

Test Case #2

Sample Input File

testcase2.txt
<pre>useradd root @r00t(705) login root @r00t(705) useradd steveo d@man^304 useradd rita #101'holla! groupadd testers useradd steveo tada043.,; logout login steve d@man^304 login steveo d@man^304 mkfile script write script echo Hello World! chmod script -wx rw- --x chmod script2 rwx rwx rwx chgrp script testers execute script logout ls script login root @r00t(705) useradd rita #101'holla! chgrp script testers groupadd testers usergrp rita testers usergrp steveo testers chown script3 rita execute script logout login rita #101'holla! mkfile script write script echo Hello World! read script execute script groupadd developers useradd stew awwShucks logout end</pre>

Line-by-Line Expected Program Execution

>useradd root @r00t(705)

- Creates privileged user root by adding entry to *accounts.txt* file containing username and plaintext (or hashed) password
- Display message to terminal: "User root created"
- Log message to *audit.txt* file: "User root created"

>login root @r00t(705)

- Locates entry for user root in *accounts.txt* file and verifies that supplied password (or hash of supplied password) matches the one in the file
- Successfully logs user root into system
- Display message to terminal: "User root logged in"
- Log message to *audit.txt* file: "User root logged in"

>useradd steveo d@man^304

- Creates user steveo by adding entry to *accounts.txt* file containing username and plaintext (or hashed) password
- Display message to terminal: "User steveo created"
- Log message to *audit.txt* file: "User steveo created"

>useradd rita #101'holla!

- Creates user rita by adding entry to *accounts.txt* file containing username and plaintext (or hashed) password
- Display message to terminal: "User rita created"
- Log message to *audit.txt* file: "User rita created"

>groupadd testers

- Creates group testers without any users
- Display message to terminal: "Group testers created"
- Log message to *audit.txt* file: "Group testers created"

>useradd steveo tada043.,;

- Display message to terminal: "Error: user steveo already exists"
- Log message to *audit.txt* file: "Error: user steveo already exists"

>logout

- Logs out user root
- Display message to terminal: "User root logged out"
- Log message to *audit.txt* file: "User root logged out"

```
>login steve d@man^304
```

- Display message to terminal: "Login failed: invalid username or password"
- Log message to *audit.txt* file: "Login failed: invalid username or password"

```
>login steveo d@man^304
```

- Locates entry for user steveo in *accounts.txt* file and verifies that supplied password (or hash of supplied password) matches the one in the file
- Successfully logs user steveo into system
- Display message to terminal: "User steveo logged in"
- Log message to *audit.txt* file: "User steveo logged in"

```
>mkfile script
```

- Creates empty file named *script* with default permissions and steveo as the owner
- Display message to terminal: "File script with owner steveo and default permissions created"
- Log message to *audit.txt* file: "File script with owner steveo and default permissions created"

```
>write script echo Hello World!
```

- Appends supplied text as new line to *script*
- Display message to terminal: "User steveo wrote to script: echo Hello World!"
- Log message to *audit.txt* file: "User steveo wrote to script: echo Hello World!"

```
>chmod script -wx rw- --x
```

- Sets file permissions for *script* to allow write and execute for owner, read and write for group, and only execute for others.
- Display message to terminal: "Permissions for script set to -wx rw- --x by steveo"
- Log message to *audit.txt* file: "Permissions for script set to -wx rw- --x by steveo"

```
>chmod script2 rwx rwx rwx
```

- Display message to terminal: "Error with chmod: file script2 not found"
- Log message to *audit.txt* file: "Error with chmod: file script2 not found"

```
>chgrp script testers
  • Denies change because steveo is not a member of the testers group
  • Display message to terminal: "Error with chgrp: User steveo is not a member of group testers"
  • Log message to audit.txt file: "Error with chgrp: User steveo is not a member of group testers"

>execute script
  • Display message to terminal: "File script executed by steveo"
  • Log message to audit.txt file: "File script executed by steveo"

>logout
  • Logs out user steveo
  • Display message to terminal: "User steveo logged out"
  • Log message to audit.txt file: "User steveo logged out"

>ls script
  • Display message to terminal: "Error: user must be logged in to issue ls command"
  • Log message to audit.txt file: "Error: user must be logged in to issue ls command"

>login root @r00t(705)
  • Locates entry for user root in accounts.txt file and verifies that supplied password (or hash of supplied password) matches the one in the file
  • Successfully logs user root into system
  • Display message to terminal: "User root logged in"
  • Log message to audit.txt file: "User root logged in"

>useradd rita #101'holla!
  • Display message to terminal: "Error: user rita already exists"
  • Log message to audit.txt file: "Error: user rita already exists"

>chgrp script testers
  • Sets group for script to testers
  • Display message to terminal: "Group for script changed to testers by root"
  • Log message to audit.txt file: "Group for script changed to testers by root"

>groupadd testers
  • Display message to terminal: "Error: group testers already exists"
  • Log message to audit.txt file: "Error: group testers already exists"
```

```
>usergrp rita testers
  • Adds user rita to group testers
  • Display message to terminal: "User rita added to group testers"
  • Log message to audit.txt file: "User rita added to group testers"

>usergrp steveo testers
  • Adds user steveo to group testers
  • Display message to terminal: "User steveo added to group testers"
  • Log message to audit.txt file: "User steveo added to group testers"

>chown script3 rita
  • Display message to terminal: "Error with chown: file script3 not found"
  • Log message to audit.txt file: "Error with chown: file script3 not found"

>execute script
  • Display message to terminal: "File script executed by root"
  • Log message to audit.txt file: "File script executed by root"

>logout
  • Logs out user root
  • Display message to terminal: "User root logged out"
  • Log message to audit.txt file: "User root logged out"

>login rita #101'holla!
  • Locates entry for user rita in accounts.txt file and verifies that supplied password (or hash of supplied password) matches the one in the file
  • Successfully logs user rita into system
  • Display message to terminal: "User rita logged in"
  • Log message to audit.txt file: "User rita logged in"

>mkfile script
  • Display message to terminal: "Error: file script already exists"
  • Log message to audit.txt file: "Error: file script already exists"

>write script echo Hello World!
  • Appends supplied text as new line to script
  • Display message to terminal: "User rita wrote to script: echo Hello World!"
  • Log message to audit.txt file: "User rita wrote to script: echo Hello World!"
```

```
>read script
  • User rita successfully reads script
  • Display message to terminal:
      "User rita reads script as:
      echo Hello World!
      echo Hello World!"
  • Log message to audit.txt file:
      "User rita reads script as:
      echo Hello World!
      echo Hello World!"

>execute script
  • Display message to terminal: "User rita denied execute access to
    script"
  • Log message to audit.txt file: "User rita denied execute access to
    script"

>groupadd developers
  • Display message to terminal: "Error: only root may issue groupadd
    command"
  • Log message to audit.txt file: "Error: only root may issue groupadd
    command"

>useradd stew awwShucks
  • Display message to terminal: "Error: only root may issue useradd
    command"
  • Log message to audit.txt file: "Error: only root may issue useradd
    command"

>logout
  • Logs out user rita
  • Display message to terminal: "User rita logged out"
  • Log message to audit.txt file: "User rita logged out"

>end
  • Program writes out the groups.txt and files.txt files, performs necessary clean-up and
    terminates.
```

Final Content of User Created Files

script
echo Hello World!
echo Hello World!

groups.txt Content

groups.txt
testers: rita steveo

files.txt Content

files.txt
script: steveo testers -wx rw- --x

accounts.txt Content (An example format with plain ASCII passwords)

accounts.txt
root @r00t(705)
steveo d@man^304
rita #101'holla!

Audit Log Content

audit.txt

```
User root created
User root logged in
User steveo created
User rita created
Group testers created
Error: user steveo already exists
User root logged out
Login failed: invalid username or password
User steveo logged in
File script with owner steveo and default permissions created
User steveo wrote to script: echo Hello World!
Permissions for script set to -wx rw- --x by steveo
Error with chmod: file script2 not found
Error with chgrp: User steveo is not a member of group testers
File script executed by steveo
User steveo logged out
Error: user must be logged in to issue ls command
User root logged in
Error: user rita already exists
Group for script changed to testers by root
Error: group testers already exists
User rita added to group testers
User steveo added to group testers
Error with chown: file script3 not found
File script executed by root
User root logged out
User rita logged in
Error: file script already exists
User rita wrote to script: echo Hello World!
User rita reads script as:
echo Hello World!
echo Hello World!
User rita denied execute access to script
Error: only root may issue groupadd command
Error: only root may issue useradd command
User rita logged out
```