

# Lab 8

## Question #1

- Practice 1:

```
aec@aedebian:~
```

```

15793 widespread public support and donations to carry out its mission of
15794 increasing the number of public domain and licensed works that can be
15795 freely distributed in machine-readable form accessible by the widest
15796 array of equipment including outdated equipment. Many small donations
15797 ($1 to $5,000) are particularly important to maintaining tax exempt
15798 status with the IRS.
15799
15800 The Foundation is committed to complying with the laws regulating
15801 charities and charitable donations in all 50 states of the United
15802 States. Compliance requirements are not uniform and it takes a
15803 considerable effort, much paperwork and many fees to meet and keep up
15804 with these requirements. We do not solicit donations in locations
15805 where we have not received written confirmation of compliance. To SEND
15806 DONATIONS or determine the status of compliance for any particular
15807 state visit www.gutenberg.org/donate.
15808
15809 While we cannot and do not solicit contributions from states where we
15810 have not met the solicitation requirements, we know of no prohibition
15811 against accepting unsolicited donations from donors in such states who
15812 approach us with offers to donate.
15813
15814 International donations are gratefully accepted, but we cannot make
15815 any statements concerning tax treatment of donations received from
15816 outside the United States. U.S. laws alone swamp our small staff.
15817
15818 Please check the Project Gutenberg web pages for current donation
15819 methods and addresses. Donations are accepted in a number of other
15820 ways including checks, online payments and credit card donations. To
15821 donate, please visit: www.gutenberg.org/donate.
15822
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
aec@aedebian:~
```

- Practice 2:

```
aec@aedebian:~
```

```

Front Loops calories =110
Frosted Flakes calories =110
Frosted Mini-Wheats calories =100
Fruit & Fibre Dates, Walnuts, and Oats calories =120
Fruitful Bran calories =120
Fruity Pebbles calories =110
Golden Crisp calories =100
Golden Grahams calories =110
Grape Nuts Flakes calories =110
Grape-Nuts calories =110
Great Grains Pecan calories =120
Honey Graham calories =120
Honey Nut Cheerios calories =110
Honey-comb calories =110
Just Right Crunchy Nuggets calories =110
Just Right Fruit & Nut calories =140
Kix calories =110
Life calories =100
Lucky Charms calories =110
Maypole calories =100
Muesli Raisins, Dates, & Almonds calories =150
Muesli Raisins, Peaches, & Pecans calories =150
Multi-Grain Cereal calories =160
Multi-Grain Cheerios calories =100
NutHoney Crunch calories =120
Nutri-Grain Almond-Raisin calories =140
Nutri-grain Wheat calories =90
Oatmeal Raisin Crisp calories =130
Post Nat. Raisin Bran calories =120
Product 19 calories =100
Puffed Rice calories =50
Puffed Wheat calories =80
Quaker Oat Squares calories =100
Raisin Bran cereal =100
Raisin Bran calories =120
Raisin Nut Bran calories =100
Raisin Squares calories =90
Rice Chex calories =110
Rice Krispies calories =110
Shredded Wheat 'n'Bran calories =90
Shredded Wheat spoon size calories =90
Smacks calories =110
Special K calories =110
Strawberry Shortcake 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
aec@aedebian:~
```

- Practice 3:

```
aec@aedebian: ~/Music/Documents/sample_files/Csv
Toyota Corolla;29.0;4:97.00;75.00;2171.;16.0;75;Japan
Toyota Corolla;31.0;4:76.00;52.00;1649.;16.5;74;Japan
Toyota Corolla;32.2;4:108.0;75.00;2265.;15.2;80;Japan
Toyota Corolla;32.4;4:108.0;75.00;2350.;16.8;81;Japan
Toyota Corolla;34.0;4:108.0;70.00;2245.;16.9;82;Japan
Toyota Corolla Hardtop;24.0;4:113.0;95.00;2278.;15.5;72;Japan
Toyota Corolla Liftback;26.0;4:97.00;75.00;2265.;18.2;77;Japan
Toyota Corolla Liftback;29.8;4:110.0;98.00;2710.;16.5;80;Japan
Toyota Corolla;31.0;4:108.0;75.00;2350.;16.8;81;Japan
Toyota Corolla Mark II (sv);23.0;4:120.0;97.00;2506.;14.5;72;Japan
Toyota Corolla Tercel;30.1;4:89.00;60.00;1968.;18.8;80;Japan
Toyota Cressida;25.4;6:168.0;816.0;2900.;12.6;81;Japan
Toyota Marks II;19.0;6:156.0;101.0;2930.;15.5;76;Japan
Toyota Mark II;20.0;6:156.0;122.0;2807.;13.5;73;Japan
Toyota Starlet;39.1;4:79.00;58.00;1755.;16.9;81;Japan
Toyota Tercel;37.7;4:89.00;62.00;2050.;17.3;81;Japan
Triumph TR7 Coupe;35.0;4:122.0;88.00;2500.;15.1;80;Europe
Volkswagen 1131 Deluxe Sedan;20.0;4:97.00;41.00;1835.;20.5;70;Europe
Volkswagen 411 (sv);22.0;4:21.0;76.00;2511.;18.0;72;Europe
Volkswagen Passat;25.0;4:98.00;79.00;1963.;14.5;74;Europe
Volkswagen Dasher;26.0;4:79.00;67.00;1963.;15.5;74;Europe
Volkswagen Dasher;30.5;4:97.00;78.00;2190.;14.1;77;Europe
Volkswagen Dasher (diesel);43.4;4:98.00;48.00;2335.;23.7;80;Europe
Volkswagen Jetta;33.0;4:105.0;74.00;2190.;14.2;81;Europe
Volkswagen Model 111;27.0;4:97.00;50.00;1834.;19.0;71;Europe
Volkswagen Pickup;44.0;4:97.00;52.00;2130.;24.6;82;Europe
Volkswagen Rabbit;29.0;4:98.00;70.00;1937.;14.0;75;Europe
Volkswagen Rabbit;29.0;4:98.00;70.00;1937.;14.2;76;Europe
Volkswagen Rabbit;29.5;4:97.00;71.00;1825.;12.2;76;Europe
Volkswagen Rabbit;29.8;4:89.00;62.00;1845.;15.5;80;Europe
Volkswagen Rabbit;31.0;4:105.0;98.00;1937.;14.0;75;Europe
Volkswagen Rabbit (Diesel);43.4;4:98.00;48.00;2335.;23.7;80;Europe
Volkswagen Rabbit Custom;31.9;4:89.00;78.00;1940.;14.5;77;Europe
Volkswagen Rabbit Custom Diesel;43.1;4:98.00;48.00;1985.;21.5;78;Europe
Volkswagen Rabbit 1.30;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;0;4:97.00;48.00;1978.;28.0;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 144e;19.0;4:121.0;112.0;2868.;15.5;73;Europe
Volvo 145e (SV4);19.0;4:101.0;88.00;2868.;14.5;75;Europe
Volvo 245;22.0;4:111.0;98.00;2868.;14.5;75;Europe
Volvo 245;29.0;4:138.0;102.0;3150.;18.7;76;Europe
Volvo 264gl;17.0;0;6;163.0;125.0;3140.;13.6;78;Europe
Volvo Diesel;30.7;0;145.0;76.00;3160.;19.6;81;Europe
aec@aedebian:~/Music/Documents/sample_files/Csv$ sort -o sorted_cars.csv cars.csv
aec@aedebian:~/Music/Documents/sample_files/Csv$ ls
cars.csv  cereal.csv  contacts.csv  country.csv  fake_users.csv  sorted_cars.csv  users_and_ips.csv
aec@aedebian:~/Music/Documents/sample_files/Csv$ wc -m sorted_cars.csv
408 sorted_cars.csv
aec@aedebian:~/Music/Documents/sample_files/Csv$ wc -m sorted_cars.csv
22663 sorted_cars.csv
aec@aedebian:~/Music/Documents/sample_files/Csv$ 
```

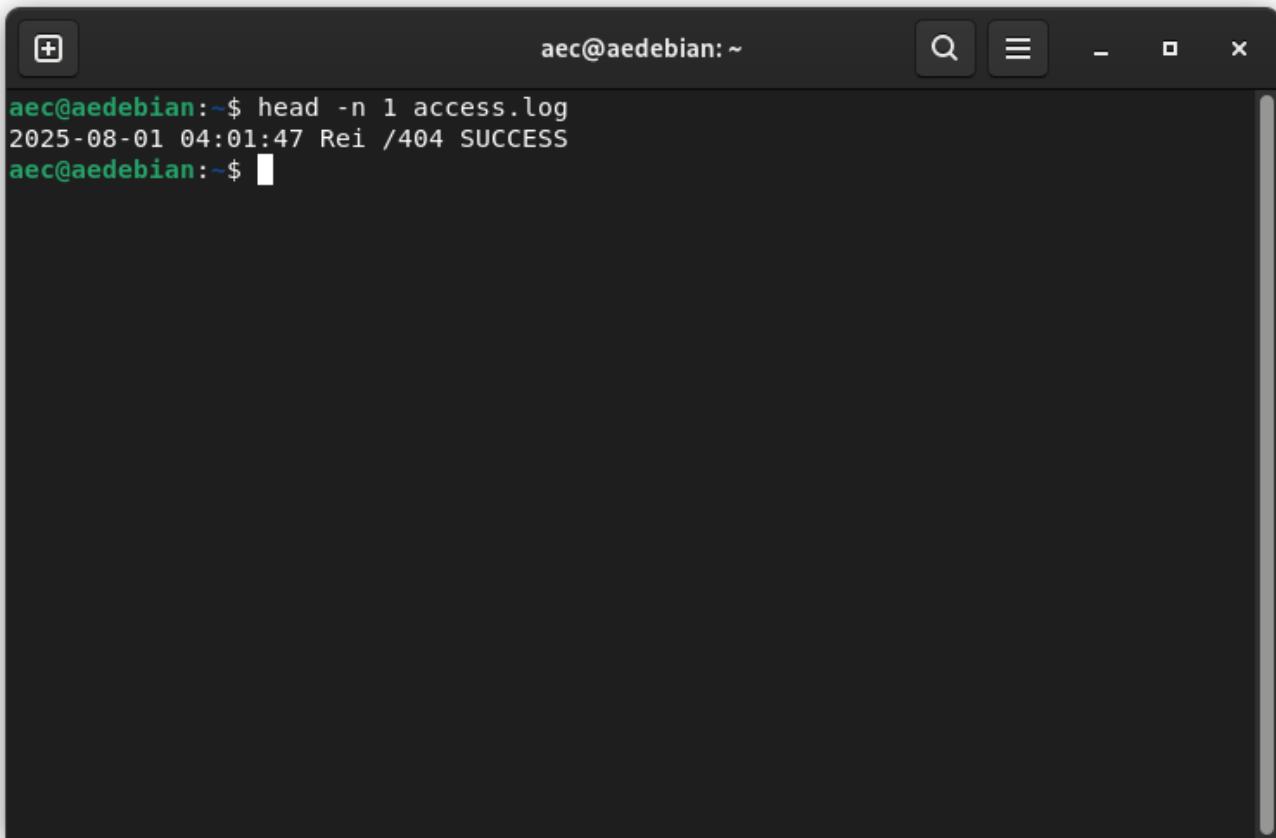
## Question #2

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

```
aec@aedebian: ~
48 2025-08-07 17:34:38 Edward /logout SUCCESS$
49 2025-11-25 23:35:35 Julia /reset SUCCESS$
50 2025-06-19 08:34:39 Ken /logout DENIED$
51 2025-01-01 12:00:00 Eren /login DENIED$
52 2025-10-24 03:07:00 Rei /reset SUCCESS$
53 2025-07-22 12:17:19 Edward /login FAILS
54 2025-10-03 19:44:46 Annie /404 DENIED$
55 2025-05-15 22:53:51 Haruka /download FAILS
56 2025-04-02 20:26:59 Eri /reset SUCCESS$
57 2025-03-22 21:53:51 Haruka /settings FAILS
58 2025-08-23 04:31:42 Faye /dashboard FAILS
59 2025-02-21 20:43:34 Jet /upload DENIED$
60 2025-10-04 09:07:46 Eri /upload DENIED$
61 2025-04-18 19:10:31 Jet /login DENIED$
62 2025-03-01 04:45:27 Ann /reset SUCCESS$
63 2025-01-09 09:52:44 Faye /logout DENIED$
64 2025-09-02 20:03:22 Seras /settings FAILS
65 2025-01-18 04:59:03 Eren /download DENIED$
66 2025-11-20 08:50:09 Rei /reset SUCCESS$
67 2025-01-21 10:52:12 Eri /settings FAILS
68 2025-11-12 02:05:48 Julia /settings DENIED$
69 2025-09-02 21:12:04 Annie /login SUCCESS$
70 2025-01-23 12:14:37 Edward /download DENIED$
71 2025-03-23 23:07:14 Jet /admin DENIED$
72 2025-02-01 10:15:10 Rei /settings DENIED$
73 2025-03-17 20:04:06 Eri /404 DENIED$
74 2025-09-28 16:52:17 Faye /download DENIED$
75 2025-09-07 17:08:32 Rize /404 FAILS
76 2025-06-22 13:20:51 Rize /404 SUCCESS$
77 2025-12-09 05:09:23 Eri /logout SUCCESS$
78 2025-08-04 07:17:08 Eri /settings SUCCESS$
79 2025-02-18 14:14:41 Seras /settings FAILS
80 2025-01-04 15:24:54 Eren /404 SUCCESS$
81 2025-05-03 15:27:09 Jet /settings SUCCESS$
82 2025-04-24 02:04:05 Faye /download SUCCESS$
83 2025-08-10 08:31:10 Rei /dashboard DENIED$
84 2025-06-20 10:41:29 Walter /settings DENIED$
85 2025-08-26 12:13:19 Mize /logout FAILS
86 2025-10-21 16:02:41 Touka /dashboard SUCCESS$
87 2025-05-22 07:59:46 Rize /login DENIED$
88 2025-10-15 09:59:06 Spike /admin SUCCESS$
89 2025-09-17 12:51:32 Arisu /admin FAILS
90 2025-08-15 08:29:51 Jet /404 FAILS
91 2025-06-07 12:48:18 Edward /reset SUCCESS$
92 2025-05-19 01:01:46 Eren /download DENIED$
93 2025-10-20 11:35:53 Shinji /logout FAILS
94 2025-03-20 17:25:00 Haruka /settings SUCCESS$
95 2025-01-01 04:45:00 Rei /admin FAILS
96 2025-01-18 23:50:02 Seras /admin SUCCESS$
97 2025-03-01 00:57:47 Eri /reset DENIED$
98 2025-12-09 22:08:36 Ken /logout FAILS
99 2025-01-25 09:46:19 Eri /login FAILS
100 2025-12-04 00:13:18 Edward /reset SUCCESS$

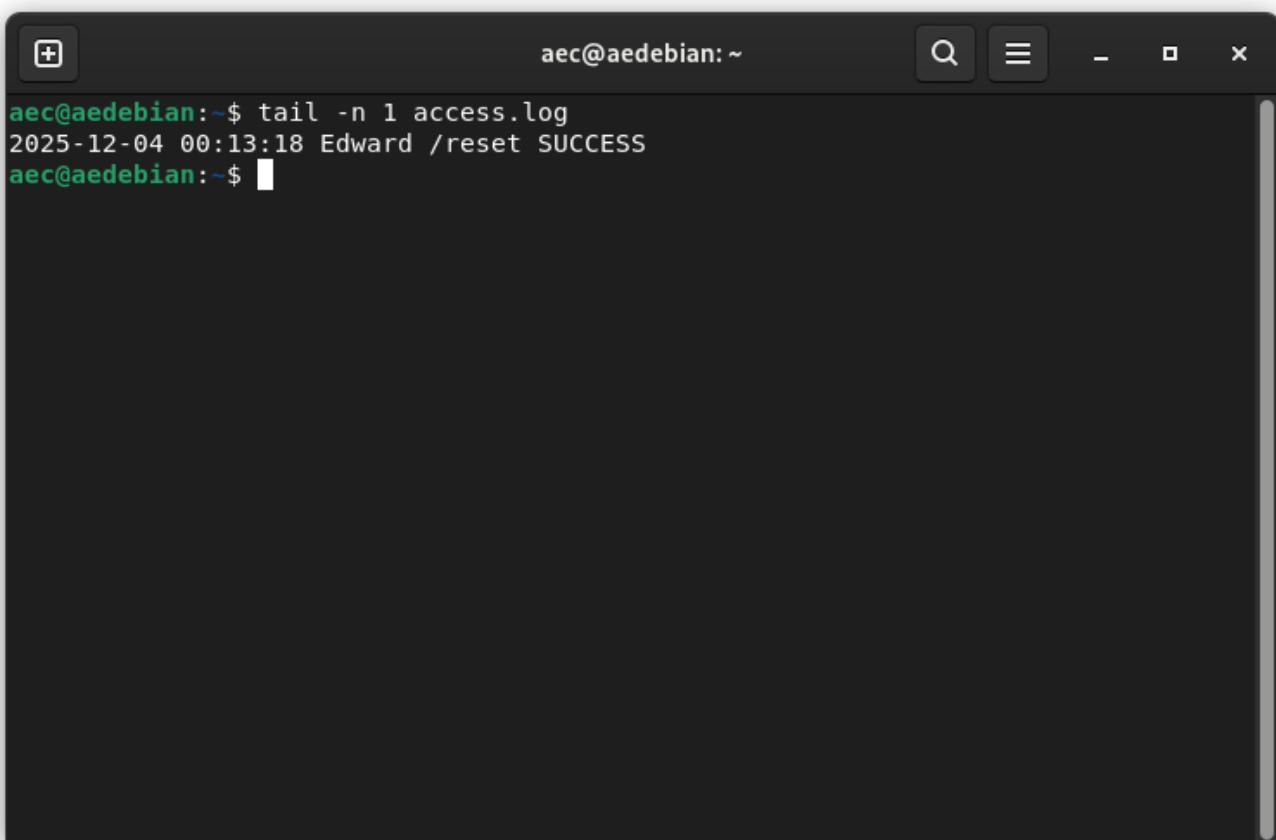
aec@aedebian: $ 
```

- Task #2: Who was the first user to interact with the application?



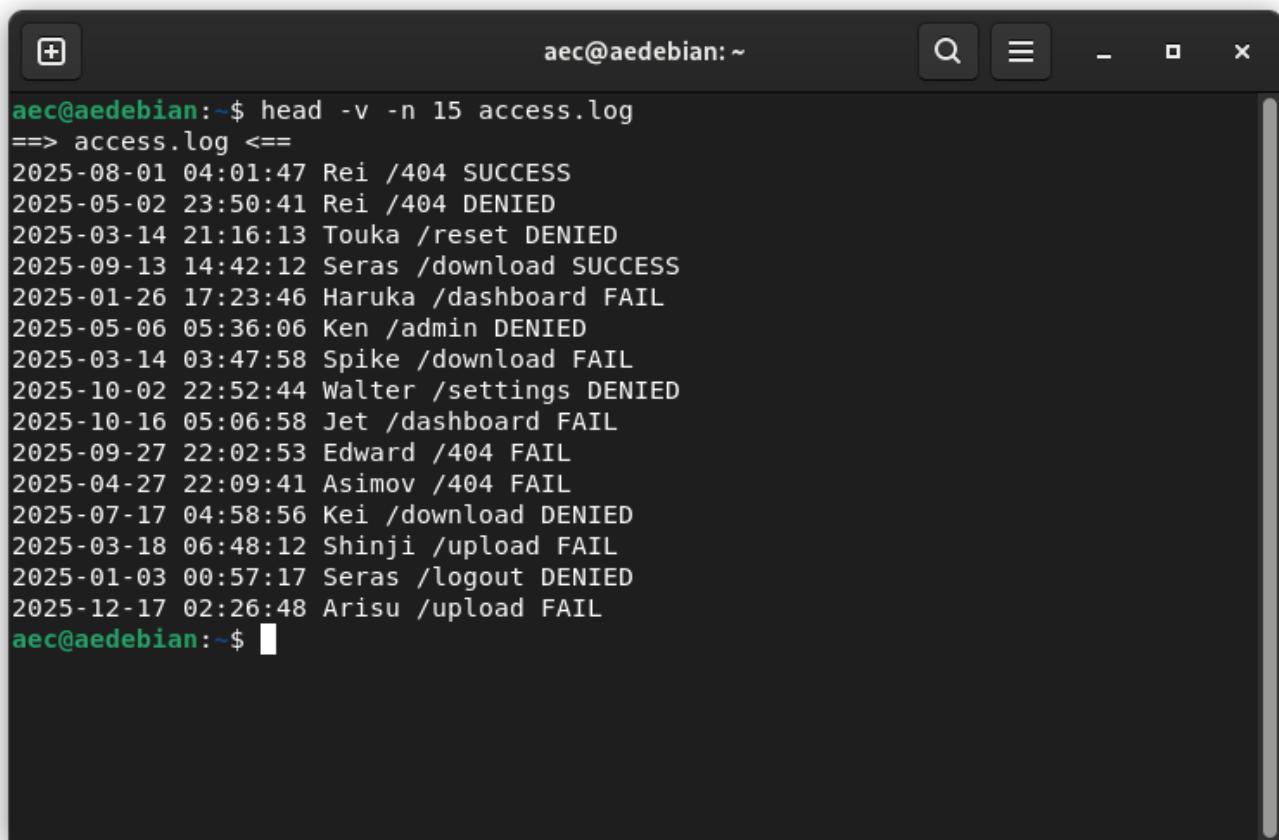
```
aec@aedebian:~$ head -n 1 access.log
2025-08-01 04:01:47 Rei /404 SUCCESS
aec@aedebian:~$ █
```

- Task #3: Who was the last user to interact with the application?



```
aec@aedebian:~$ tail -n 1 access.log
2025-12-04 00:13:18 Edward /reset SUCCESS
aec@aedebian:~$ █
```

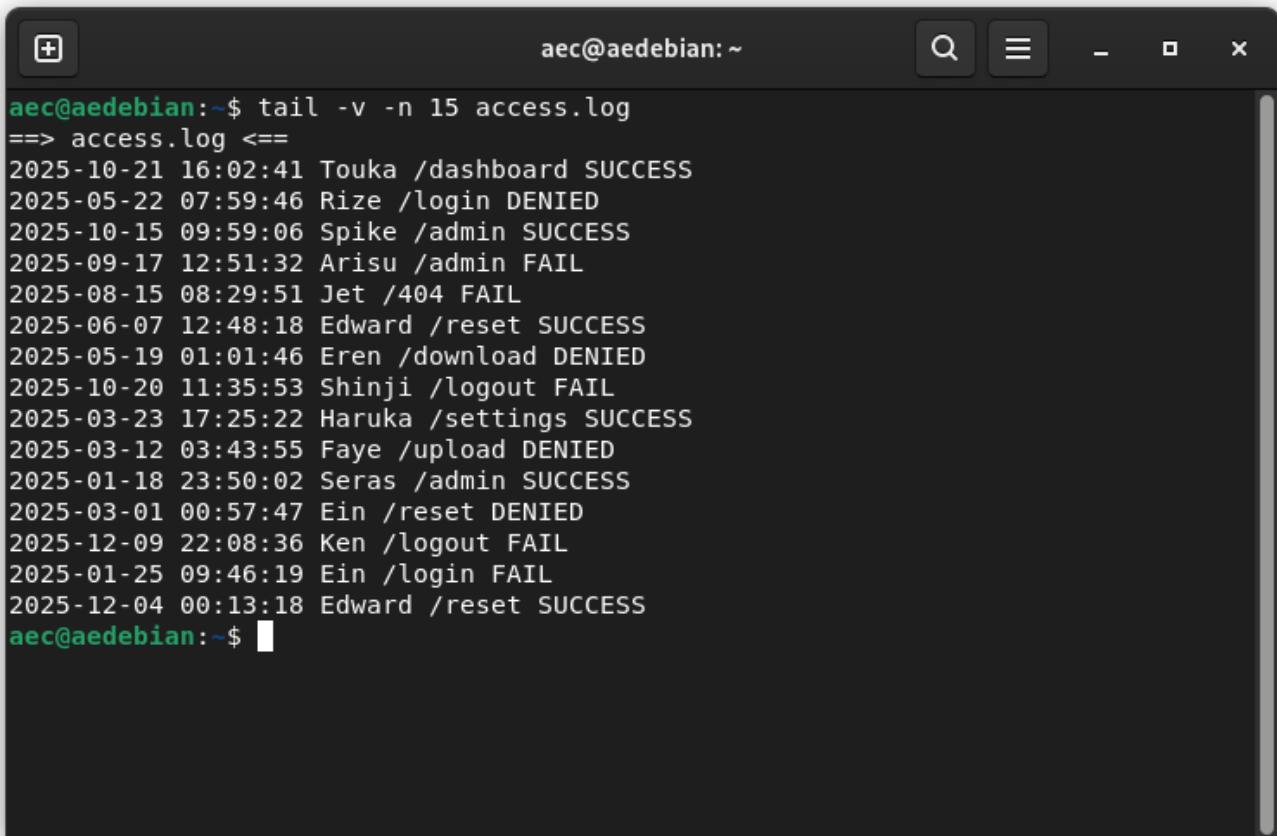
- Task #4: What are the first 15 events in the file? You must include the name of the file in the command output.



The screenshot shows a terminal window with the following content:

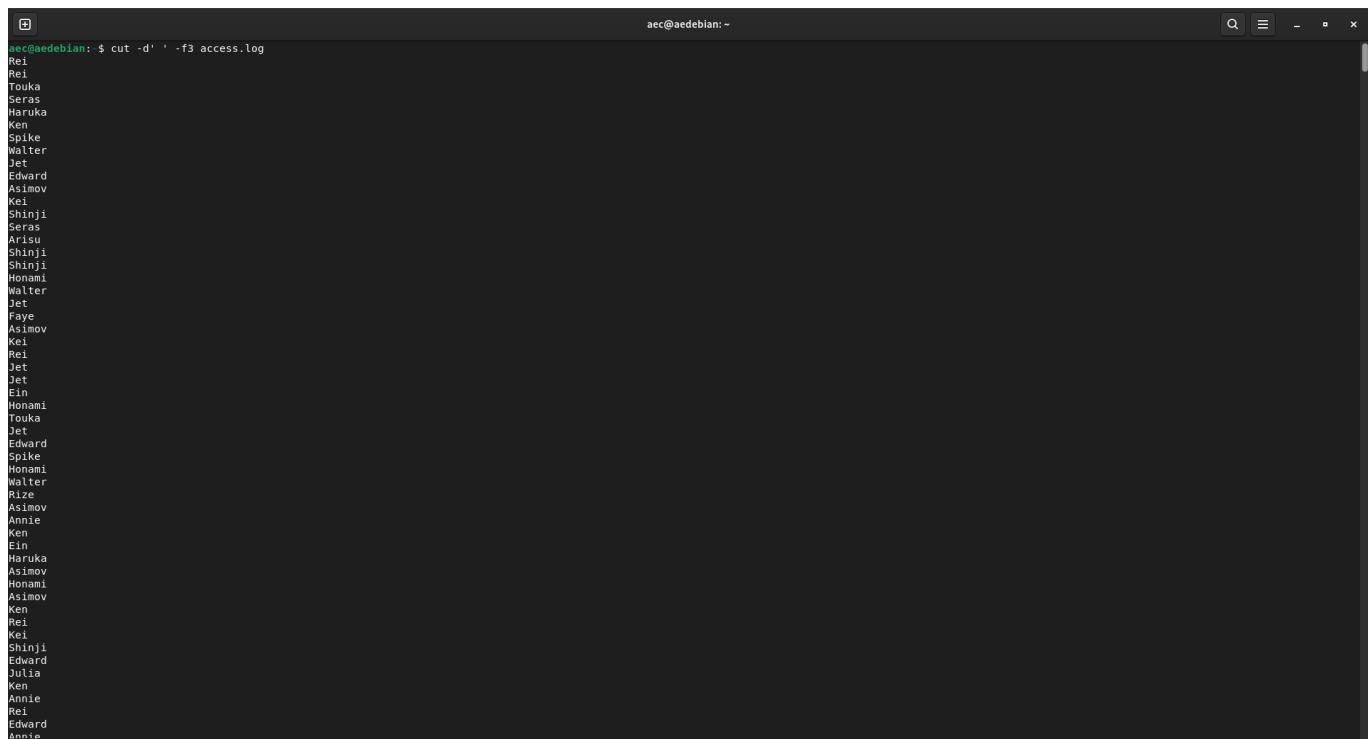
```
aec@aedebian:~$ head -v -n 15 access.log
==> access.log <==
2025-08-01 04:01:47 Rei /404 SUCCESS
2025-05-02 23:50:41 Rei /404 DENIED
2025-03-14 21:16:13 Touka /reset DENIED
2025-09-13 14:42:12 Seras /download SUCCESS
2025-01-26 17:23:46 Haruka /dashboard FAIL
2025-05-06 05:36:06 Ken /admin DENIED
2025-03-14 03:47:58 Spike /download FAIL
2025-10-02 22:52:44 Walter /settings DENIED
2025-10-16 05:06:58 Jet /dashboard FAIL
2025-09-27 22:02:53 Edward /404 FAIL
2025-04-27 22:09:41 Asimov /404 FAIL
2025-07-17 04:58:56 Kei /download DENIED
2025-03-18 06:48:12 Shinji /upload FAIL
2025-01-03 00:57:17 Seras /logout DENIED
2025-12-17 02:26:48 Arisu /upload FAIL
aec@aedebian:~$ █
```

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



```
aec@aedebian:~$ tail -v -n 15 access.log
==> access.log <==
2025-10-21 16:02:41 Touka /dashboard SUCCESS
2025-05-22 07:59:46 Rize /login DENIED
2025-10-15 09:59:06 Spike /admin SUCCESS
2025-09-17 12:51:32 Arisu /admin FAIL
2025-08-15 08:29:51 Jet /404 FAIL
2025-06-07 12:48:18 Edward /reset SUCCESS
2025-05-19 01:01:46 Eren /download DENIED
2025-10-20 11:35:53 Shinji /logout FAIL
2025-03-23 17:25:22 Haruka /settings SUCCESS
2025-03-12 03:43:55 Faye /upload DENIED
2025-01-18 23:50:02 Seras /admin SUCCESS
2025-03-01 00:57:47 Ein /reset DENIED
2025-12-09 22:08:36 Ken /logout FAIL
2025-01-25 09:46:19 Ein /login FAIL
2025-12-04 00:13:18 Edward /reset SUCCESS
aec@aedebian:~$
```

- **Task #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.



```
aec@aedebian:~$ cut -d' ' -f3 access.log
Rei
Rei
Touka
Seras
Haruka
Asimov
Spike
Walter
Jet
Edward
Asimov
Kei
Shinji
Seras
Arisu
Shinji
Shinji
Honami
Honami
Walter
Jet
Faye
Asimov
Kei
Rei
Rei
Jet
Jet
Ein
Honami
Touka
Jet
Edward
Spike
Honami
Walter
Rize
Asimov
Annie
Ken
Lin
Haruka
Asimov
Honami
Asimov
Asimov
Ken
Rei
Kei
Kei
Shinji
Edward
Julia
Annie
Rei
Edward
Annie
```

- **Task #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.

```

sorted_access_log_by_uname.log
sorted_access_log_by_endpoint.log

1 2025-12-04 00:13:18 Edward /reset SUCCESS
2 2025-06-19 00:34:39 Ken /logout DENIED
3 2025-01-03 00:57:17 Seras /logout DENIED
4 2025-03-01 00:57:47 Ein /reset DENIED
5 2025-06-13 00:59:17 Honami /settings SUCCESS
6 2025-05-19 01:01:44 Eren /download DENIED
7 2025-03-10 02:05:08 Ein /reset DENIED
8 2025-11-12 02:05:44 Julia /settings DENIED
9 2025-06-16 02:06:19 Asimov /logout FAIL
10 2025-12-17 02:26:48 Arisu /upload FAIL
11 2025-04-24 02:48:54 Faye /download SUCCESS
12 2025-06-14 03:00:16 Julia /dashboard DENIED
13 2025-10-24 03:07:50 Rei /reset SUCCESS
14 2025-12-13 03:12:16 Touka /reset FAIL
15 2025-03-12 03:43:55 Faye /upload DENIED
16 2025-03-14 03:47:58 Spike /download FAIL
17 2025-02-19 04:01:47 Edward /download DENIED
18 2025-08-01 04:01:47 Rei /404 SUCCESS
19 2025-09-23 04:12:35 Shinji /reset DENIED
20 2025-08-23 04:31:42 Faye /dashboard FAIL
21 2025-08-20 04:41:29 Walter /settings DENIED
22 2025-07-17 04:58:56 Kei /download DENIED
23 2025-01-18 04:59:03 Eren /download DENIED
24 2025-10-16 05:06:50 Jet /dashboard FAIL
25 2025-12-09 05:09:23 Ein /logout SUCCESS
26 2025-10-06 05:16:31 Spike /login FAIL
27 2025-01-24 05:30:50 Jet /logout DENIED
28 2025-05-06 05:36:06 Ken /admin DENIED
29 2025-03-18 06:48:12 Shinji /upload FAIL
30 2025-08-04 07:17:08 Ein /settings SUCCESS
31 2025-08-01 07:19:12 Rei /upload DENIED
32 2025-02-08 07:45:08 Annie /admin SUCCESS
33 2025-05-22 07:59:45 Rize /login DENIED
34 2025-08-15 08:29:51 Jet /404 FAIL
35 2025-02-06 08:48:00 Kei /admin SUCCESS
36 2025-02-13 08:49:23 Jet /upload DENIED
37 2025-11-20 08:50:09 Rei /reset SUCCESS
38 2025-04-01 08:54:14 Ken /settings FAIL
39 2025-10-04 09:07:46 Ein /upload DENIED
40 2025-11-26 09:22:56 Asimov /404 FAIL
41 2025-10-03 09:43:42 Ein /settings FAIL
42 2025-01-25 09:46:19 Ein /login FAIL
43 2025-01-09 09:52:44 Faye /logout DENIED

```

- Task #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.**

```

sorted_access_log_by_uname.log
sorted_access_log_by_endpoint.log

1 2025-02-08 07:45:04 Annie /admin SUCCESS
2 2025-03-07 23:35:14 Annie /login DENIED
3 2025-09-02 21:12:04 Annie /login SUCCESS
4 2025-10-03 19:44:46 Annie /404 DENIED
5 2025-09-17 12:51:32 Arisu /admin FAIL
6 2025-12-17 02:26:44 Arisu /upload FAIL
7 2025-04-27 22:09:41 Asimov /404 FAIL
8 2025-06-16 02:06:11 Asimov /logout FAIL
9 2025-07-12 14:35:39 Asimov /login FAIL
10 2025-09-01 11:27:10 Asimov /download FAIL
11 2025-11-26 09:22:56 Asimov /404 FAIL
12 2025-01-25 12:14:37 Edward /download DENIED
13 2025-02-19 04:01:47 Edward /download DENIED
14 2025-06-07 12:46:18 Edward /reset SUCCESS
15 2025-07-22 12:17:19 Edward /login FAIL
16 2025-08-07 17:34:30 Edward /logout SUCCESS
17 2025-09-27 22:02:53 Edward /404 FAIL
18 2025-12-04 08:13:11 Edward /reset SUCCESS
19 2025-01-21 10:52:12 Ein /settings FAIL
20 2025-01-25 09:46:19 Ein /login FAIL
21 2025-03-01 00:57:47 Ein /reset DENIED
22 2025-03-10 02:05:03 Ein /reset DENIED
23 2025-04-02 20:26:59 Ein /reset SUCCESS
24 2025-08-04 07:17:08 Ein /settings SUCCESS
25 2025-10-03 09:43:42 Ein /settings FAIL
26 2025-10-04 09:07:46 Ein /upload DENIED
27 2025-10-04 22:43:27 Ein /reset SUCCESS
28 2025-12-09 05:09:23 Ein /logout SUCCESS
29 2025-01-04 15:24:54 Eren /404 SUCCESS
30 2025-01-18 04:59:03 Eren /download DENIED
31 2025-05-19 01:01:46 Eren /download DENIED
32 2025-01-09 09:52:44 Faye /logout DENIED
33 2025-02-06 18:28:59 Faye /download FAIL
34 2025-03-12 03:43:55 Faye /upload DENIED
35 2025-04-24 02:48:54 Faye /download SUCCESS
36 2025-08-23 04:31:42 Faye /dashboard FAIL
37 2025-09-28 16:52:17 Faye /download DENIED
38 2025-01-26 17:23:46 Haruka /dashboard FAIL
39 2025-03-22 21:53:35 Haruka /settings FAIL
40 2025-03-23 17:25:22 Haruka /settings SUCCESS
41 2025-05-15 22:53:51 Haruka /download FAIL
42 2025-08-28 12:46:06 Haruka /dashboard FAIL
43 2025-03-12 17:40:30 Yuumi /reset DENIED

```

- Task #9: You need to get a more clear idea of what action each user did in the application. Manipulate the access.log**

```
aec@aedebian:~  
Edward accessed: /logout  
Julia accessed: /reset  
Ken accessed: /logout  
Annie accessed: /login  
Rei accessed: /reset  
Edward accessed: /login  
Annie accessed: /404  
Haruka accessed: /download  
Elin accessed: /reset  
Haruka accessed: /settings  
Faye accessed: /dashboard  
Jet accessed: /upload  
Ein accessed: /upload  
Jet accessed: /login  
Ein accessed: /reset  
Faye accessed: /logout  
Seran accessed: /settings  
Eren accessed: /download  
Rei accessed: /reset  
Ein accessed: /settings  
Aline accessed: /settings  
Annie accessed: /login  
Edward accessed: /download  
Jet accessed: /admin  
Kei accessed: /settings  
Seran accessed: /404  
Faye accessed: /download  
Rize accessed: /404  
Rize accessed: /404  
Ein accessed: /logout  
Ein accessed: /settings  
Seran accessed: /settings  
Eren accessed: /404  
Jet accessed: /settings  
Faye accessed: /download  
Julia accessed: /dashboard  
Walter accessed: /settings  
Rize accessed: /logout  
Touka accessed: /dashboard  
Rize accessed: /login  
Spike accessed: /admin  
Arisu accessed: /admin  
Arisu accessed: /  
Edward accessed: /reset  
Eren accessed: /download  
Shinji accessed: /logout  
Haruka accessed: /settings  
Faye accessed: /upload  
Seran accessed: /admin  
Ein accessed: /reset  
Ken accessed: /logout  
Ein accessed: /login  
Edward accessed: /reset  
aec@aedebian: $ cut -d" " -f3,4 --output-delimiter=" accessed: " access.log |
```