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 unit1exercise1.tgz

1. `ensetztete`, mode `--xrw--w-`

2. `vertrittst`, mode `rwx--x-w-`

3. `verhunden`, mode `--xr---wx`

4. `anfahrs`, mode `r-x--x-w-`

5. `angekaeskeit`, mode `rw----r--`

6. `aussprachse`, mode `rwx--xr-x`

7. `aufkaeskeit`, mode `r---wx--x`

8. `angewitzung`, mode `---rw--w-`

9. `angewitzung/belauft`, mode `r--r---w-`

10. `aussprachse/ausschmeckkeit`, mode `rw--w-r-x`

11. `angekaeskeit/aufrennkeit`, mode `--xr-x-wx`

12. `angewitzung/ausrabarbt`, mode `rwxrw--w-`

13. `anfahrs/eintrauer`, mode `rw----rw-`

14. `anfahrs/eintrauer/zertritttest`, mode `---r-x-wx`

15. `anfahrs/eintrauer/auswitzte`, mode `r--rw-rwx`

16. `anfahrs/eintrauer/auskatzeheit`, mode `rw-r-x-w-`

17. `angewitzung/belauft/anpflumer`, mode `r-x-wx--x`

18. `anfahrs/eintrauer/gekrause`, mode `--xrw--wx`

19. `angewitzung/ausrabarbt/ensitzse`, mode `--xrw----`

20. `angekaeskeit/aufrennkeit/ausgekrautete`, mode `-w-r-----`

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 2409 bytes long, while a compact script would be no larger than 968.

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
2410 bytes or more	0%
1689 – 2409 bytes	5%
969 – 1688 bytes	15%
823 – 968 bytes	25%
less than 823 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1exercise1.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 unit1exercise1.tgz unit1exercise1
git add unit1-solution1.sh unit1-solution1.tgz
git commit unit1-solution1688.sh unit1-solution1456672167.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 `unit1exercise2.tgz`

1. `aufsinner`, mode `rw-r-xr--`, owner `lp`, group `mail`

2. `ausgesprachkeit`, mode `rw---xrwx`, owner `games`, group `student`

3. `aufgestehst`, mode `---r--rw-`, owner `news`, group `fax`

4. `angelaufs`, mode `-w-r-----`, owner `nobody`, group `dip`

5. `angepflumer`, mode `-wxrw-rwx`, owner `proxy`, group `student`

6. `auskraus`, mode `-----xr--`, owner `lp`, group `dip`

7. auftraukeit, mode `rw-rw--wx`, owner `student`, group `news`

8. aussetzer, mode `r--r--r--`, owner uucp, group `floppy`

9. auskraus/zersetzen, mode `--xr--rwx`, owner `lp`, group `student`

10. aufsinner/einsinner, mode `-----x--x`, owner uucp, group `proxy`

11. aufsinner/enhalter, mode `-wxrw-rw-`, owner `proxy`, group `tape`

12. angelaufs/berennkeit, mode `-wx----wx`, owner `news`, group `tape`

13. auskraus/aufgekrauen, mode `--xr-xrwx`, owner `mail`, group `voice`

14. angelaufs/berennkeit/aufgesinns, mode `r-x------`, owner `nobody`, group `tape`

15. aufsinner/enhalter/angehtete, mode `-wxr-x-w-`, owner uucp, group `cdrom`

16. aufsinner/einsinner/angesetzen, mode `r---wxrw-`, owner `news`, group `uucp`

17. aufsinner/einsinner/verkatzekeit, mode `rw-rw-rwx`, owner `games`, group `cdrom`

18. angelaufs/berennkeit/ausgerauchse, mode `r-xr-xrw-`, owner `student`, group `audio`

19. angelaufs/berennkeit/angespracher, mode `--------x`, owner `nobody`, group `audio`

20. auskraus/zersetzen/angekatzetete, mode `r-x--xr-x`, owner `news`, group `uucp`

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 2301 bytes long, while a compact script would be no larger than 1225.

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
2302 bytes or more	0%
1764 – 2301 bytes	5%
1226 – 1763 bytes	15%
1042 – 1225 bytes	25%
less than 1042 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1exercise2.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 unit1exercise2.tgz unit1exercise2
git add unit1-solution2.sh unit1-solution2.tgz
git commit unit1-solution1763.sh unit1-solution1456672167.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 `unit1exercise3.tgz`

1. `bekatzest`, mode `r---w--w-`, owner `nobody`, group `news`, setuid

2. `aufgekletten`, mode `r--r-----`, owner `news`, group `audio`

3. `gerabarbung`, mode `-wx-w----`, owner `student`, group `audio`

4. `befahrheit`, mode `rwxr--rwx`, owner `nobody`, group `uucp`

5. `enkatzet`, mode `rwx-wxr--`, owner `nobody`, group `mail`

6. `berabarber`, mode `r---wx-w-`, owner `nobody`, group `mail`, setuid

7. `zerhaltst`, mode `---rw--w-`, owner `lp`, group `proxy`, setuid

8. `zersitzt`, mode `--xr-x---`, owner `games`, group `fax`

9. `zerhaltst/ausgehundtete`, mode `---rwx-w-`, owner `mail`, group `fax`, setuid

10. `zersitzt/aussinner`, mode `---r-x-w-`, owner `student`, group `floppy`, setuid

11. `zerhaltst/aussinntest`, mode `rw-rwx-w-`, owner `lp`, group `uucp`

12. `aufgekletten/ausgekraut`, mode `--x---r-x`, owner `games`, group `dip`, setuid

13. `befahrheit/einkraute`, mode `-w---xr--`, owner `mail`, group `floppy`, setuid

14. `zerhaltst/ausgehundtete/zertrauen`, mode `rw--wxrwx`, owner `mail`, group `voice`

15. `zerhaltst/ausgehundtete/einstehse`, mode `rwxrwxr--`, owner `mail`, group `dip`, setuid

16. `aufgekletten/ausgekraut/aussitzer`, mode `-wxrw-rwx`, owner `news`, group `student`

17. `befahrheit/einkraute/angerabarbs`, mode `rw-r-x--x`, owner `student`, group `fax`, setuid

18. `aufgekletten/ausgekraut/angesprachung`, mode `r-x-wx---`, owner `news`, group `cdrom`

19. `befahrheit/einkraute/entraust`, mode `rwx--xrwx`, owner `proxy`, group `voice`, setuid

20. `zerhaltst/aussinntest/ausgesitztete`, mode `----wx---`, owner `news`, group `student`, 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 2371 bytes long, while a compact script would be no larger than 1216.

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
2372 bytes or more	0%
1794 – 2371 bytes	5%
1217 – 1793 bytes	15%
1034 – 1216 bytes	25%
less than 1034 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1exercise3.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 unit1exercise3.tgz unit1exercise3
git add unit1-solution3.sh unit1-solution3.tgz
git commit unit1-solution1793.sh unit1-solution1456672167.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 `unit1exercise4.tgz`

1. `aufgesitzen`, mode `---rwx--x`, group `voice`, setgid

2. `aufgepflumheit`, mode `--xr-xrwx`, group `tape`, setgid

3. `angehheit`, mode `r-xr--r--`, group `tape`

4. `anrabarbs`, mode `-w----rw-`, group `news`, setgid

5. `aussinnst`, mode `r-----rw-`, group `fax`, setgid

6. `angelaufheit`, mode `----w----`, group `cdrom`, setgid

7. `angelauft`, mode `r---wx--x`, group `fax`, setgid

8. `zerrauchse`, mode `r--rw-r-x`, group `proxy`

9. `zerrauchse/aufklettte`, mode `rwx------`, group `voice`

10. `anrabarbs/zerschmecktete`, mode `----wxr-x`, group `mail`, setgid

11. `aussinnst/aufpflumte`, mode `r-xrwx-wx`, group `mail`, setgid

12. `aussinnst/bepflums`, mode `--xr-x--x`, group `cdrom`

13. `zerrauchse/angeschmeckt`, mode `-w-----w-`, group `news`, setgid

14. `aussinnst/aufpflumte/einrauchkeit`, mode `----w-rwx`, group `floppy`, setgid

15. `zerrauchse/angeschmeckt/enkletttete`, mode `r---w--wx`, group `cdrom`, setgid

16. `zerrauchse/angeschmeckt/zerlaufen`, mode `r--r-xr-x`, group `fax`, `setgid`

17. `aussinnst/bepflums/ausgesitzt`, mode `rwxrwx-w-`, group `cdrom`

18. `zerrauchse/angeschmeckt/ausgekletttest`, mode `rw-rwxrw-`, group `voice`, `setgid`

19. `anrabarbs/zerschmecktete/angewitzt`, mode `---r--rwx`, group `news`, `setgid`

20. `zerrauchse/angeschmeckt/ensinnheit`, mode `------rwx`, group `mail`

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 1107.

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%
1777 – 2445 bytes	5%
1108 – 1776 bytes	15%
941 – 1107 bytes	25%
less than 941 bytes	40%

To test your solution, use a command like:

```
sudo tar zcf unit1exercise4.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 unit1exercise4.tgz unit1exercise4
git add unit1-solution4.sh unit1-solution4.tgz
git commit unit1-solution1776.sh unit1-solution1456672167.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 **uucp**, who is a member of the **floppy** group, **execute** the file /austritttest/ausgerauchs/ausgefahrst? If not, which of the three directories blocks access (Y|1|2|3)

```
    /
    └─ (1)        dr--r-xrw-   student    floppy    0 austritttest
        └─ (2)    dr-x-w-r--     uucp      mail      0 ausgerauchs
            └─ (3) -r---wxrwx    news     floppy     0 ausgefahrst
```

5.2
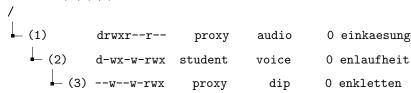
Can the user **student**, who is a member of the **uucp** group, **execute** the file /zersitzst/ausgekrause/aufkaesung? If not, which of the three directories blocks access (Y|1|2|3)

```
    /
    └─ (1)        dr-xrw-rw-   student     tape     0 zersitzst
        └─ (2)    d-wxr--r-x    news      cdrom     0 ausgekrause
            └─ (3) ----rwxrw-   student    mail     0 aufkaesung
```

5.3

Can the user **uucp**, who is a member of the **tape** group, **execute** the file /geraucher/anwitzte/versitzse? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        dr-x--x-w-     uucp      fax     0 geraucher
   └─ (2)     dr-xrw-rwx     uucp      dip     0 anwitzte
      └─ (3) -rw----rwx      uucp     audio    0 versitzse
```

5.4

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

```
/
└─ (1)        drwxr--r--    proxy     audio    0 einkaesung
   └─ (2)     d-wx-w-rwx   student    voice    0 enlaufheit
      └─ (3) --w--w-rwx     proxy      dip     0 enkletten
```

5.5

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

```
/
└─ (1)        drwxr--r-x      lp       dip     0 einrennst
   └─ (2)     dr-xr--r--    proxy      fax     0 zerschmecks
      └─ (3) -r----xr-x     proxy     proxy    0 aufgerauchtest
```

5.6

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

```
/
└─ (1)        d-wx---r-x     proxy      tape      0 versinntete
   └─ (2)     drwxr-x--x     news       fax       0 angegehtest
      └─ (3) --w-r--rw-      news       voice     0 verrabarbtest
```

5.7

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

```
/
└─ (1)        d-wxrwxr-x     uucp      floppy     0 angerenns
   └─ (2)     dr-x-wx-wx   student      audio     0 vergehs
      └─ (3) --wx-wxrw-   student       news      0 ausgekaesen
```

5.8

Can the user **proxy**, who is a member of the **audio** group, **write to** the file
/ausgekaess/einsitzheit/einkaestete? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└─ (1)        dr-xr-x-w-   student    student     0 ausgekaess
   └─ (2)     drwxrwx-wx      news      audio     0 einsitzheit
      └─ (3) -rwx----wx      mail    student      0 einkaestete
```
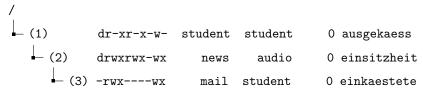
5.9

Can the user **proxy**, who is a member of the **mail** group, **execute** the file
/einsprachst/einsinnkeit/verschmeckkeit? If not, which of the three di-
rectories blocks access (Y|1|2|3)

```
/
└─ (1)        dr-x-w---x     proxy       dip      0 einsprachst
   └─ (2)     d-w-r-xrw-      uucp      mail      0 einsinnkeit
      └─ (3) --wx-wxr-x      games      mail      0 verschmeckkeit
```

5.10

Can the user **games**, who is a member of the **student** group, **read from** the file /auskatzetete/einklettkeit/angepflumung? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        d-wxrwx--x    proxy  student    0 auskatzetete
   └─ (2)     dr-x-w-r-x    games     tape    0 einklettkeit
      └─ (3) --wxrw-r-x    uucp  student    0 angepflumung
```

5.11

Can the user **mail**, who is a member of the **audio** group, **read from** the file /angetraust/verwarfung/auspflumer? If not, which of the three directories blocks access (Y|1|2|3)
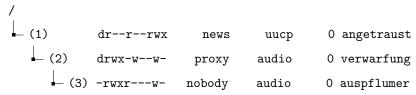
```
/
└─ (1)        dr--r--rwx    news     uucp    0 angetraust
   └─ (2)     drwx-w--w-    proxy    audio    0 verwarfung
      └─ (3) -rwxr---w-    nobody    audio    0 auspflumer
```

5.12

Can the user **news**, who is a member of the **dip** group, **write to** the file /aufgekrauheit/zerlaufkeit/einrabarbtete? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        dr-xr---wx    news     uucp    0 aufgekrauheit
   └─ (2)     d-wx---r-x    games     dip    0 zerlaufkeit
      └─ (3) -r-xrwx-w-    uucp     dip    0 einrabarbtete
```

5.13

Can the user **proxy**, who is a member of the **audio** group, **execute** the file /antraukeit/beklettete/anschmeckte? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        drwxrw-rwx    proxy      fax     0 antraukeit
   └─ (2)    drwxrwxr-x   nobody     mail     0 beklettete
      └─ (3) ---xr--r-x    proxy     mail     0 anschmeckte
```

5.14

Can the user **news**, who is a member of the **fax** group, **write to** the file /betrause/einkletttete/enstehst? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        drwx--x-w-    news    audio    0 betrause
   └─ (2)    d---------     uucp     fax     0 einkletttete
      └─ (3) --wxrwxrwx    news   student   0 enstehst
```

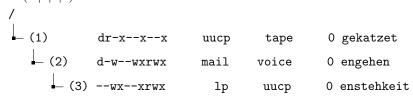## 5.15

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

```
/
└─ (1)        dr-x--x--x    uucp     tape    0 gekatzet
   └─ (2)    d-w--wxrwx    mail    voice    0 engehen
      └─ (3) --wx--xrwx     lp     uucp    0 enstehkeit
```

5.16

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

```
/
└─ (1)        drwxrwxr--    proxy    voice    0 aufgekatzese
   └─ (2)    dr-x-wxr-x     lp     proxy    0 angerennung
      └─ (3) ---x-w----    proxy    tape    0 zerwitzs
```

5.17

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

```
/
└── (1)        d--xr-x--x     news      tape      0 aufwitztest
     └── (2)   d---rw-rwx  student   student      0 ausfahrung
          └── (3) -rwxr-x-w-  nobody    voice      0 verstehung
```

5.18

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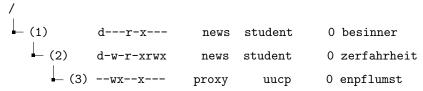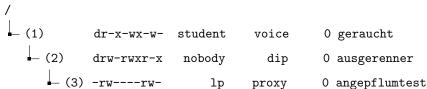blocks access (Y|1|2|3)

```
/
└── (1)        d---r-x---     news  student      0 besinner
     └── (2)   d-w-r-xrwx     news  student      0 zerfahrheit
          └── (3) --wx--x---   proxy     uucp      0 enpflumst
```

5.19

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

```
/
└── (1)        dr-x-wx-w-  student    voice      0 geraucht
     └── (2)   drw-rwxr-x   nobody      dip      0 ausgerenner
          └── (3) -rw----rw-      lp    proxy      0 angepflumtest
```

5.20

Can the user **proxy**, who is a member of the **audio** group, **execute** the file
`/gewarfkeit/angehundtest/enschmecken`? If not, which of the three directo-
ries blocks access (Y|1|2|3)

```
/
└─ (1)         d--xr-x-w-    nobody    audio    0 gewarfkeit
   └─ (2)      drwx-w-rw-      mail    audio    0 angehundtest
      └─ (3) -rwx-wxrwx     proxy    voice    0 enschmecken
```

5.21

Can the user **lp**, who is a member of the **voice** group, **execute** the file /aufgesitztete/geklettse/enkrauer?
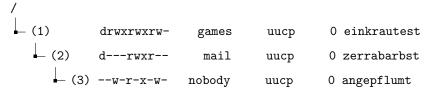If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)         d-w-rwx---     news    voice    0 aufgesitztete
   └─ (2)      d--x---r-x    games    voice    0 geklettse
      └─ (3) -rw-r-x--x     proxy    voice    0 enkrauer
```

5.22

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

```
/
└─ (1)         drwxrwxrw-     games    uucp    0 einkrautest
   └─ (2)      d---rwxr--      mail    uucp    0 zerrabarbst
      └─ (3) --w-r-x-w-    nobody    uucp    0 angepflumt
```

5.23

Can the user **nobody**, who is a member of the **student** group, **write to** the
file /aufgekatzetest/angewarfs/aufgeklettst? If not, which of the three
directories blocks access (Y|1|2|3)

```
/
└─ (1)         dr-x-w---x    nobody     news    0 aufgekatzetest
   └─ (2)      d--x-----x  student  student    0 angewarfs
      └─ (3) --w--w-rw-    nobody     mail    0 aufgeklettst
```

5.24

Can the user **lp**, who is a member of the **tape** group, **read from** the file
/auslaufse/enhundt/anhaltkeit? If not, which of the three directories blocks

access (Y|1|2|3)

```
/
└─ (1)        d----wxrwx    mail    floppy    0 auslaufse
   └─ (2)    d-wx---rw-    games    tape      0 enhundt
      └─ (3) -rwxr-xr--    news     fax       0 anhaltkeit
```

5.25

Can the user **student**, who is a member of the **fax** group, **execute** the file
/aufgesprachen/angesinntest/angekaeser? If not, which of the three direc-
tories blocks access (Y|1|2|3)

```
/
└─ (1)        d--xr--r-x    news     proxy     0 aufgesprachen
   └─ (2)    dr---w-rw-    games     fax       0 angesinntest
      └─ (3) -rwxrw--w-    student   floppy    0 angekaeser
```
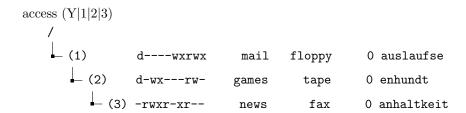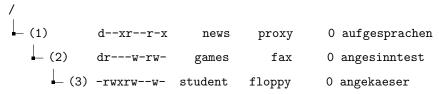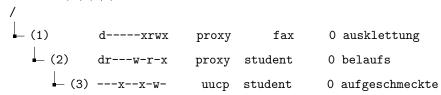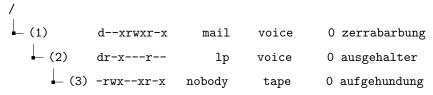
5.26

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

```
/
└─ (1)        d-----xrwx    proxy     fax       0 ausklettung
   └─ (2)    dr---w-r-x    proxy     student   0 belaufs
      └─ (3) ---x--x-w-    uucp      student   0 aufgeschmeckte
```
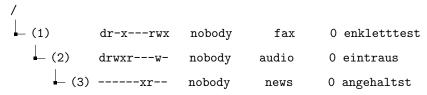
5.27

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

```
/
└─ (1)        d--xrwxr-x    mail      voice     0 zerrabarbung
   └─ (2)    dr-x---r--    lp        voice     0 ausgehalter
      └─ (3) -rwx--xr-x    nobody    tape      0 aufgehundung
```

5.28

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

```
/
└─ (1)        d-w-r-x---     news    voice    0 auftraut
    └─ (2)    dr-x-w--w-     uucp    floppy   0 angekrauung
        └─ (3) -r--rwx-w-     lp    student   0 versitzer
```

5.29

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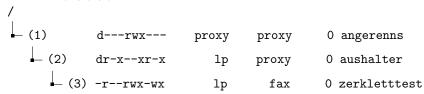blocks access (Y|1|2|3)

```
/
└─ (1)        dr-x---rwx   nobody     fax    0 enkletttest
    └─ (2)    drwxr---w-   nobody    audio   0 eintraus
        └─ (3) ------xr--   nobody    news   0 angehaltst
```

5.30

Can the user **uucp**, who is a member of the **floppy** group, **read from** the
file /auflaufte/auftraute/gesprachte? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└─ (1)        d--xrwxr-x   nobody   floppy   0 auflaufte
    └─ (2)    drwx---r--   student  floppy   0 auftraute
        └─ (3) -rwx--xr-x   student  cdrom    0 gesprachte
```

5.31

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

```
/
└─ (1)        dr-x-wxr-x      news    cdrom    0 zersitztete
   └─ (2)   d-------wx    nobody  student    0 aufrabarbte
      └─ (3) --wx--x---     uucp    voice    0 berabarbkeit
```

5.32

Can the user **news**, who is a member of the **fax** group, **execute** the file /angerenns/aushalter/zerkletttest? If not, which of the three directories blocks access (Y|1|2|3)
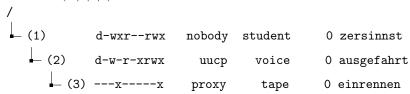
```
/
└─ (1)        d---rwx---     proxy    proxy    0 angerenns
   └─ (2)   dr-x--xr-x      lp      proxy    0 aushalter
      └─ (3) -r--rwx-wx       lp       fax    0 zerkletttest
```

5.33

Can the user **games**, who is a member of the **student** group, **read from** the file /bepflumte/auswarfse/vergehtest? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        dr-xrw-rwx     proxy     uucp    0 bepflumte
   └─ (2)   d---r-xrwx    nobody  student    0 auswarfse
      └─ (3) ---x-wxrwx     proxy      fax    0 vergehtest
```
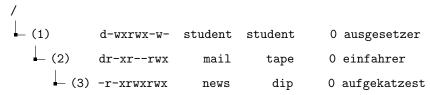
5.34

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

```
/
└─ (1)        d-wxr--rwx    nobody  student    0 zersinnst
   └─ (2)   d-w-r-xrwx      uucp    voice    0 ausgefahrt
      └─ (3) ---x-----x     proxy     tape    0 einrennen
```

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5.35

Can the user **uucp**, who is a member of the **dip** group, **read from** the file /eintraust/ausrenntete/zerpflums? If not, which of the three directories blocks access (Y|1|2|3)
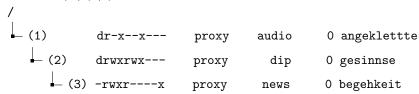
```
/
└─ (1)        d-----xr-x     games     news     0 eintraust
   └─ (2)   d--xrwxrwx   nobody     tape     0 ausrenntete
      └─ (3) --w-r--r-x    mail     dip     0 zerpflums
```

5.36

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

```
/
└─ (1)        d-wxrwx-w-  student  student     0 ausgesetzer
   └─ (2)   dr-xr--rwx     mail     tape    0 einfahrer
      └─ (3) -r-xrwxrwx     news     dip    0 aufgekatzest
```
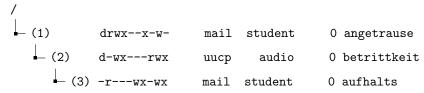
5.37

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

```
/
└─ (1)        dr-x--x---    proxy    audio    0 angeklettte
   └─ (2)   drwxrwx---    proxy     dip    0 gesinnse
      └─ (3) -rwxr----x    proxy     news    0 begehkeit
```
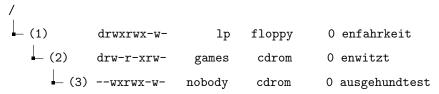
5.38

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

```
/
└─ (1)        d-wxr-xrw-      lp     news    0 ankaesen
   └─ (2)   d-wx-w-rwx     uucp    news    0 bekrause
      └─ (3) --w-rwx--x      lp     news    0 angestehkeit
```

5.39

Can the user **mail**, who is a member of the **audio** group, **read from** the file
/angetrause/betrittkeit/aufhalts? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└─ (1)        drwx--x-w-     mail  student    0 angetrause
   └─ (2)   d-wx---rwx     uucp   audio     0 betrittkeit
      └─ (3) -r---wx-wx     mail  student    0 aufhalts
```

5.40

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

```
/
└─ (1)        drwxrwx-w-      lp   floppy    0 enfahrkeit
   └─ (2)   drw-r-xrw-     games   cdrom    0 enwitzt
      └─ (3) --wxrwx-w-    nobody   cdrom    0 ausgehundtest
```

Hash for checking if you have all 40 correct

af8026270e43b19227566b27c698e22ab04b0dbbaeb04c513a454bcc75a3c169
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.