw----`, owner `uucp`, group `mail`
4. `gesitzse`, mode `r--r--rw-`, owner `student`, group `dip`
5. `aufgehundkeit`, mode `--x----wx`, owner `nobody`, group `proxy`
6. `aushaltheit`, mode `-wx-w--wx`, owner `games`, group `news`

7. `angesinner`, mode `---r--rw-`, owner `lp`, group `audio`
8. `verfahren`, mode `r-xrw-r--`, owner `news`, group `floppy`
9. `besetzst/angesteht`, mode `---rwx---`, owner `games`, group `tape`
10. `angesinner/gegehtest`, mode `rw--w----`, owner `mail`, group `tape`
11. `verfahren/ausgesinntest`, mode `-w----r--`, owner `proxy`, group `floppy`
12. `verfahren/aufgekraukeit`, mode `rwxr--r-x`, owner `uucp`, group `news`
13. `angesinner/enrennt`, mode `r---w-rw-`, owner `nobody`, group `student`
14. `angesinner/enrennt/zerhaltkeit`, mode `rwxrw----`, owner `news`, group `student`
15. `verfahren/aufgekraukeit/zerschmeckung`, mode `--x-----x`, owner `proxy`, group `audio`
16. `besetzst/angesteht/antraute`, mode `rwxrw-r--`, owner `mail`, group `voice`
17. `angesinner/enrennt/angetraut`, mode `rw-r-xrwx`, owner `uucp`, group `tape`
18. `angesinner/gegehtest/angelaufs`, mode `r-xr--rwx`, owner `student`, group `proxy`
19. `verfahren/ausgesinntest/verrenns`, mode `rw-r-x--x`, owner `proxy`, group `cdrom`
20. `verfahren/ausgesinntest/angeklettt`, mode `rwx-w----`, owner `nobody`, group `student`

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 2338 bytes long, while a compact script would be no larger than 1210.

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
2339 bytes or more	0%
1775 – 2338 bytes	5%
1211 – 1774 bytes	15%
1029 – 1210 bytes	25%
less than 1029 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. `ansteher`, mode `--xr-x-w-`, owner `games`, group `tape`
2. `aufsetzkeit`, mode `-w-rw---x`, owner `games`, group `floppy`, `setuid`
3. `aufgehen`, mode `--x-wx--x`, owner `student`, group `audio`
4. `ausgegehst`, mode `rw--w-rw-`, owner `games`, group `floppy`, `setuid`
5. `anrabarbt`, mode `rwxrw--wx`, owner `student`, group `tape`
6. `anwitzheit`, mode `rw--w----`, owner `proxy`, group `cdrom`, `setuid`
7. `aufgehunder`, mode `r--rwx-w-`, owner `proxy`, group `proxy`, `setuid`
8. `enkaess`, mode `r-xr---w-`, owner `news`, group `voice`
9. `aufsetzkeit/eintrittung`, mode `-w-rwx--x`, owner `proxy`, group `proxy`
10. `aufgehen/zerpflumkeit`, mode `r-x---rw-`, owner `games`, group `voice`
11. `aufsetzkeit/enhaltung`, mode `r------w-`, owner `uucp`, group `audio`
12. `aufsetzkeit/anfahrtete`, mode `rw-rw----`, owner `nobody`, group `tape`
13. `enkaess/einwarfse`, mode `-w-rw---x`, owner `mail`, group `cdrom`, `setuid`

14. `aufsetzkeit/anfahrtete/ausgekatzetest`, mode `----w---x`, owner `games`, group `cdrom`, `setuid`
15. `aufsetzkeit/eintrittung/aufrauchtete`, mode `rwxrwx-w-`, owner `games`, group `cdrom`
16. `aufgehen/zerpflumkeit/versitzer`, mode `--x-w-rw-`, owner `nobody`, group `mail`, `setuid`
17. `enkaess/einwarfse/aufsinnung`, mode `r-x--xrw-`, owner `uucp`, group `mail`, `setuid`
18. `enkaess/einwarfse/anschmeckst`, mode `r-x----wx`, owner `student`, group `uucp`
19. `aufsetzkeit/enhaltung/auftrittung`, mode `-w-rw-rwx`, owner `nobody`, group `proxy`, `setuid`
20. `aufsetzkeit/eintrittung/bepflumer`, mode `rwxrw--w-`, owner `lp`, 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 2355 bytes long, while a compact script would be no larger than 1209.

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
2356 bytes or more	0%
1783 – 2355 bytes	5%
1210 – 1782 bytes	15%
1028 – 1209 bytes	25%
less than 1028 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. `eingehs`, mode `rwxrwxr--`, group `audio`, `setgid`
2. `verhaltt`, mode `--x---rw-`, group `tape`
3. `berennte`, mode `rw----r--`, group `proxy`, `setgid`
4. `zersinntest`, mode `--xrwxrwx`, group `proxy`
5. `anhundung`, mode `r-x--x-wx`, group `dip`, `setgid`
6. `angerennst`, mode `-w---xrw-`, group `tape`
7. `aussetztest`, mode `--xr--rwx`, group `dip`
8. `angehunder`, mode `r-x-wx---`, group `voice`, `setgid`
9. `aussetztest/angewitztest`, mode `--x-w-r--`, group `audio`
10. `berennte/einkaeste`, mode `r--r-xrwx`, group `tape`
11. `eingehs/angewarfse`, mode `r----xrw-`, group `audio`
12. `zersinntest/aufgerabarbheit`, mode `rwxrw-rw-`, group `voice`
13. `berennte/ausgehaltkeit`, mode `r---wxr-x`, group `news`, `setgid`
14. `zersinntest/aufgerabarbheit/verspracher`, mode `-w--wxrw-`, group `mail`
15. `berennte/ausgehaltkeit/angesprachung`, mode `r-xr-----`, group `news`
16. `eingehs/angewarfse/einlaufen`, mode `-wxrwx-wx`, group `cdrom`
17. `zersinntest/aufgerabarbheit/besetzen`, mode `-wxr--rwx`, group `proxy`
18. `berennte/einkaeste/verklettst`, mode `--x-----x`, group `floppy`, `setgid`
19. `eingehs/angewarfse/ausgegeht`, mode `rwxr--rw-`, group `cdrom`

20. `zersinntest/aufgerabarbheit/enkraust`, mode `rwxr-x--x`, group `fax`, `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 2413 bytes long, while a compact script would be no larger than 1121.

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
2414 bytes or more	0%
1768 – 2413 bytes	5%
1122 – 1767 bytes	15%
953 – 1121 bytes	25%
less than 953 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 **nobody**, who is a member of the **cdrom** group, **execute** the file `/aussitzs/gerauchheit/austrauung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-r-x---     uucp    cdrom     0 aussitzs
   └─ (2)    d-wxr-x-wx     mail    cdrom     0 gerauchheit
      └─ (3) ---xrwxrwx   nobody    voice     0 austrauung
```

5.2

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

```
/
└─ (1)       dr--rwx-w-     mail      fax     0 ausgesitzte
   └─ (2)    drw-rwxr-x       lp    proxy     0 befahrtest
      └─ (3) --w--wx-w-     uucp     uucp     0 aufrenntete
```

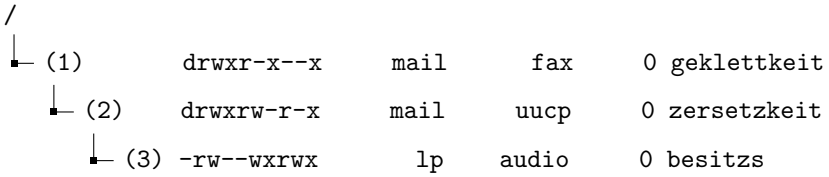
5.3

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

```
/
└─ (1)       d-wxr-x-w-     news     mail     0 gerennheit
   └─ (2)    drwxrw--w-    proxy    proxy     0 angesinntest
      └─ (3) -rw--wxrwx    proxy    voice     0 aufgehaltt
```

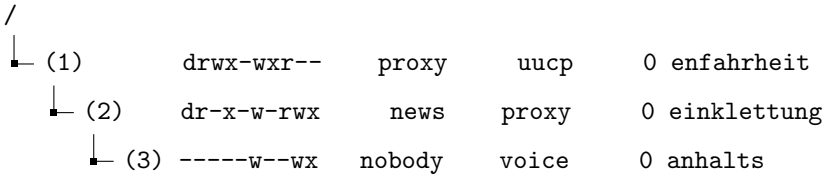
5.4

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



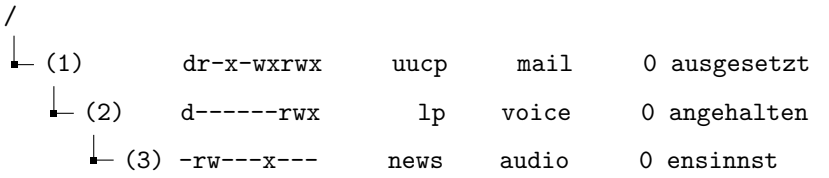
5.5

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



5.6

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



5.7

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

```
/
└─ (1)       d--xrw-rwx    proxy     news     0 berabarbung
   └─ (2)    drwxrw-rwx      lp      news     0 ausgeschmecktete
      └─ (3) -r---wx-wx    games    cdrom     0 auspflumst
```

5.8

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

```
/
└─ (1)       d-wxrwx-w-     mail      dip     0 zersitzkeit
   └─ (2)    d-wxr-xrwx    proxy     tape     0 aussitzer
      └─ (3) --w-r-x-w-   nobody      dip     0 bewitzst
```

5.9

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

```
/
└─ (1)       d-wxrwxrwx       lp     mail     0 angerennst
   └─ (2)    dr-x----w-   nobody     tape     0 aufgetrittt
      └─ (3) -rwx-wxr-x   nobody     mail     0 aufgesinner
```

5.10

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

```
/
└─ (1)       drwx-wx---       lp  student     0 einrenns
   └─ (2)    dr---wxrwx    proxy     mail     0 engehtete
      └─ (3) -rwxr--rw-     uucp    proxy     0 angepflumkeit
```

5.11

Can the user **lp**, who is a member of the **cdrom** group, **execute** the file `/aufgetraust/einwarftest/antrauen`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--xrwx-w-     mail    cdrom     0 aufgetraust
   └─ (2)    drwxrwxrw-     uucp    cdrom     0 einwarftest
      └─ (3) -r-xrwxr-x     uucp    cdrom     0 antrauen
```

5.12

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

```
/
└─ (1)       d---r-x-w-       lp  student     0 aufkaeskeit
   └─ (2)    d---r-x---    proxy      dip     0 vertrause
      └─ (3) --w-r-x--x     uucp    cdrom     0 zerwitzst
```

5.13

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

```
/
└─ (1)       dr-xrwx-w-    games      fax     0 zerlaufkeit
   └─ (2)    d---rwx-w-   nobody      dip     0 aufgepflumtete
      └─ (3) ---x-w--wx  student    voice     0 verfahrung
```

5.14

Can the user **uucp**, who is a member of the **dip** group, **execute** the file `/angewitzse/angeschmecktest/aufgerabarbung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wxr-xr-x    proxy      dip     0 angewitzse
   └─ (2)    dr--r-x---     mail      dip     0 angeschmecktest
      └─ (3) ---x-w--wx    games     tape     0 aufgerabarbung
```

5.15

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

```
/
└─ (1)       drwx--x-w-     news  student     0 besprachung
   └─ (2)    d-------wx     uucp     uucp     0 aufstehen
      └─ (3) --wxr--rwx     news      dip     0 angelaufkeit
```

5.16

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

```
/
└─ (1)       drwxrw----    games     news     0 aufgerabarbs
   └─ (2)    dr-x--xr-x  student    audio     0 auskletttete
      └─ (3) --w----rwx    games     uucp     0 besinnen
```

5.17

Can the user **uucp**, who is a member of the **fax** group, **execute** the file `/eintraute/enkaest/angepflumt`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-w-rwx-w-    proxy      fax     0 eintraute
   └─ (2)    d-wxrwx--x     mail      fax     0 enkaest
      └─ (3) --wx--x-wx     uucp  student     0 angepflumt
```

5.18

Can the user **nobody**, who is a member of the **news** group, **execute** the file `/gewarfung/austrause/enrauchen`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx---r--   nobody      fax     0 gewarfung
   └─ (2)    dr-x-w--w-     mail     news     0 austrause
      └─ (3) --wx-wxrwx    proxy     news     0 enrauchen
```

5.19

Can the user **uucp**, who is a member of the **dip** group, **execute** the file `/anrabarbheit/zerwitzte/berennst`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drw-rwxrw-       lp      dip     0 anrabarbheit
   └─ (2)    dr-x-wx---     uucp  student     0 zerwitzte
      └─ (3) -r---wx-wx   nobody      dip     0 berennst
```

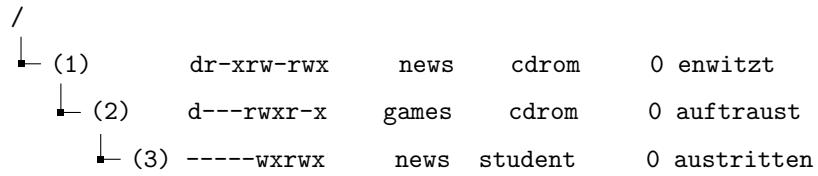
5.20

Can the user **uucp**, who is a member of the **floppy** group, **execute** the file `/gerabarbte/bewitzs/besetzung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--xrwx---   nobody   floppy     0 gerabarbte
   └─ (2)    d-wxr-xrwx     mail    proxy     0 bewitzs
      └─ (3) -----w-r-x    proxy    audio     0 besetzung
```

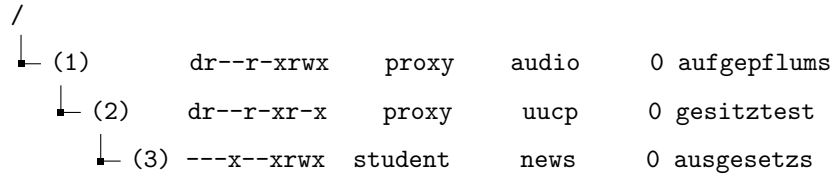
5.21

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



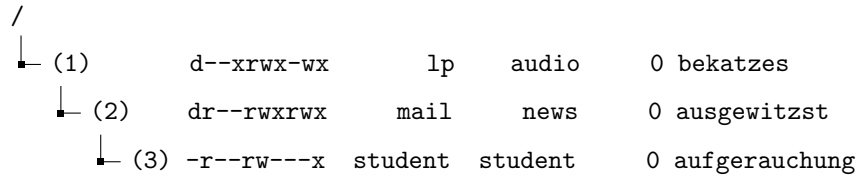
5.22

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



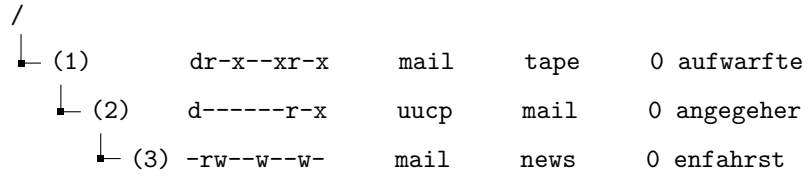
5.23

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



5.24

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



5.25

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

```
/
└─ (1)       d-wxrwx---   nobody      fax     0 angesitztete
   └─ (2)    d--x-w-rwx     mail      fax     0 auspflumung
      └─ (3) -r--r-x-wx    proxy      fax     0 aufgekatzeung
```

5.26

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

```
/
└─ (1)       dr-xrw--w-       lp    audio     0 aussprachst
   └─ (2)    drwx-w-rwx     uucp    proxy     0 aufsteher
      └─ (3) --w-rwx--x     uucp    proxy     0 ausgetraust
```

5.27

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

```
/
└─ (1)       dr-x---rwx    proxy     uucp     0 enrennen
   └─ (2)    drwxrwxrw-  student     news     0 ausgehalts
      └─ (3) -r----xr--     news  student     0 behalts
```

5.28

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

```
/
└─ (1)       drwxrw--w-   nobody     mail     0 angeschmeckst
   └─ (2)    dr-x-----x   nobody     mail     0 ansinnse
      └─ (3) --wxrwxr--   student    cdrom    0 zerkletttete
```

5.29

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

```
/
└─ (1)       dr-x----w-    games   floppy     0 angehunden
   └─ (2)    d---rwx-w-  student  student     0 angesinns
      └─ (3) -r-x-wxr--    games      fax     0 aufrauchung
```

5.30

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

```
/
└─ (1)       dr--r-xrwx     uucp     news     0 angehaltse
   └─ (2)    dr-x-w--wx    games     news     0 gehaltung
      └─ (3) --wxrwxrw-   nobody     news     0 zerhundung
```

5.31

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

```
/
└─ (1)       d-wxrwxr-x     news  student     0 gegeht
   └─ (2)    d-w---xrwx  student    cdrom     0 ausgestehtest
      └─ (3) --w-rwx--x       lp     tape     0 aufsetzer
```

5.32

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

```
/
└─ (1)       drw--w-rwx     news      dip     0 aufstehkeit
   └─ (2)    dr-x-w-rwx    games   floppy     0 auflaufen
      └─ (3) -r----xrw-     news    audio     0 aufgekatzest
```

5.33

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

```
/
└─ (1)       d-wx---rwx     mail    audio     0 antrautete
   └─ (2)    dr-xrwx-w-    games    proxy     0 verwarfheit
      └─ (3) -rwxrw--wx     uucp     news     0 einpflumtest
```

5.34

Can the user **news**, who is a member of the **tape** group, **execute** the file `/aufgerabarbtest/ausrabarbheit/aufrabarbkeit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxrw-rwx     news      fax     0 aufgerabarbtest
   └─ (2)    dr-xrwx-wx   nobody     tape     0 ausrabarbheit
      └─ (3) -r----xrwx     news    audio     0 aufrabarbkeit
```

5.35

Can the user **games**, who is a member of the **tape** group, **execute** the file `/angesetzkeit/aufwarfung/vergehheit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxr-----    games      dip     0 angesetzkeit
   └─ (2)    dr-x-wx--x    games    cdrom     0 aufwarfung
      └─ (3) ----r-----    games    audio     0 vergehheit
```

5.36

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

```
/
└─ (1)       dr--r-xr--   nobody      fax     0 aufgelaufse
   └─ (2)    d--x---rwx     uucp      fax     0 ankaeste
      └─ (3) -r-xrwxrwx    games    audio     0 gesitzkeit
```

5.37

Can the user **nobody**, who is a member of the **uucp** group, **execute** the file `/ausrauchtete/gefahrheit/belauft`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       dr-x-w-r-x       lp     mail     0 ausrauchtete
   └─ (2)    drwx-w--wx   nobody      dip     0 gefahrheit
      └─ (3) -rw---x-wx   nobody     tape     0 belauft
```

5.38

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

```
/
└─ (1)       d------r-x     news     news     0 aufkaesung
   └─ (2)    dr-xrwxr--     uucp    cdrom     0 beraucher
      └─ (3) --wx-wx-w-    games     uucp     0 bewarfst
```

5.39

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

```
/
└─ (1)       drwxrw---x     uucp     tape     0 berauchst
   └─ (2)    dr-xrwxrwx   nobody  student     0 zerwarfheit
      └─ (3) -rwx-----x     uucp    voice     0 einkrauer
```

5.40

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

```
/
└─ (1)       drw-r-xr-x  student    audio     0 zertraus
   └─ (2)    d-w-----wx    proxy    audio     0 enkraukeit
      └─ (3) -r--rw-rw-       lp    audio     0 auswarftest
```

Hash for checking if you have all 40 correct

c86a7663398e7a7f5b07076f681102785fc6f778f7eeeaf2455084b4a0d2e2d2

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.