Network Engineering 2021 Exercises - Unit 1

1 Basic POSIX file permissions

Write a shell-script called `unit1-solution1.sh` that creates **directories** inside a directory called `unit1exercise1` with the following properties, and then creates a **compressed tar file** called `unit1-solution1.tgz`

1. `aufgewitzs`, mode `-wxr-x---`

2. `entrauer`, mode `--------x`

3. `gerenntest`, mode `-w-r--r-x`

4. `ausgesprachkeit`, mode `r-xr-xrw-`

5. `ausgerenntete`, mode `-wx-----x`

6. `aufgegehkeit`, mode `-wx-w-r-x`

7. `anstehtete`, mode `rw-rw-r-x`

8. `zerwitzst`, mode `------rw-`

9. `aufgewitzs/ausgeschmeckte`, mode `rwx-wxr--`

10. `aufgewitzs/aussinnen`, mode `---rw-rw-`

11. `ausgesprachkeit/angekraukeit`, mode `-wx---rw-`

12. `aufgegehkeit/ausgehaltt`, mode `r--rw----`

13. `gerenntest/austrautest`, mode `rw----r-x`

14. `aufgegehkeit/ausgehaltt/verfahrte`, mode `rwxrw--wx`

15. `aufgewitzs/aussinnen/zerhalttest`, mode `r-xrwx-wx`

16. `aufgewitzs/aussinnen/auskatzest`, mode `---rwx-wx`

17. `gerenntest/austrautest/aufgekatzeer`, mode `-w--wx--x`

18. `aufgegehkeit/ausgehaltt/ausgesetzst`, mode `-w--w---x`

19. `ausgesprachkeit/angekraukeit/aufrennte`, mode `r-xrw----`

20. `ausgesprachkeit/angekraukeit/enwitzse`, mode `rw-rwxr-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 2544 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
2545 bytes or more	0%
1760 – 2544 bytes	5%
976 – 1759 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. `zerkatzeer`, mode `--x--x---`, owner `mail`, group `uucp`

2. `auskrauen`, mode `-wxrwx-wx`, owner `games`, group `audio`

3. `anstehte`, mode `--xr-----`, owner `lp`, group `voice`

4. `behaltst`, mode `rwxr-xrw-`, owner `uucp`, group `fax`

5. `bepflumtest`, mode `-wxr--rwx`, owner `uucp`, group `student`

6. `aufkrautest`, mode `----wx--x`, owner `lp`, group `proxy`

7. `angesetztete`, mode `-wxr-x---`, owner `news`, group `cdrom`

8. `enrabarbtete`, mode `-----xrw-`, owner `news`, group `proxy`

9. `auskrauen/ausgeher`, mode `-w-r---w-`, owner `nobody`, group `dip`

10. `enrabarbtete/beschmeckheit`, mode `-w-r-x---`, owner `games`, group `proxy`

11. `auskrauen/angesteht`, mode `r-xr-x-wx`, owner `nobody`, group `cdrom`

12. `bepflumtest/ausgehaltse`, mode `-wx--xr-x`, owner `proxy`, group `fax`

13. `bepflumtest/beklettse`, mode `r-x-w-rwx`, owner `mail`, group `uucp`

14. `enrabarbtete/beschmeckheit/einhunder`, mode `-w-rw--w-`, owner `news`, group `fax`

15. `bepflumtest/beklettse/aufgekraut`, mode `r---w--w-`, owner `mail`, group `proxy`

16. `auskrauen/ausgeher/verfahrer`, mode `r---w--w-`, owner `lp`, group `dip`

17. `auskrauen/ausgeher/angegehtest`, mode `---r--rw-`, owner `student`, group `news`

18. `bepflumtest/beklettse/ankaest`, mode `--xr--rw-`, owner `proxy`, group `tape`

19. `auskrauen/ausgeher/angehunder`, mode `rwxrw--w-`, owner `student`, group `audio`

20. `auskrauen/ausgeher/zersitzs`, mode `--xrw----`, owner `news`, group `audio`

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 2302 bytes long, while a compact script would be no larger than 1213.

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
2303 bytes or more	0%
1758 – 2302 bytes	5%
1214 – 1757 bytes	15%
1032 – 1213 bytes	25%
less than 1032 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. `gefahrte`, mode `----w-rw-`, owner `news`, group `voice`

2. `angesitzkeit`, mode `------r-x`, owner `proxy`, group `voice`, setuid

3. `einrauchse`, mode `r---w--w-`, owner `nobody`, group `uucp`, setuid

4. `angeraucher`, mode `-wx-w-rw-`, owner `uucp`, group `voice`, setuid

5. `aufgetritter`, mode `r---w--w-`, owner `nobody`, group `uucp`, setuid

6. `gesetzkeit`, mode `rwx----w-`, owner `lp`, group `student`

7. `verhundtete`, mode `-wx-w-r-x`, owner `lp`, group `audio`

8. `ausfahrst`, mode `rwx-w-r-x`, owner `nobody`, group `tape`

9. `gefahrte/auskaesung`, mode `--xr---w-`, owner `nobody`, group `student`

10. `gesetzkeit/getritter`, mode `rw-r-----`, owner `proxy`, group `mail`, setuid

11. `gefahrte/ankrause`, mode `r---wxrw-`, owner `proxy`, group `cdrom`, setuid

12. `aufgetritter/auskrautest`, mode `r-xrw-rw-`, owner `news`, group `fax`, setuid

4

13. `einrauchse/bestehte`, mode `------rw-`, owner `proxy`, group `mail`, `setuid`

14. `gefahrte/ankrause/ensinnte`, mode `---r-xrw-`, owner `uucp`, group `student`

15. `gefahrte/ankrause/ausgesprachung`, mode `-w--wxrwx`, owner `mail`, group `fax`, `setuid`

16. `gesetzkeit/getritter/aufgefahrheit`, mode `r-x-w-rw-`, owner `news`, group `mail`

17. `gesetzkeit/getritter/aufstehtest`, mode `r--r-x---`, owner `lp`, group `news`, `setuid`

18. `aufgetritter/auskrautest/getritts`, mode `--x-w---x`, owner `uucp`, group `uucp`, `setuid`

19. `gefahrte/auskaesung/beschmecktest`, mode `-wx----w-`, owner `student`, group `news`

20. `einrauchse/bestehte/gepflumse`, mode `-w---x-wx`, owner `student`, 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 2329 bytes long, while a compact script would be no larger than 1213.

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
2330 bytes or more	0%
1772 – 2329 bytes	5%
1214 – 1771 bytes	15%
1032 – 1213 bytes	25%
less than 1032 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. `anhunden`, mode `-w---xrwx`, group `news`

2. `besteht`, mode `rwx-w-r-x`, group `floppy`

3. `aufkaestete`, mode `r-xr-xrw-`, group `proxy`, setgid

4. `aufwarfung`, mode `-wxr---w-`, group `cdrom`, setgid

5. `aufgerabarbkeit`, mode `------rw-`, group `tape`, setgid

6. `austrittung`, mode `rwxr-x---`, group `fax`

7. `bespracht`, mode `---r-x---`, group `fax`, setgid

8. `ausgestehkeit`, mode `---rw---x`, group `dip`, setgid

9. `bespracht/aufsprachte`, mode `-w--wxrw-`, group `voice`

10. `bespracht/auslaufte`, mode `rwxrw--w-`, group `uucp`

11. `austrittung/ausschmecker`, mode `r-xrwx---`, group `floppy`, setgid

12. `anhunden/anschmecktete`, mode `--xr----x`, group `dip`

13. `aufwarfung/eingehen`, mode `-wxr--rw-`, group `audio`

14. `bespracht/auslaufte/aufgepflumung`, mode `r--r--rw-`, group `voice`, setgid

15. `austrittung/ausschmecker/eintrauen`, mode `-wx--xrw-`, group `mail`

16. `bespracht/aufsprachte/angehundheit`, mode `-w-rw----`, group `news`, setgid

17. `aufwarfung/eingehen/angefahren`, mode `---r---w-`, group `audio`

18. `anhunden/anschmecktete/ensinnheit`, mode `rw-rwxr-x`, group `dip`

19. `aufwarfung/eingehen/angepflumer`, mode `rwxr-x-w-`, group `tape`

20. `bespracht/auslaufte/aufgesitzung`, mode `rw-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 2412 bytes long, while a compact script would be no larger than 1144.

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
2413 bytes or more	0%
1779 – 2412 bytes	5%
1145 – 1778 bytes	15%
973 – 1144 bytes	25%
less than 973 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 **mail**, who is a member of the **proxy** group, **execute** the file /aufgegeht/verrennst/angesinner? If not, which of the three directories blocks access (Y|1|2|3)

```
 /
 └─ (1)        dr-xr-x---     proxy     mail     0 aufgegeht
    └─ (2)     drwxr-xr-x      news      dip     0 verrennst
       └─ (3) --wx-wx-wx       mail  student     0 angesinner
```

5.2

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

```
 /
 └─ (1)        dr--r-xrw-        lp     uucp     0 aufrabarbtest
    └─ (2)     d------r-x     games    proxy     0 einraucher
       └─ (3) --wxr--rwx      uucp    audio     0 ausgerabarbtete
```

5.3

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

```
/
└─ (1)          dr-xrwxrw-     news     proxy     0 zerschmecktest
   └─ (2)     d----wxr-x    nobody      tape     0 enkletter
      └─ (3) ----rw-rw-    student     voice     0 ausschmecktete
```

5.4

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

```
/
└─ (1)          dr--rwx-wx   student    floppy    0 ankrauung
   └─ (2)     d---rwx-w-      news     floppy    0 verlauft
      └─ (3) --wxrwxrwx     proxy       dip     0 aufgesprachs
```

5.5

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

```
/
└─ (1)          d-w-r-xr-x     games     proxy     0 entrautete
   └─ (2)     drwxrw-rw-      uucp       fax     0 zerstehen
      └─ (3) -r------wx      mail      voice     0 einrabarbse
```

5.6

Can the user **news**, who is a member of the **audio** group, **read from** the
file /verschmecktest/zerspracht/aufgesinntete? If not, which of the three
directories blocks access (Y|1|2|3)

```
/
└─ (1)          drwx-wx-wx     news     proxy     0 verschmecktest
   └─ (2)     drwx--xrwx      news     voice     0 zerspracht
      └─ (3) -rwxr-xrwx    student     cdrom     0 aufgesinntete
```

5.7

Can the user **nobody**, who is a member of the **audio** group, **execute** the file /ausgefahrkeit/aussitzst/bekatzeer? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        drwxr-x---     news     tape     0 ausgefahrkeit
    └─ (2)    d-wxrw-r-x     mail     mail     0 aussitzst
        └─ (3) ----r--rwx     lp   student     0 bekatzeer
```

5.8

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

```
/
└─ (1)        dr--r-x-w-   nobody    proxy     0 ankaesst
    └─ (2)    d-wxrwxr--       lp    proxy     0 ausschmeckt
        └─ (3) -r-xr-xrwx     mail    cdrom     0 getrittung
```

5.9

Can the user **uucp**, who is a member of the **proxy** group, **read from** the file /bekaess/austraust/ausgeschmecker? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        drwxr-xr--    games    proxy     0 bekaess
    └─ (2)    d-----xr-x   nobody     mail     0 austraust
        └─ (3) --wxrw---x     news    proxy     0 ausgeschmecker
```

5.10

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

```
/
└─ (1)        dr-x-----x    games      news     0 begehen
   └─ (2)     drwx-w--w-    games       fax     0 ausgegehen
      └─ (3) -r--rw---x  student      proxy     0 gestehtest
```

5.11

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

```
/
└─ (1)        drw-rwxr-x    uucp     floppy     0 gehalttete
   └─ (2)     drwxr-x-wx    games      tape     0 angekraut
      └─ (3) -r--rw----    games      mail     0 angesprachung
```

5.12

Can the user **games**, who is a member of the **proxy** group, **write into** the
file /angetrittt/angerauchtete/aussetzheit? If not, which of the three
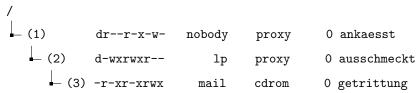directories blocks access (Y|1|2|3)

```
/
└─ (1)        d-wxr--r-x    news       dip     0 angetrittt
   └─ (2)     d---rwxr-x      lp      proxy     0 angerauchtete
      └─ (3) --w--wx-w-  nobody       fax     0 aussetzheit
```

5.13

Can the user **nobody**, who is a member of the **proxy** group, **read from** the file
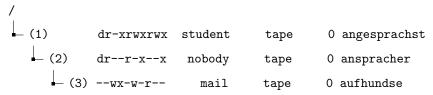/verkraut/ausgehse/einfahrs? If not, which of the three directories blocks
access (Y|1|2|3)

```
/
└─ (1)        dr-xrw--wx  nobody      voice     0 verkraut
   └─ (2)     d--xrwx-w-    games     proxy     0 ausgehse
      └─ (3) -r--rwxrw-      lp      audio     0 einfahrs
```

5.14

Can the user **student**, who is a member of the **news** group, **execute** the file
/aufgesetzkeit/anlaufkeit/ausgerennt? If not, which of the three directo-
ries blocks access (Y|1|2|3)

```
/
└─ (1)        drwxr-----       lp     cdrom      0 aufgesetzkeit
    └─ (2)    d--xr--r-x      uucp     uucp      0 anlaufkeit
        └─ (3) ---xrw--wx      lp     proxy      0 ausgerennt
```

5.15

Can the user **news**, who is a member of the **tape** group, **write into** the file
/angesprachst/anspracher/aufhundse? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└─ (1)        dr-xrwxrwx  student     tape      0 angesprachst
    └─ (2)    dr--r-x--x   nobody     tape      0 anspracher
        └─ (3) --wx-w-r--     mail     tape      0 aufhundse
```

5.16

Can the user **lp**, who is a member of the **floppy** group, **write into** the file
/ensetzst/aufkatzet/ansitztest? If not, which of the three directories blocks
access (Y|1|2|3)

```
/
└─ (1)        drwxr-xrw-       lp     mail      0 ensetzst
    └─ (2)    d-w-rwx-w-    proxy   floppy      0 aufkatzet
        └─ (3) --w-r--r--       lp      dip      0 ansitztest
```

5.17

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

```
/
└─ (1)        dr--rwx---     news      dip     0 aufstehen
   └─ (2)   drwxrwxrwx     uucp     proxy    0 angewitzen
      └─ (3) --wxrw-r--  student      mail    0 zersinnheit
```

5.18

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

```
/
└─ (1)        dr-xr--rwx       lp      dip     0 gelaufse
   └─ (2)    d-----xrwx   student      dip    0 angesinnst
      └─ (3) ---xrwx-w-    proxy     audio    0 zersetztete
```

5.19

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

```
/
└─ (1)        dr-xr-xr-x  student      uucp     0 angekatzete
   └─ (2)    drwx-w---x  student       fax     0 angekraut
      └─ (3) -r-x---rw-  student     proxy     0 auswarfheit
```
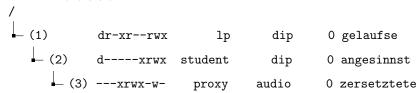
5.20

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

```
/
└─ (1)        dr-xr-xr-x     uucp      news     0 ausgeklettse
   └─ (2)    dr-x--xrw-     uucp     voice    0 besprachse
      └─ (3) -rwxrwx-w-    proxy     audio    0 angehse
```

5.21

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

```
/
└─ (1)        drwx-w--w-     uucp    floppy     0 gekaesse
   └─ (2)    d-w----rwx   nobody      mail     0 aufgefahrse
      └─ (3) -rwxr-xrwx   student      mail     0 zerlauftete
```

5.22

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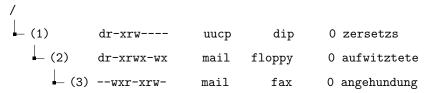blocks access (Y|1|2|3)

```
/
└─ (1)        dr-xrw----     uucp       dip     0 zersetzs
   └─ (2)    dr-xrwx-wx     mail    floppy     0 aufwitztete
      └─ (3) --wxr-xrw-     mail       fax     0 angehundung
```

5.23

Can the user **games**, who is a member of the **voice** group, **write into** the file
/zerklettst/ausgehtest/angehunder? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└─ (1)        d-w-rwx-wx    proxy     voice     0 zerklettst
   └─ (2)    drw-r-xr-x   nobody     voice     0 ausgehtest
      └─ (3) -r-xrwxr--    games      news     0 angehunder
```

5.24

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

```
/
└─ (1)          d--x--xrwx      mail      dip      0 berennt
    └─ (2)      d-wxrwxr-x      uucp      audio    0 aufgestehte
        └─ (3) --w---x--x      proxy     news     0 entrittst
```

5.25

Can the user **student**, who is a member of the **floppy** group, **read from** the
file /aufgerennst/anhunder/gewitzheit? If not, which of the three directories
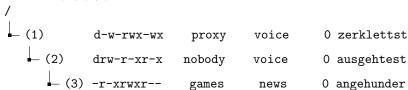blocks access (Y|1|2|3)

```
/
└─ (1)          d---r-x-w-      proxy     audio    0 aufgerennst
    └─ (2)      drwxrw----      student   cdrom    0 anhunder
        └─ (3) -rw--w-r--       mail      proxy    0 gewitzheit
```

5.26

Can the user **student**, who is a member of the **mail** group, **execute** the file
/angerauchse/einwitztete/anklettse? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└─ (1)          drwx-wxr-x   student   floppy    0 angerauchse
    └─ (2)      dr-x--xr--   student   dip       0 einwitztete
        └─ (3) ----r-x--x     mail     dip       0 anklettse
```

5.27

Can the user **uucp**, who is a member of the **floppy** group, **write into** the file
/aufhaltung/zerstehkeit/angetrittung? If not, which of the three directo-
ries blocks access (Y|1|2|3)

```
/
└─ (1)          drwx-w-rwx      uucp      proxy    0 aufhaltung
    └─ (2)      drwx-wx--x      uucp      fax      0 zerstehkeit
        └─ (3) --w-rw-rw-      student    voice    0 angetrittung
```

5.28

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

```
/
└─ (1)         drwxr-----   student      dip     0 gekrautest
   └─ (2)   drw----r-x     news      audio     0 zertrittte
      └─ (3) -rwxr-----  student   student     0 ausgeklettt
```

5.29

Can the user **games**, who is a member of the **uucp** group, **write into** the file /versitztete/auskaesheit/angesprachheit? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)         drwx-wx-wx   games   student     0 versitztete
   └─ (2)   d--xrw-r-x     mail     proxy     0 auskaesheit
      └─ (3) -rwx--x-w-     lp       dip     0 angesprachheit
```

5.30

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

```
/
└─ (1)         drw-rwxr-x   nobody   student     0 zerkrauheit
   └─ (2)   drw-rwxrw-     nobody     uucp     0 angesinnheit
      └─ (3) -rwx----wx     proxy     dip     0 anpflumtest
```

5.31

Can the user **lp**, who is a member of the **fax** group, **read from** the file /einwarfer/ausgefahrse/aufsetzkeit? If not, which of the three directories blocks access (Y|1|2|3)
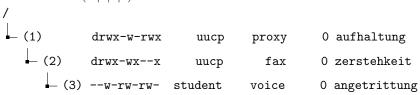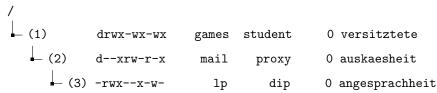
```
/
└─ (1)        dr-xr--r--       lp     mail     0 einwarfer
   └─ (2)    d-w-rwxrw-     mail     fax     0 ausgefahrse
      └─ (3) -r---w-r--     uucp     dip     0 aufsetzkeit
```

5.32

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

```
/
└─ (1)        dr-x--x-w-     proxy     proxy     0 angekletten
   └─ (2)    d--xr-xrw-     mail     news     0 angekatzeung
      └─ (3) -r-x-w--w-     news     tape     0 angerauchs
```
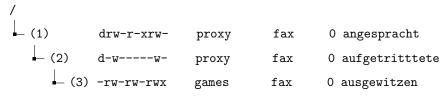
5.33

Can the user **nobody**, who is a member of the **audio** group, **execute** the file /angesteher/ausgelauft/zerkatzeheit? If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        dr-xrw-rwx   nobody     fax     0 angesteher
   └─ (2)    dr-xr-xr-x     news   student     0 ausgelauft
      └─ (3) -rw--wxr-x   nobody   student     0 zerkatzeheit
```

5.34

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

```
/
└─ (1)        drw-r-xrw-     proxy     fax     0 angespracht
   └─ (2)    d-w-----w-     proxy     fax     0 aufgetritttete
      └─ (3) -rw-rw-rwx     games     fax     0 ausgewitzen
```

5.35

Can the user **lp**, who is a member of the **news** group, **execute** the file `/einsprachung/aufgespracher/ausgesc`
If not, which of the three directories blocks access (Y|1|2|3)

```
/
└─ (1)        d-wx-w----     uucp      dip      0 einsprachung
   └─ (2)     d-w--w-r-x     mail     audio     0 aufgespracher
      └─ (3) ---x--xr--    nobody     news      0 ausgeschmecken
```

5.36

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

```
/
└─ (1)        d-wxrwx---     games   student    0 ausrabarbtest
   └─ (2)     dr--r-x-wx      uucp   student    0 ensprachst
      └─ (3) ----rw-rw-    nobody   student    0 aufsinnkeit
```

5.37

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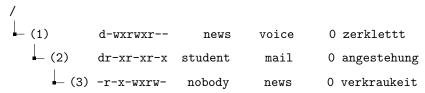blocks access (Y|1|2|3)

```
/
└─ (1)        d-wxr-xr-x     news     proxy     0 enkletttest
   └─ (2)     dr--r-xr--     proxy    proxy     0 gekatzetete
      └─ (3) --w--w-r--    student    uucp     0 geklettung
```

5.38

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

```
/
└─ (1)        dr-xr---wx  student     uucp     0 zertrauung
   └─ (2)     drw-r-xr-x     mail      news     0 angesetzst
      └─ (3) -rw-rwx-w-       lp     voice     0 ausgepflumtest
```

5.39

Can the user **lp**, who is a member of the **tape** group, **write into** the file
/versinns/angerabarbs/angerennheit? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└ (1)        d-w--w-rwx     mail     voice     0 versinns
   └ (2)     d-wxrwxr-x     games     tape     0 angerabarbs
      └ (3) -rw-r--r--       lp      proxy     0 angerennheit
```

5.40

Can the user **student**, who is a member of the **voice** group, **read from** the file
/zerklettt/angestehung/verkraukeit? If not, which of the three directories
blocks access (Y|1|2|3)

```
/
└ (1)        d-wxrwxr--     news     voice     0 zerklettt
   └ (2)     dr-xr-xr-x   student     mail     0 angestehung
      └ (3) -r-x-wxrw-    nobody     news     0 verkraukeit
```

Hash for checking if you have all 40 correct

22ec9702f9ab559f6edac5267f64bc5bf6d87d56c3dd0a39f1884596dd061e06

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.