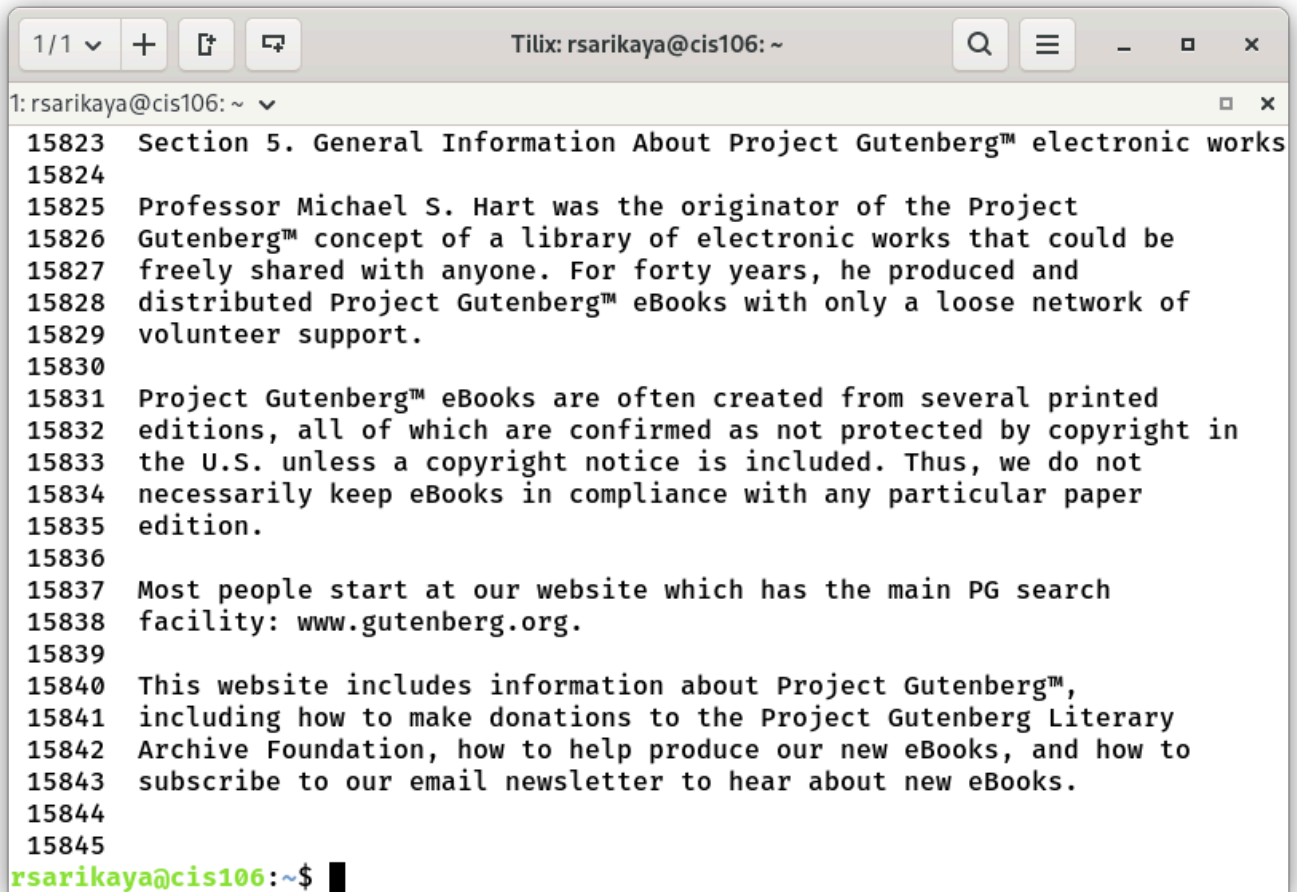


# Lab 8 - Handling Text Files part 1

---

## Q1

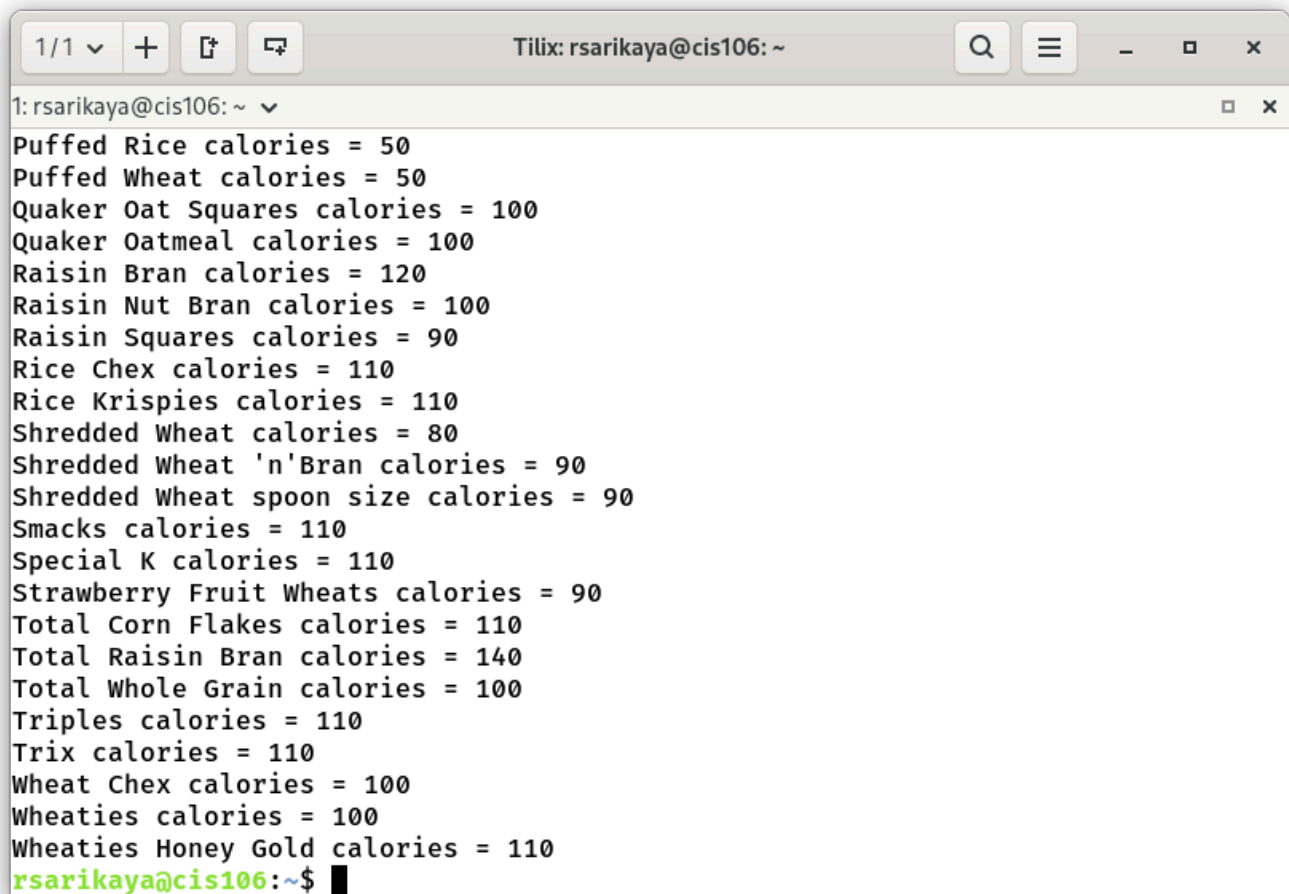
### Practice 1

A screenshot of a terminal window titled "Tilix: rsarikaya@cis106: ~". The terminal shows the output of a command, displaying text from a file. The text is numbered from 15823 to 15845. The content is as follows:

```
15823 Section 5. General Information About Project Gutenberg™ electronic works
15824
15825 Professor Michael S. Hart was the originator of the Project
15826 Gutenberg™ concept of a library of electronic works that could be
15827 freely shared with anyone. For forty years, he produced and
15828 distributed Project Gutenberg™ eBooks with only a loose network of
15829 volunteer support.
15830
15831 Project Gutenberg™ eBooks are often created from several printed
15832 editions, all of which are confirmed as not protected by copyright in
15833 the U.S. unless a copyright notice is included. Thus, we do not
15834 necessarily keep eBooks in compliance with any particular paper
15835 edition.
15836
15837 Most people start at our website which has the main PG search
15838 facility: www.gutenberg.org.
15839
15840 This website includes information about Project Gutenberg™,
15841 including how to make donations to the Project Gutenberg Literary
15842 Archive Foundation, how to help produce our new eBooks, and how to
15843 subscribe to our email newsletter to hear about new eBooks.
15844
15845
```

The prompt "rsarikaya@cis106:~\$" is visible at the bottom of the terminal window.

### Practice 2



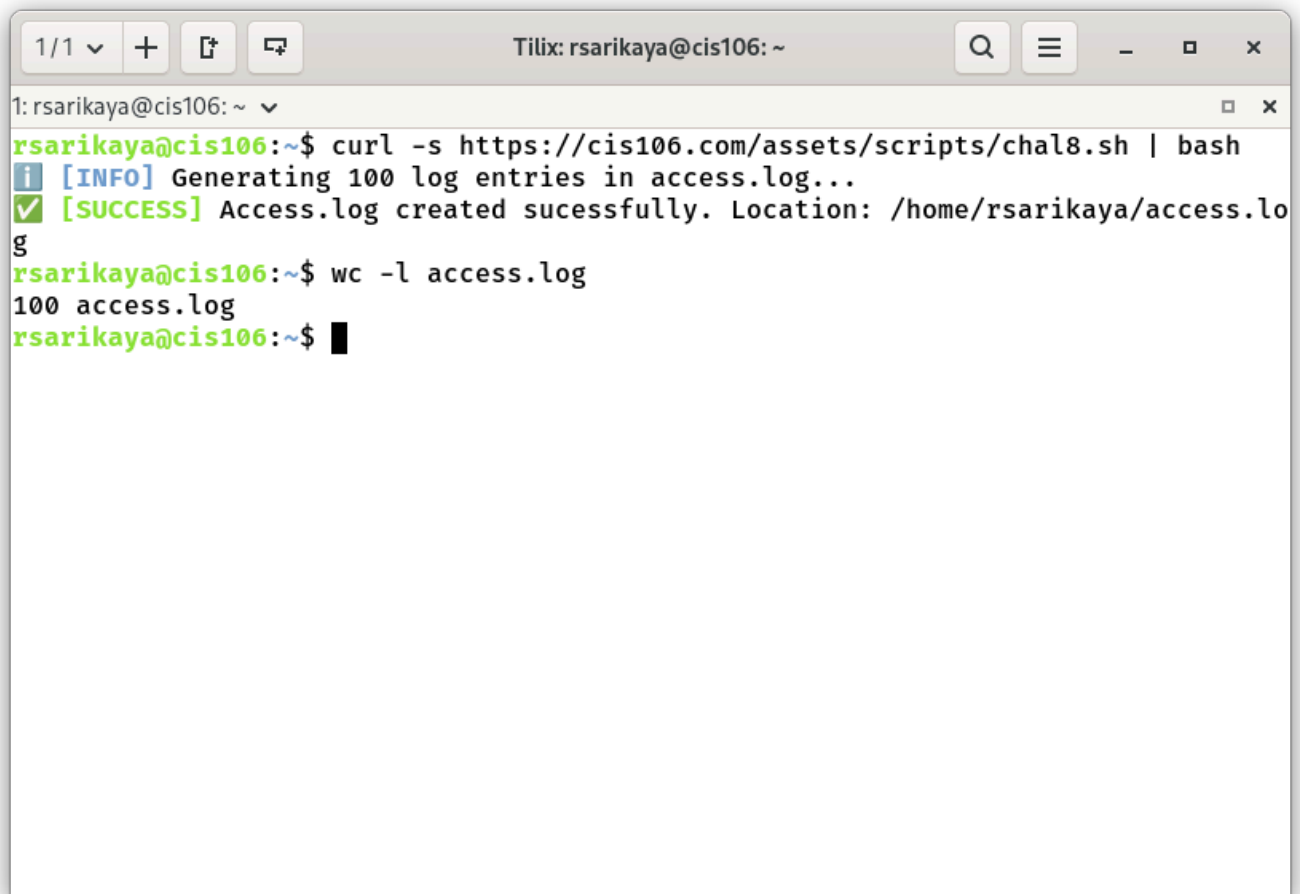
```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~ [ ] [ ] [ ] [ ]  
1: rsarikaya@cis106: ~  
Puffed Rice calories = 50  
Puffed Wheat calories = 50  
Quaker Oat Squares calories = 100  
Quaker Oatmeal calories = 100  
Raisin Bran calories = 120  
Raisin Nut Bran calories = 100  
Raisin Squares calories = 90  
Rice Chex calories = 110  
Rice Krispies calories = 110  
Shredded Wheat calories = 80  
Shredded Wheat 'n'Bran calories = 90  
Shredded Wheat spoon size calories = 90  
Smacks calories = 110  
Special K calories = 110  
Strawberry Fruit Wheats calories = 90  
Total Corn Flakes calories = 110  
Total Raisin Bran calories = 140  
Total Whole Grain calories = 100  
Triples calories = 110  
Trix calories = 110  
Wheat Chex calories = 100  
Wheaties calories = 100  
Wheaties Honey Gold calories = 110  
rsarikaya@cis106:~$
```

## Practice 3

```
1/1 + [Tilix: rsarikaya@cis106: ~/Documents/sample_files/Csv] Q [ ] - [ ] x
1: rsarikaya@cis106: ~/Documents/sample_files/Csv [ ] x
Volkswagen Rabbit;29.5;4;97.00;71.00;1825.;12.2;76;Europe
Volkswagen Rabbit;29.8;4;89.00;62.00;1845.;15.3;80;Europe
Volkswagen Rabbit;41.5;4;98.00;76.00;2144.;14.7;80;Europe
Volkswagen Rabbit C (Diesel);44.3;4;90.00;48.00;2085.;21.7;80;Europe
Volkswagen Rabbit Custom;29.0;4;97.00;78.00;1940.;14.5;77;Europe
Volkswagen Rabbit Custom;31.9;4;89.00;71.00;1925.;14.0;79;Europe
Volkswagen Rabbit Custom Diesel;43.1;4;90.00;48.00;1985.;21.5;78;Europe
Volkswagen Rabbit l;36.0;4;105.0;74.00;1980.;15.3;82;Europe
Volkswagen Scirocco;31.5;4;89.00;71.00;1990.;14.9;78;Europe
Volkswagen Super Beetle 117;0;4;97.00;48.00;1978.;20.0;71;Europe
Volkswagen Super Beetle;26.0;4;97.00;46.00;1950.;21.0;73;Europe
Volkswagen Type 3;23.0;4;97.00;54.00;2254.;23.5;72;Europe
Volvo 144ea;19.0;4;121.0;112.0;2868.;15.5;73;Europe
Volvo 145e (sw);18.0;4;121.0;112.0;2933.;14.5;72;Europe
Volvo 244DL;22.0;4;121.0;98.00;2945.;14.5;75;Europe
Volvo 245;20.0;4;130.0;102.0;3150.;15.7;76;Europe
Volvo 264gl;17.0;6;163.0;125.0;3140.;13.6;78;Europe
Volvo Diesel;30.7;6;145.0;76.00;3160.;19.6;81;Europe
rsarikaya@cis106:~/Documents/sample_files/Csv$ sort -o sorted_cars.csv cars.csv
rsarikaya@cis106:~/Documents/sample_files/Csv$ wc -l sorted_cars.csv
408 sorted_cars.csv
rsarikaya@cis106:~/Documents/sample_files/Csv$ wc -m sorted_cars.csv
22663 sorted_cars.csv
rsarikaya@cis106:~/Documents/sample_files/Csv$
```

## Challange Questions

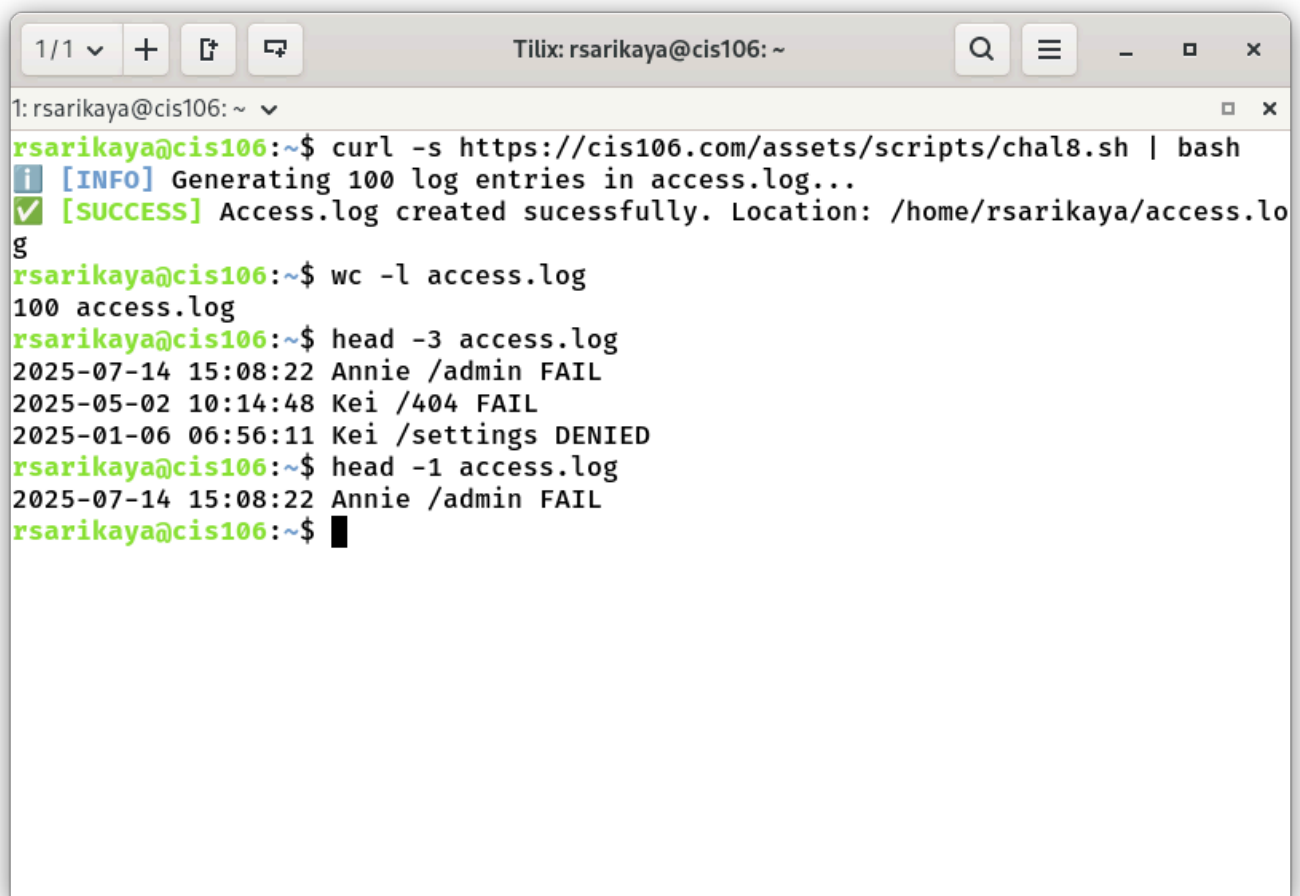
1 Before we start working with the log file, figure out How many logs the file contains.



A terminal window titled "Tilix: rsarikaya@cis106: ~" showing a series of commands and their outputs. The first command is `curl -s https://cis106.com/assets/scripts/cha18.sh | bash`, which outputs an information message about generating log entries and a success message about creating `access.log`. The second command is `wc -l access.log`, which outputs `100 access.log`. The prompt then returns to the shell.

```
1: rsarikaya@cis106: ~  
rsarikaya@cis106:~$ curl -s https://cis106.com/assets/scripts/cha18.sh | bash  
[INFO] Generating 100 log entries in access.log...  
[SUCCESS] Access.log created successfully. Location: /home/rsarikaya/access.log  
rsarikaya@cis106:~$ wc -l access.log  
100 access.log  
rsarikaya@cis106:~$
```

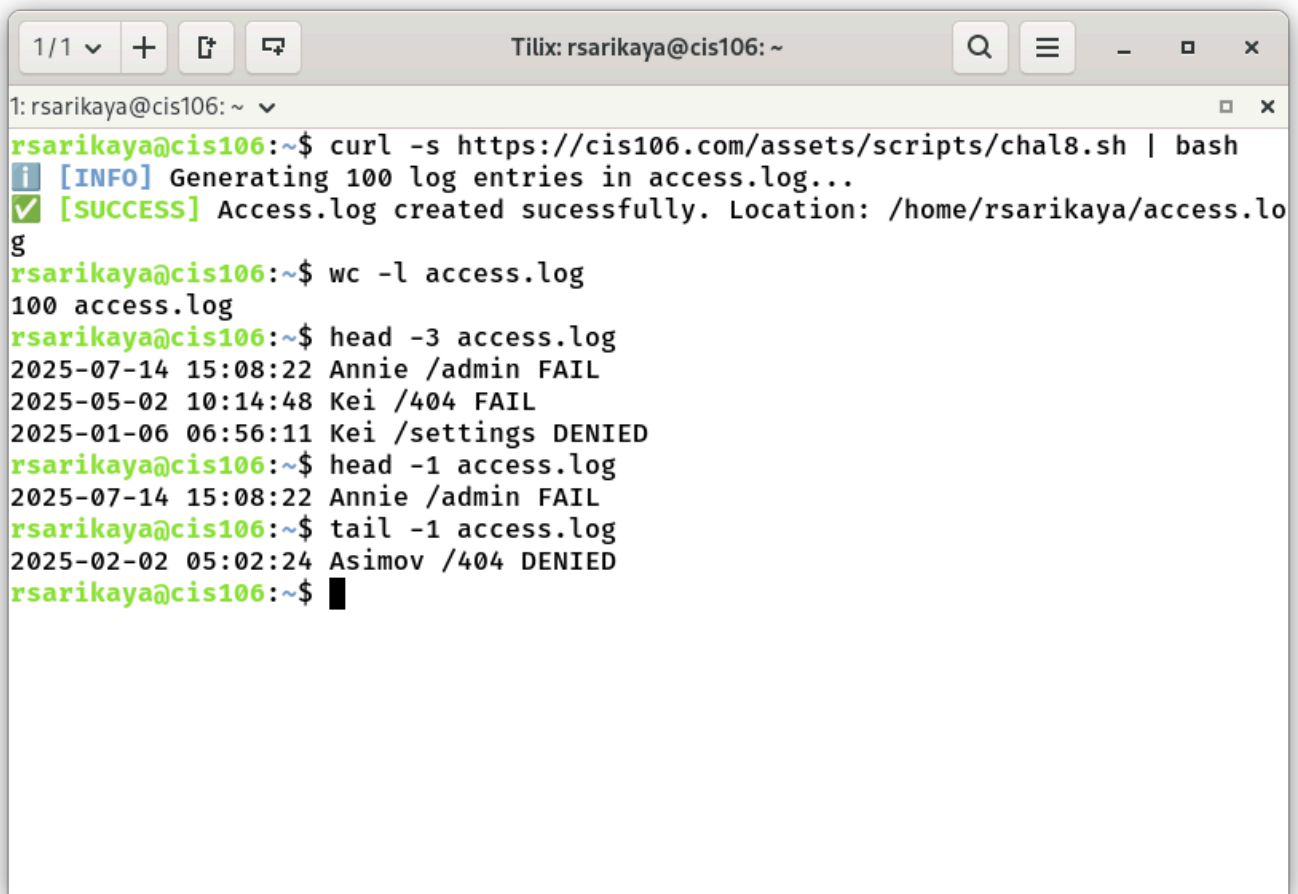
2 Who was the first user to interact with the application?



A terminal window titled "Tilix: rsarikaya@cis106: ~" showing a series of commands and their outputs. The user runs a curl command to fetch a script, which generates a log file. Subsequent commands check the log file's size and display its contents.

```
1: rsarikaya@cis106: ~  
rsarikaya@cis106:~$ curl -s https://cis106.com/assets/scripts/cha18.sh | bash  
[INFO] Generating 100 log entries in access.log...  
[SUCCESS] Access.log created successfully. Location: /home/rsarikaya/access.log  
rsarikaya@cis106:~$ wc -l access.log  
100 access.log  
rsarikaya@cis106:~$ head -3 access.log  
2025-07-14 15:08:22 Annie /admin FAIL  
2025-05-02 10:14:48 Kei /404 FAIL  
2025-01-06 06:56:11 Kei /settings DENIED  
rsarikaya@cis106:~$ head -1 access.log  
2025-07-14 15:08:22 Annie /admin FAIL  
rsarikaya@cis106:~$
```

3 Who was the last user to interact with the application?



A terminal window titled 'Tilix: rsarikaya@cis106: ~' showing a series of commands and their outputs. The user runs a curl command to fetch a script, which generates 100 log entries in 'access.log'. Subsequent commands use 'wc', 'head', and 'tail' to inspect the log file.

```
1/1 v + [ ] [ ] Tilix: rsarikaya@cis106: ~ [ ] [ ] [ ] [ ]
1: rsarikaya@cis106: ~ v
rsarikaya@cis106:~$ curl -s https://cis106.com/assets/scripts/cha18.sh | bash
[INFO] Generating 100 log entries in access.log...
[SUCCESS] Access.log created successfully. Location: /home/rsarikaya/access.log
rsarikaya@cis106:~$ wc -l access.log
100 access.log
rsarikaya@cis106:~$ head -3 access.log
2025-07-14 15:08:22 Annie /admin FAIL
2025-05-02 10:14:48 Kei /404 FAIL
2025-01-06 06:56:11 Kei /settings DENIED
rsarikaya@cis106:~$ head -1 access.log
2025-07-14 15:08:22 Annie /admin FAIL
rsarikaya@cis106:~$ tail -1 access.log
2025-02-02 05:02:24 Asimov /404 DENIED
rsarikaya@cis106:~$
```

4 What are the first 15 events in the file? You must include the name of the file in the command output.

```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~ [ ] [ ] [ ] [ ]
1: rsarikaya@cis106: ~
2025-02-27 08:56:25 Touka /logout DENIED
2025-01-22 12:04:46 Seras /404 FAIL
2025-05-12 19:37:19 Kei /admin SUCCESS
2025-07-20 23:52:58 Ken /admin DENIED
2025-12-18 02:46:23 Arisu /404 DENIED
2025-08-13 12:19:53 Honami /logout SUCCESS
rsarikaya@cis106:~$ head -v -n 15 access.log
==> access.log <==
2025-07-14 15:08:22 Annie /admin FAIL
2025-05-02 10:14:48 Kei /404 FAIL
2025-01-06 06:56:11 Kei /settings DENIED
2025-08-27 17:34:48 Eren /404 DENIED
2025-04-20 03:01:09 Walter /404 FAIL
2025-09-28 19:51:49 Arisu /upload FAIL
2025-03-28 06:59:18 Rize /logout FAIL
2025-10-13 08:02:57 Arisu /admin SUCCESS
2025-03-12 18:38:06 Asimov /dashboard DENIED
2025-02-27 08:56:25 Touka /logout DENIED
2025-01-22 12:04:46 Seras /404 FAIL
2025-05-12 19:37:19 Kei /admin SUCCESS
2025-07-20 23:52:58 Ken /admin DENIED
2025-12-18 02:46:23 Arisu /404 DENIED
2025-08-13 12:19:53 Honami /logout SUCCESS
rsarikaya@cis106:~$
```

5 What are the last 15 events in the file? You must include the name of the file in the command output.

```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~ [ ] [ ] [ ] [ ]
1: rsarikaya@cis106: ~
2025-02-27 08:56:25 Touka /logout DENIED
2025-01-22 12:04:46 Seras /404 FAIL
2025-05-12 19:37:19 Kei /admin SUCCESS
2025-07-20 23:52:58 Ken /admin DENIED
2025-12-18 02:46:23 Arisu /404 DENIED
2025-08-13 12:19:53 Honami /logout SUCCESS
rsarikaya@cis106:~$ tail -v -n 15 access.log
==> access.log <==
2025-03-16 20:33:24 Kei /reset FAIL
2025-06-07 18:59:47 Kei /settings DENIED
2025-05-18 05:47:09 Arisu /dashboard DENIED
2025-04-11 09:26:16 Touka /login DENIED
2025-08-20 12:55:30 Jet /download DENIED
2025-09-15 20:50:11 Ken /dashboard SUCCESS
2025-07-28 16:39:59 Annie /download SUCCESS
2025-02-25 22:57:39 Spike /login SUCCESS
2025-12-20 06:13:13 Spike /logout FAIL
2025-09-04 09:59:40 Julia /login DENIED
2025-07-17 20:42:03 Honami /download FAIL
2025-04-20 12:33:22 Asimov /settings DENIED
2025-07-25 03:47:06 Ein /reset SUCCESS
2025-07-26 13:06:07 Ein /dashboard SUCCESS
2025-02-02 05:02:24 Asimov /404 DENIED
rsarikaya@cis106:~$
```

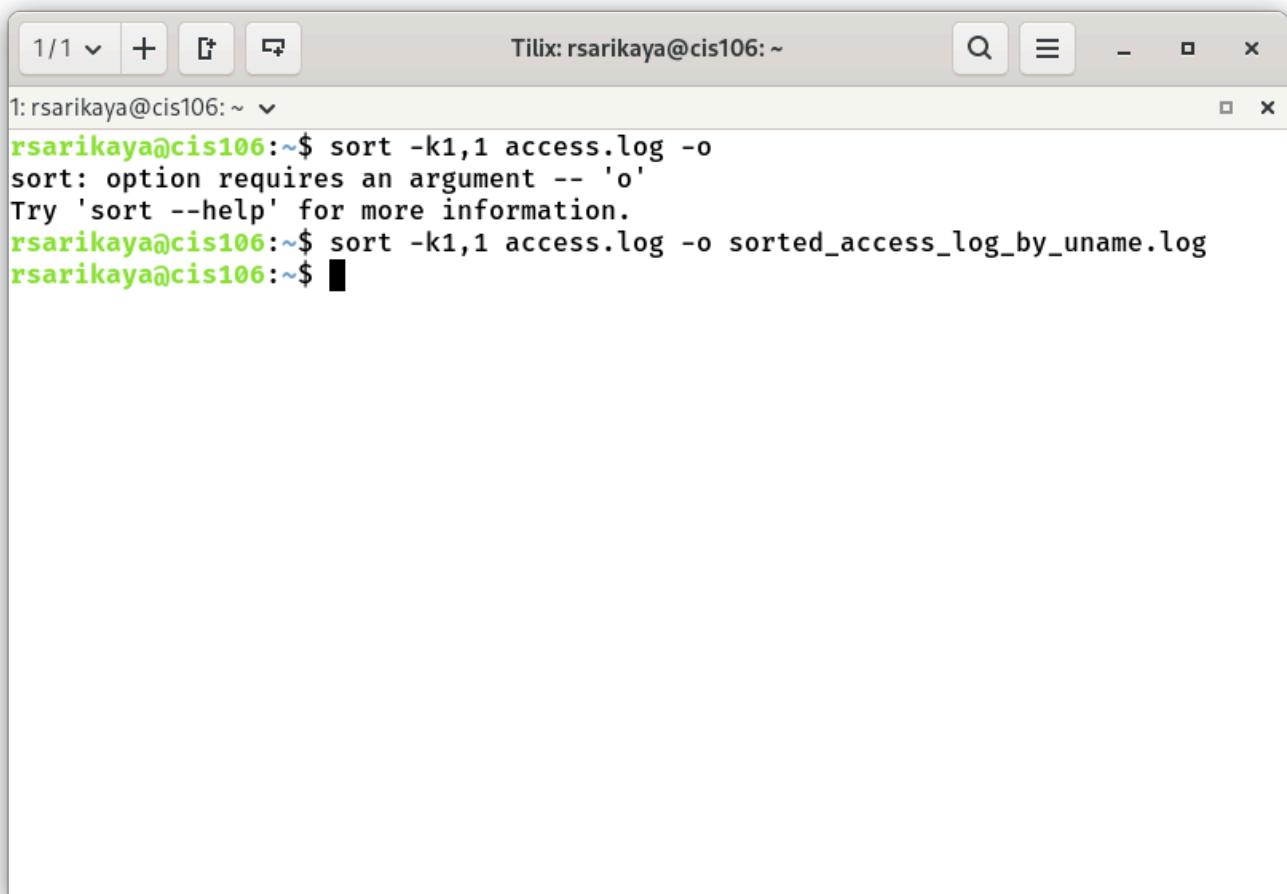
6 Your boss needs a list of every user who logged an event. Generate the list using the file `access.log`. You only need to display the list in the terminal. There is no need to save the output or deleting the duplicates. Simply extract the usernames from the `access.log` file.



```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~
1: rsarikaya@cis106: ~
rsarikaya@cis106:~$ cut -df 1 access.log
cut: you must specify a list of bytes, characters, or fields
Try 'cut --help' for more information.
rsarikaya@cis106:~$ cut -d ' ' -f 1 access.log
2025-07-14
2025-05-02
2025-01-06
2025-08-27
2025-04-20
2025-09-28
2025-03-28
2025-10-13
2025-03-12
2025-02-27
2025-01-22
2025-05-12
2025-07-20
2025-12-18
2025-08-13
2025-09-26
2025-10-02
2025-06-19
2025-09-05
2025-09-23
```

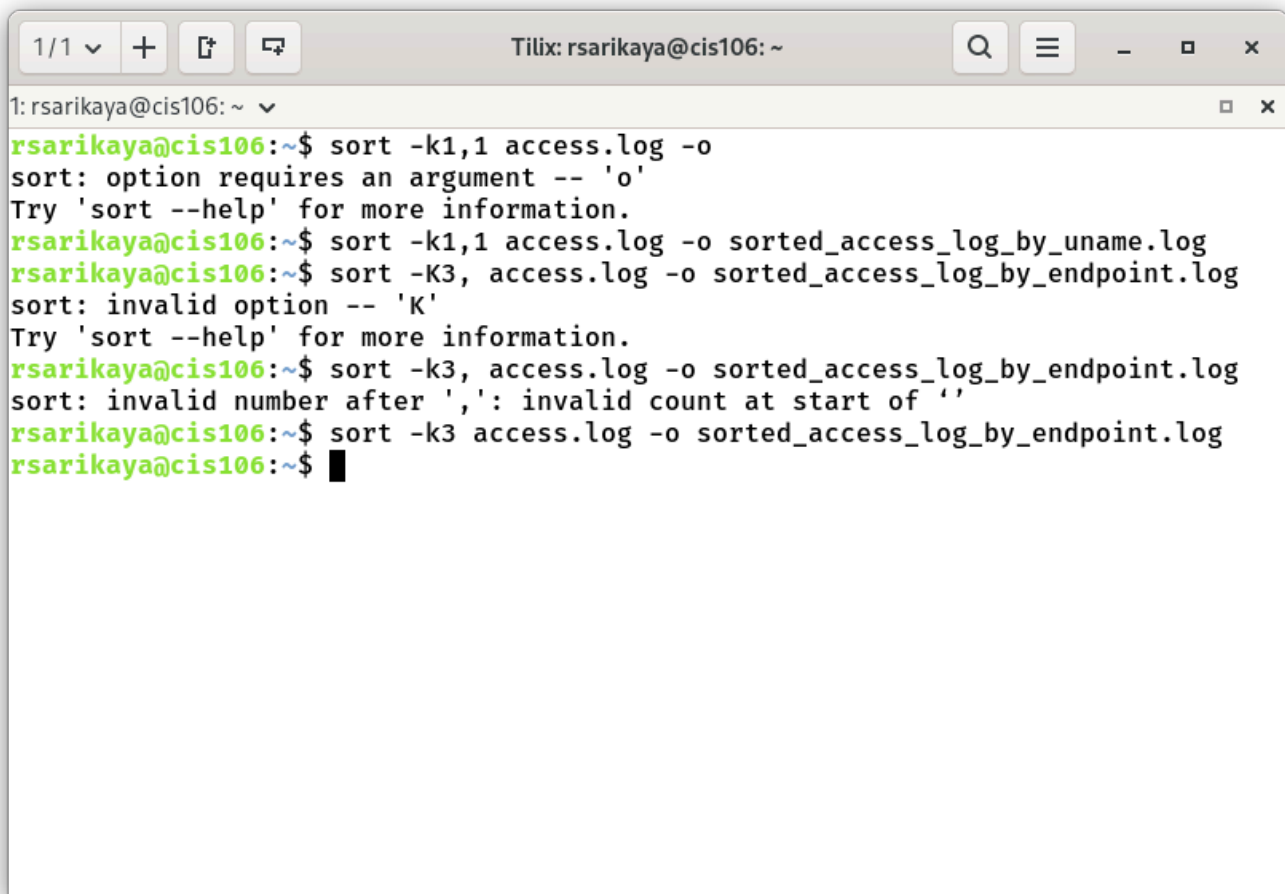
```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~
1: rsarikaya@cis106: ~
2025-10-11
2025-07-04
2025-04-21
2025-10-27
2025-03-10
2025-05-19
2025-02-09
2025-11-05
2025-03-16
2025-06-07
2025-05-18
2025-04-11
2025-08-20
2025-09-15
2025-07-28
2025-02-25
2025-12-20
2025-09-04
2025-07-17
2025-04-20
2025-07-25
2025-07-26
2025-02-02
rsarikaya@cis106:~$
```

7 Your boss needs you to order the logs alphabetically by username and save the output in a file called: `sorted_access_log_by_uname.log`.



```
1/1 v + [ ] [ ] Tilix: rsarikaya@cis106: ~ [ ] [ ] [ ] [ ]  
1: rsarikaya@cis106: ~ v  
rsarikaya@cis106:~$ sort -k1,1 access.log -o  
sort: option requires an argument -- 'o'  
Try 'sort --help' for more information.  
rsarikaya@cis106:~$ sort -k1,1 access.log -o sorted_access_log_by_uname.log  
rsarikaya@cis106:~$
```

8 Your boss needs you to order the logs alphabetically by endpoint used and save the output in a file called: `sorted_access_log_by_endpoint.log`.

A terminal window titled 'Tilix: rsarikaya@cis106: ~' with standard window controls. The terminal shows a series of commands and error messages. The user attempts to sort 'access.log' by key 1, then by key 3, but encounters errors due to missing output file arguments and invalid options. The final command is partially entered.

```
1: rsarikaya@cis106: ~  
rsarikaya@cis106:~$ sort -k1,1 access.log -o  
sort: option requires an argument -- 'o'  
Try 'sort --help' for more information.  
rsarikaya@cis106:~$ sort -k1,1 access.log -o sorted_access_log_by_uname.log  
rsarikaya@cis106:~$ sort -K3, access.log -o sorted_access_log_by_endpoint.log  
sort: invalid option -- 'K'  
Try 'sort --help' for more information.  
rsarikaya@cis106:~$ sort -k3, access.log -o sorted_access_log_by_endpoint.log  
sort: invalid number after ',': invalid count at start of ''  
rsarikaya@cis106:~$ sort -k3 access.log -o sorted_access_log_by_endpoint.log  
rsarikaya@cis106:~$
```

9 You need to get a more clear idea of what action each user did in the application.  
Manipulate the access.log file

```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~
1: rsarikaya@cis106: ~
rsarikaya@cis106:~$ sort -k3 access.log -o sorted_access_log_by_endpoint.log
rsarikaya@cis106:~$ cat access.log
2025-07-14 15:08:22 Annie /admin FAIL
2025-05-02 10:14:48 Kei /404 FAIL
2025-01-06 06:56:11 Kei /settings DENIED
2025-08-27 17:34:48 Eren /404 DENIED
2025-04-20 03:01:09 Walter /404 FAIL
2025-09-28 19:51:49 Arisu /upload FAIL
2025-03-28 06:59:18 Rize /logout FAIL
2025-10-13 08:02:57 Arisu /admin SUCCESS
2025-03-12 18:38:06 Asimov /dashboard DENIED
2025-02-27 08:56:25 Touka /logout DENIED
2025-01-22 12:04:46 Seras /404 FAIL
2025-05-12 19:37:19 Kei /admin SUCCESS
2025-07-20 23:52:58 Ken /admin DENIED
2025-12-18 02:46:23 Arisu /404 DENIED
2025-08-13 12:19:53 Honami /logout SUCCESS
2025-09-26 18:04:34 Spike /admin DENIED
2025-10-02 17:27:04 Honami /settings DENIED
2025-06-19 00:36:26 Shinji /download DENIED
2025-09-05 18:24:21 Ein /admin FAIL
2025-09-23 08:30:10 Rei /download FAIL
2025-07-05 12:25:06 Asimov /admin SUCCESS
2025-12-03 10:54:41 Asimov /logout FAIL
```

```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~
1: rsarikaya@cis106: ~
2025-10-13 08:02:57 Arisu /admin SUCCESS
2025-03-12 18:38:06 Asimov /dashboard DENIED
2025-02-27 08:56:25 Touka /logout DENIED
2025-01-22 12:04:46 Seras /404 FAIL
2025-05-12 19:37:19 Kei /admin SUCCESS
2025-07-20 23:52:58 Ken /admin DENIED
2025-12-18 02:46:23 Arisu /404 DENIED
2025-08-13 12:19:53 Honami /logout SUCCESS
2025-09-26 18:04:34 Spike /admin DENIED
2025-10-02 17:27:04 Honami /settings DENIED
2025-06-19 00:36:26 Shinji /download DENIED
2025-09-05 18:24:21 Ein /admin FAIL
2025-09-23 08:30:10 Rei /download FAIL
2025-07-05 12:25:06 Asimov /admin SUCCESS
2025-12-03 10:54:41 Asimov /logout FAIL
2025-06-13 19:55:36 Julia /reset SUCCESS
2025-10-16 21:50:26 Jet /upload DENIED
2025-04-13 16:32:19 Rize /reset DENIED
2025-01-04 09:44:27 Eren /dashboard FAIL
2025-06-26 18:54:24 Edward /settings FAIL
2025-12-02 19:37:27 Kei /settings SUCCESS
2025-09-14 12:55:40 Eren /admin SUCCESS
2025-08-11 21:49:32 Arisu /settings FAIL
2025-06-12 02:01:55 Rize /upload FAIL
```

```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~
1: rsarikaya@cis106: ~
2025-04-26 22:16:06 Asimov /upload DENIED
2025-12-22 03:41:56 Asimov /upload FAIL
2025-08-25 10:47:56 Eren /download DENIED
2025-05-18 14:32:51 Arisu /logout DENIED
2025-11-27 23:52:49 Annie /settings FAIL
2025-02-27 20:29:25 Faye /reset FAIL
2025-07-04 14:21:10 Annie /logout SUCCESS
2025-02-09 10:34:50 Annie /404 SUCCESS
2025-03-01 15:30:59 Honami /settings SUCCESS
2025-09-24 15:04:12 Arisu /upload DENIED
2025-08-23 06:07:24 Ken /dashboard SUCCESS
2025-12-14 11:59:37 Shinji /upload SUCCESS
2025-01-15 23:06:51 Jet /logout FAIL
2025-06-12 10:45:06 Faye /dashboard SUCCESS
2025-03-07 05:00:34 Spike /upload DENIED
2025-01-01 17:45:15 Shinji /dashboard SUCCESS
2025-10-14 08:56:20 Asimov /upload DENIED
2025-06-15 17:53:56 Seras /admin SUCCESS
2025-02-11 04:17:02 Walter /dashboard DENIED
2025-09-05 02:37:12 Rei /settings DENIED
2025-02-27 07:24:55 Edward /logout SUCCESS
2025-05-18 23:09:35 Honami /logout FAIL
2025-05-23 18:44:18 Rei /upload FAIL
2025-05-13 18:05:34 Ein /logout FAIL
```

```
1/1 + [ ] [ ] Tilix: rsarikaya@cis106: ~
1: rsarikaya@cis106: ~
2025-09-22 21:43:05 Ein /admin DENIED
2025-12-24 00:41:11 Julia /dashboard FAIL
2025-03-08 13:21:52 Honami /settings FAIL
2025-08-01 08:40:29 Rei /login SUCCESS
2025-02-01 14:31:24 Jet /settings FAIL
2025-12-18 11:45:29 Asimov /login SUCCESS
2025-10-11 14:09:55 Seras /login DENIED
2025-07-04 02:21:02 Spike /settings FAIL
2025-04-21 15:27:38 Rei /admin SUCCESS
2025-10-27 17:10:40 Rize /logout DENIED
2025-03-10 12:58:46 Arisu /download DENIED
2025-05-19 09:47:38 Spike /dashboard DENIED
2025-02-09 13:34:21 Rei /reset SUCCESS
2025-11-05 15:51:55 Touka /admin SUCCESS
2025-03-16 20:33:24 Kei /reset FAIL
2025-06-07 18:59:47 Kei /settings DENIED
2025-05-18 05:47:09 Arisu /dashboard DENIED
2025-04-11 09:26:16 Touka /login DENIED
2025-08-20 12:55:30 Jet /download DENIED
2025-09-15 20:50:11 Ken /dashboard SUCCESS
2025-07-28 16:39:59 Annie /download SUCCESS
2025-02-25 22:57:39 Spike /login SUCCESS
2025-12-20 06:13:13 Spike /logout FAIL
2025-09-04 09:59:40 Julia /login DENIED
```

```
Tilix: rsarikaya@cis106: ~  
1: rsarikaya@cis106: ~  
2025-10-11 14:09:55 Seras /login DENIED  
2025-07-04 02:21:02 Spike /settings FAIL  
2025-04-21 15:27:38 Rei /admin SUCCESS  
2025-10-27 17:10:40 Rize /logout DENIED  
2025-03-10 12:58:46 Arisu /download DENIED  
2025-05-19 09:47:38 Spike /dashboard DENIED  
2025-02-09 13:34:21 Rei /reset SUCCESS  
2025-11-05 15:51:55 Touka /admin SUCCESS  
2025-03-16 20:33:24 Kei /reset FAIL  
2025-06-07 18:59:47 Kei /settings DENIED  
2025-05-18 05:47:09 Arisu /dashboard DENIED  
2025-04-11 09:26:16 Touka /login DENIED  
2025-08-20 12:55:30 Jet /download DENIED  
2025-09-15 20:50:11 Ken /dashboard SUCCESS  
2025-07-28 16:39:59 Annie /download SUCCESS  
2025-02-25 22:57:39 Spike /login SUCCESS  
2025-12-20 06:13:13 Spike /logout FAIL  
2025-09-04 09:59:40 Julia /login DENIED  
2025-07-17 20:42:03 Honami /download FAIL  
2025-04-20 12:33:22 Asimov /settings DENIED  
2025-07-25 03:47:06 Ein /reset SUCCESS  
2025-07-26 13:06:07 Ein /dashboard SUCCESS  
2025-02-02 05:02:24 Asimov /404 DENIED  
rsarikaya@cis106:~$
```