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-exercise1.tgz`

1. `verkaesen`, mode `rwxrwxr--`
2. `enhundst`, mode `rw-rw----`
3. `bepflumheit`, mode `-------wx`
4. `zersinnse`, mode `---rwx-w-`
5. `besprachst`, mode `-wx--xrw-`
6. `auswitzer`, mode `r-x------`
7. `verrabarbst`, mode `r--------`
8. `zertritter`, mode `rw--w-rw-`
9. `auswitzer/aufgerabarbt`, mode `rwxrw--w-`
10. `auswitzer/angewarfen`, mode `-------w-`
11. `auswitzer/angetraust`, mode `r--r--rw-`
12. `zertritter/aufklettheit`, mode `-wxrw-rwx`
13. `verkaesen/aufwarftest`, mode `r-x---rwx`
14. `auswitzer/angetraust/auspflumse`, mode `-w--wx--x`
15. `zertritter/aufklettheit/angerabarbheit`, mode `-w---x-w-`
16. `verkaesen/aufwarftest/aufgerennung`, mode `-w----r-x`
17. `auswitzer/aufgerabarbt/befahrt`, mode `-wx-wxrw-`
18. `auswitzer/aufgerabarbt/einkrauen`, mode `--xrw--w-`
19. `zertritter/aufklettheit/angekrauung`, mode `r-xrwx-w-`
20. `auswitzer/angewarfen/aufgesetzheit`, mode `-------w-`

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 2456 bytes long, while a compact script would be no larger than 966.

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
2457 bytes or more	0%
1712 – 2456 bytes	5%
967 – 1711 bytes	15%
822 – 966 bytes	25%
less than 822 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-solution1711.sh unit1-solution650058834.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-exercise2.tgz`

1. `verrennkeit`, mode `rw-----wx`, owner `news`, group `floppy`
2. `enpflumen`, mode `-----x-w-`, owner `news`, group `news`
3. `angetritter`, mode `r-x---rwx`, owner `news`, group `tape`
4. `besprachtest`, mode `-wxr-x-wx`, owner `proxy`, group `fax`
5. `enpflums`, mode `---rwx-wx`, owner `news`, group `fax`
6. `verklettt`, mode `rwx--x--x`, owner `proxy`, group `tape`

7. `aufgewarfs`, mode `rw-r-x-wx`, owner `mail`, group `floppy`
8. `aushundheit`, mode `rw---x---`, owner `news`, group `student`
9. `enpflumen/beklettte`, mode `-w-r---wx`, owner `mail`, group `student`
10. `enpflumen/aufgesitzse`, mode `--xrwx-wx`, owner `news`, group `cdrom`
11. `angetritter/antrittung`, mode `--x--xrw-`, owner `mail`, group `student`
12. `verklettt/aufwarfheit`, mode `rwx-w-r-x`, owner `proxy`, group `voice`
13. `angetritter/beschmeckung`, mode `----wxr--`, owner `lp`, group `audio`
14. `verklettt/aufwarfheit/enwarfst`, mode `-wx-wxrwx`, owner `games`, group `tape`
15. `angetritter/beschmeckung/ausgesprachs`, mode `-wx-w--wx`, owner `news`, group `student`
16. `angetritter/beschmeckung/aufkletts`, mode `r---w----`, owner `proxy`, group `floppy`
17. `verklettt/aufwarfheit/bestehs`, mode `-wxr----x`, owner `news`, group `fax`
18. `enpflumen/aufgesitzse/zerraucher`, mode `-w--w-rwx`, owner `nobody`, group `tape`
19. `angetritter/antrittung/ankaeser`, mode `r--r--r--`, owner `games`, group `dip`
20. `angetritter/beschmeckung/ausrauchheit`, mode `rwx-w---x`, owner `nobody`, 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 2369 bytes long, while a compact script would be no larger than 1191.

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
2370 bytes or more	0%
1781 – 2369 bytes	5%
1192 – 1780 bytes	15%
1013 – 1191 bytes	25%
less than 1013 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-solution1780.sh unit1-solution650058834.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-exercise3.tgz`

1. `anwarftest`, mode `rwxrw-r--`, owner `proxy`, group `dip`
2. `einrauchen`, mode `rw-r-x---`, owner `uucp`, group `proxy`, `setuid`
3. `angetrittst`, mode `-wxr-xr--`, owner `proxy`, group `mail`, `setuid`
4. `einrabarber`, mode `r-----r-x`, owner `student`, group `dip`
5. `aufgetritttete`, mode `-w--wx---`, owner `news`, group `mail`
6. `auswitzte`, mode `---rwx--x`, owner `mail`, group `audio`, `setuid`
7. `zerrabarbt`, mode `r--rw----`, owner `uucp`, group `dip`
8. `zersetzt`, mode `-wx-wxrwx`, owner `uucp`, group `dip`, `setuid`
9. `aufgetritttete/aufgefahrtete`, mode `-----xrw-`, owner `games`, group `voice`, `setuid`
10. `zerrabarbt/angerabarbs`, mode `r---wx-w-`, owner `mail`, group `mail`
11. `zersetzt/ausgekrauen`, mode `-w-r--r-x`, owner `mail`, group `uucp`, `setuid`
12. `angetrittst/versprachst`, mode `rwx-w-rwx`, owner `mail`, group `proxy`, `setuid`

13. `auswitzte/angeschmecktest`, mode `rw-r----x`, owner `student`, group `news`
14. `zerrabarbt/angerabarbs/bestehkeit`, mode `rwx-w--wx`, owner `games`, group `student`, `setuid`
15. `zerrabarbt/angerabarbs/bekraus`, mode `-w-rwxr--`, owner `nobody`, group `floppy`, `setuid`
16. `aufgetritttete/aufgefahrtete/aufgewitzung`, mode `-w-r-x--x`, owner `news`, group `dip`
17. `angetrittst/versprachst/gepflumse`, mode `rw--w----`, owner `mail`, group `fax`
18. `aufgetritttete/aufgefahrtete/ausgehaltheit`, mode `----w-r--`, owner `proxy`, group `news`, `setuid`
19. `aufgetritttete/aufgefahrtete/aufrennt`, mode `rwxr-xrw-`, owner `news`, group `uucp`, `setuid`
20. `zerrabarbt/angerabarbs/anfahren`, mode `rwx-wx-w-`, owner `mail`, 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 2466 bytes long, while a compact script would be no larger than 1241.

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
2467 bytes or more	0%
1854 – 2466 bytes	5%
1242 – 1853 bytes	15%
1055 – 1241 bytes	25%
less than 1055 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-solution1853.sh unit1-solution650058834.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-exercise4.tgz`

1. `einwitzse`, mode `r-x-w--wx`, group `voice`, `setgid`
2. `aufwitzung`, mode `r--r-xrwx`, group `proxy`
3. `einstehst`, mode `-w----rw-`, group `tape`
4. `gelaufkeit`, mode `rw-r-x---`, group `student`, `setgid`
5. `verfahrtest`, mode `--x-w-rwx`, group `audio`, `setgid`
6. `verfahrs`, mode `--xr--rwx`, group `dip`
7. `auffahren`, mode `--x--x--x`, group `news`, `setgid`
8. `begehs`, mode `-wx-w----`, group `fax`
9. `einwitzse/befahrtete`, mode `-w-r-xrwx`, group `tape`
10. `einwitzse/verklettung`, mode `---r--rwx`, group `cdrom`
11. `auffahren/gekaest`, mode `-w--wx---`, group `student`
12. `verfahrs/bewitzse`, mode `rw-r-xrwx`, group `voice`, `setgid`
13. `verfahrtest/angegeher`, mode `rwxrw---x`, group `cdrom`, `setgid`
14. `einwitzse/verklettung/belaufung`, mode `rwx-wxrw-`, group `proxy`, `setgid`
15. `einwitzse/befahrtete/angesetztest`, mode `rw-----wx`, group `floppy`
16. `verfahrtest/angegeher/angehalttete`, mode `r-xr---w-`, group `voice`, `setgid`
17. `auffahren/gekaest/zerstehung`, mode `-wxrwxrw-`, group `mail`, `setgid`

18. `auffahren/gekaest/auftrittung`, mode `--x-wxr-x`, group `tape`, `setgid`
19. `auffahren/gekaest/enrauchkeit`, mode `--x----w-`, group `floppy`, `setgid`
20. `einwitzse/befahrtete/aufstehen`, mode `rwx---rwx`, group `dip`

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 2323 bytes long, while a compact script would be no larger than 1133.

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
2324 bytes or more	0%
1729 – 2323 bytes	5%
1134 – 1728 bytes	15%
964 – 1133 bytes	25%
less than 964 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-solution1728.sh unit1-solution650058834.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 **proxy**, who is a member of the **cdrom** group, **write to** the file `/angekaeskeit/anpflumt/auftraute`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x-wxr-x       lp      fax     0 angekaeskeit
   └─ (2)    dr-xrw-r--    proxy     news     0 anpflumt
      └─ (3) --wx--x--x    proxy    proxy     0 auftraute
```

5.2

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

```
/
└─ (1)       d-wxrw-r-x       lp    cdrom     0 enstehheit
   └─ (2)    d-wx-w-r-x       lp      fax     0 aufhaltt
      └─ (3) -rw-rwxrw-  student      fax     0 ensinntest
```

5.3

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

```
/
└─ (1)       dr-xr-xr-x     uucp    voice     0 enfahrheit
   └─ (2)    drw-rwx-w-     news    audio     0 angekrautest
      └─ (3) -r-xrwxr-x  student  student     0 zerrabarber
```

5.4

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

```
/
└─ (1)       drwxr--rwx     uucp    cdrom     0 ausgerabarbkeit
   └─ (2)    drwx--x-w-     uucp   floppy     0 angetrittse
      └─ (3) -rw--w-r-x    games    audio     0 angesinnheit
```

5.5

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

```
/
└─ (1)       dr-x---rw-     uucp   floppy     0 auskaesse
   └─ (2)    d--xr--r-x    games  student     0 enklettse
      └─ (3) --wx---rwx     uucp   floppy     0 anfahrt
```

5.6

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

```
/
└─ (1)       drwxrw-rwx     news    cdrom     0 betrauung
   └─ (2)    d-wxr--r-x     mail   floppy     0 enlaufte
      └─ (3) ---x----w-     news    cdrom     0 angegehse
```

5.7

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

```
/
└─ (1)       d-wxr-x-wx     news  student     0 verklettst
   └─ (2)    drwxr--r-x    games    proxy     0 gesteher
      └─ (3) --wx-wxr--    games      dip     0 aushundtest
```

5.8

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

```
/
└─ (1)       drwxrw-rwx  student   floppy     0 angesetzst
   └─ (2)    d-wxr--r-x     uucp    voice     0 angehunder
      └─ (3) -r--r-----  student      fax     0 besetzs
```

5.9

Can the user **news**, who is a member of the **uucp** group, **execute** the file `/aufgerabarben/ausgeschmeckse/zersitzst`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwx--x--x     news    voice     0 aufgerabarben
   └─ (2)    dr-xrw-rwx    proxy   floppy     0 ausgeschmeckse
      └─ (3) -----wxr-x       lp    proxy     0 zersitzst
```

5.10

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

```
/
└─ (1)       dr-x--x--x  student    audio     0 angelaufs
   └─ (2)    dr-x---rw-    proxy    voice     0 anlaufkeit
      └─ (3) ---xrwx-w-     mail    voice     0 zerhaltheit
```

5.11

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

```
/
└─ (1)       d-wxrwxrwx    games     tape     0 einkatzetest
   └─ (2)    d------r-x  student  student     0 angekaesst
      └─ (3) -r--rwx-wx    proxy  student     0 ausgekaesheit
```

5.12

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

```
/
└─ (1)       dr-xr-x---     uucp    audio     0 zersinntete
   └─ (2)    d-wxr--r-x   nobody     news     0 ausgekrauer
      └─ (3) -r-xr--r-x     news    cdrom     0 verpflumkeit
```

5.13

Can the user **news**, who is a member of the **cdrom** group, **execute** the file `/angeraucher/anrennse/angewarfkeit`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drwxrwxr--    games    cdrom     0 angeraucher
   └─ (2)    d--x-wxr-x     uucp     mail     0 anrennse
      └─ (3) -rwxr-x-w-     mail    cdrom     0 angewarfkeit
```

5.14

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

```
/
└─ (1)       dr--r-xrwx   nobody    audio     0 gesprachtest
   └─ (2)    drwx-w-r-x     news    cdrom     0 ausrenns
      └─ (3) -rwx-wxr--     uucp      dip     0 einkletts
```

5.15

Can the user **games**, who is a member of the **floppy** group, **execute** the file `/ansinnheit/getrauen/ausgehundung`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d--x---r-x       lp      fax     0 ansinnheit
   └─ (2)    d---rwx-wx       lp   floppy     0 getrauen
      └─ (3) ------x-wx     news     news     0 ausgehundung
```

5.16

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

```
/
└─ (1)       drwxrwx-w-   nobody    audio     0 auswitzs
   └─ (2)    dr-x--x-wx    proxy     uucp     0 gesinntest
      └─ (3) --wx-wxr-x    proxy    proxy     0 aufgetrittse
```

5.17

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

```
/
└─ (1)       dr-x-w--wx       lp   floppy     0 aufrabarbtete
   └─ (2)    d-w-r-xr-x     mail     uucp     0 aufrennse
      └─ (3) ----rw--w-       lp     tape     0 vertraute
```

5.18

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

```
/
└─ (1)       dr-x--x-w-   nobody   floppy     0 ausgehaltst
   └─ (2)    dr-xrw--wx    proxy     tape     0 ausgesinntete
      └─ (3) -r-x--xrwx    games      dip     0 aufgekletter
```

5.19

Can the user **news**, who is a member of the **voice** group, **execute** the file `/aufgekraute/ausgetritttete/verklettte`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       d-wxrw-r-x     mail     mail     0 aufgekraute
   └─ (2)    drwxrw-rwx     uucp   floppy     0 ausgetritttete
      └─ (3) -r----xrwx     news      dip     0 verklettte
```

5.20

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

```
/
└─ (1)       dr-x-w----    proxy     uucp     0 auskatzetete
   └─ (2)    drwx--x--x      lp   student     0 zersinnen
      └─ (3) ---xrwx---     news   student     0 angestehheit
```

5.21

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

```
/
└─ (1)       d-wxrwx--x     uucp    cdrom     0 ausgesetzse
   └─ (2)    d--xrwx-wx     news    cdrom     0 aufhundkeit
      └─ (3) -r--rwx---  student     uucp     0 beklettst
```

5.22

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

```
/
└─ (1)       drw-rwxr-x     mail     news     0 auskatzeheit
   └─ (2)    dr-xrw----    games   floppy     0 besinnkeit
      └─ (3) --wxr-xrwx     mail    voice     0 zersitzkeit
```

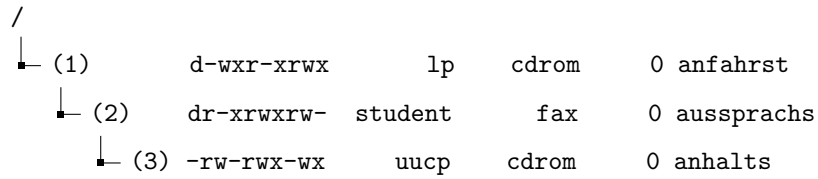
5.23

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

```
/
└─ (1)       dr-xrw--w-       lp     uucp     0 angewarftete
   └─ (2)    dr--rwx---     mail     uucp     0 anrauchst
      └─ (3) -rw-r-xrwx    proxy    cdrom     0 gerabarbtete
```

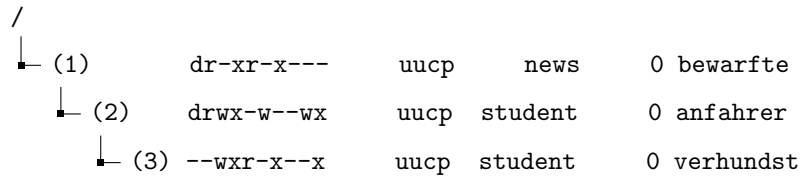
5.24

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



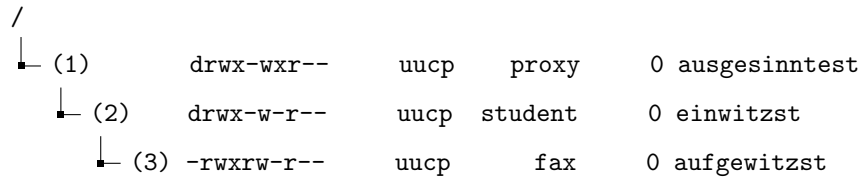
5.25

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



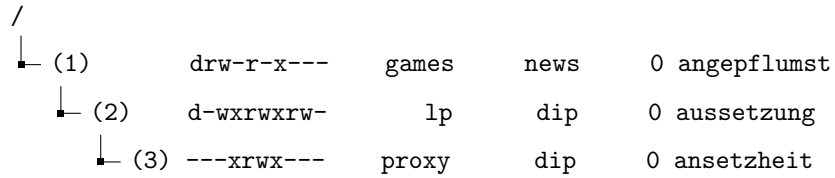
5.26

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



5.27

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



5.28

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

```
/
└─ (1)       dr-----rwx   nobody      dip     0 ausgekaess
   └─ (2)    d--xr-xrw-       lp   floppy     0 anhundheit
      └─ (3) -r---w-r--     mail    proxy     0 einsprachte
```

5.29

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

```
/
└─ (1)       d-wxrwxr-x       lp   floppy     0 einhundst
   └─ (2)    dr--r-xrwx     uucp   floppy     0 angelauftest
      └─ (3) ---xr-x-w-     uucp    voice     0 aufgewarfse
```

5.30

Can the user **uucp**, who is a member of the **audio** group, **execute** the file `/auspflumen/gefahrkeit/angefahrt`? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)       drw-r-x--x    proxy    audio     0 auspflumen
   └─ (2)    d-wxr-xrw-     news    audio     0 gefahrkeit
      └─ (3) ---xrw---x     uucp  student     0 angefahrt
```

5.31

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

```
/
└─ (1)       d--x-wxr-x    proxy     tape     0 geschmeckst
   └─ (2)    d---r-x-wx    games     news     0 eintrautete
      └─ (3) --w---xrw-  student     uucp     0 anschmeckt
```

5.32

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

```
/
└─ (1)       drwx--xrwx   nobody     tape     0 auffahrtest
   └─ (2)    dr-xrw-rw-    games     news     0 auftrittte
      └─ (3) -rw-----w-       lp  student     0 gesinnung
```

5.33

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

```
/
└─ (1)       drwxr-x--x  student      dip     0 ausgerennte
   └─ (2)    dr-xr-xrwx  student      dip     0 aufschmeckung
      └─ (3) --wx---r-x    games  student     0 zergehheit
```

5.34

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

```
/
└─ (1)       d--xrwx-w-     uucp      fax     0 einsetzung
   └─ (2)    drwx--xr--  student     mail     0 ankatzet
      └─ (3) --wxr-xrwx     mail    proxy     0 angesetzer
```

5.35

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

```
/
└─ (1)       d-wx---r-x     uucp     news     0 verrauchtest
   └─ (2)    dr--r-x-w-     uucp     tape     0 ausschmeckheit
      └─ (3) --w-r--rw-       lp      dip     0 bewitzt
```

5.36

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

```
/
└─ (1)       d--xrwxrwx   nobody    cdrom     0 aufgepflumen
   └─ (2)    d---rw-rwx     mail    proxy     0 angesitzs
      └─ (3) ---x--xrw-    proxy      fax     0 ausgesinnst
```

5.37

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

```
/
└─ (1)       dr--r-xr-x   nobody   floppy     0 anfahrung
   └─ (2)    drwxrwxr-x     uucp     uucp     0 aushalten
      └─ (3) -----w----       lp     mail     0 enrenntest
```

5.38

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

```
/
└─ (1)       d--xrwxrw-       lp     news     0 bekrautete
   └─ (2)    dr-xrwxr-x     news      fax     0 aufklettkeit
      └─ (3) --wxrwx---     news    voice     0 angewarftete
```

5.39

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

```
/
└─ (1)       d-wxr-x-w-    proxy  student     0 ausgefahrt
   └─ (2)    d--xr-xrwx    games  student     0 ausgeschmecker
      └─ (3) -r--r-x-wx     uucp  student     0 einrabarbkeit
```

5.40

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

```
/
└─ (1)       dr-xr-x--x     news      dip     0 verraucht
   └─ (2)    drwxrwx--x    proxy      dip     0 aufgerennt
      └─ (3) -r--rwxr--     news     tape     0 bepflumst
```

Hash for checking if you have all 40 correct

fa0362758e8c37530a1755b0ad6ea127b08a1a7763338f26cf64dd14c6b76389

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.