

# Homework: Operating Systems

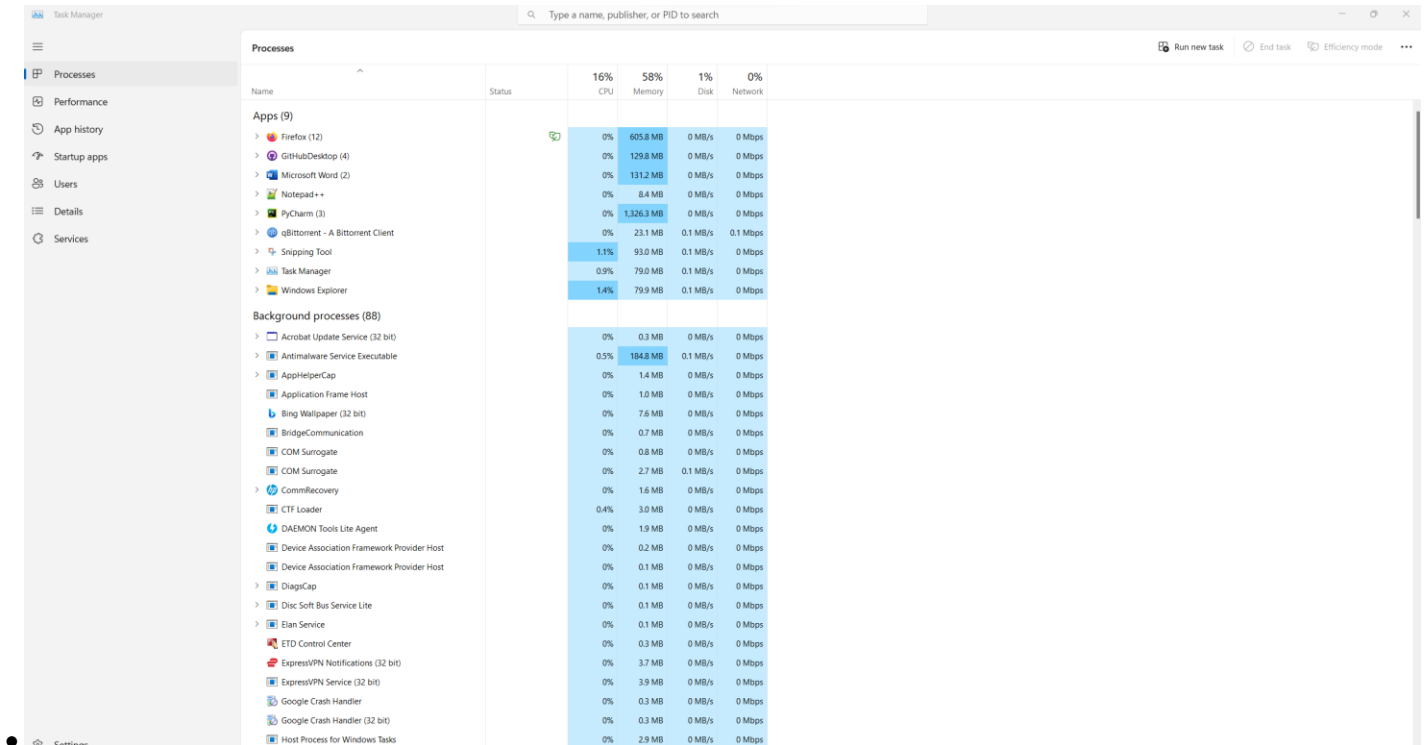
Problems for homework for the ["Software Technologies" course @ Software University.](#)

Submit this document as your homework.

## 1. Work with Task Manager in Windows

### 1. View processes:

- Open Task Manager and view the list of running processes.
- Identify any processes that are using a high amount of CPU or RAM.

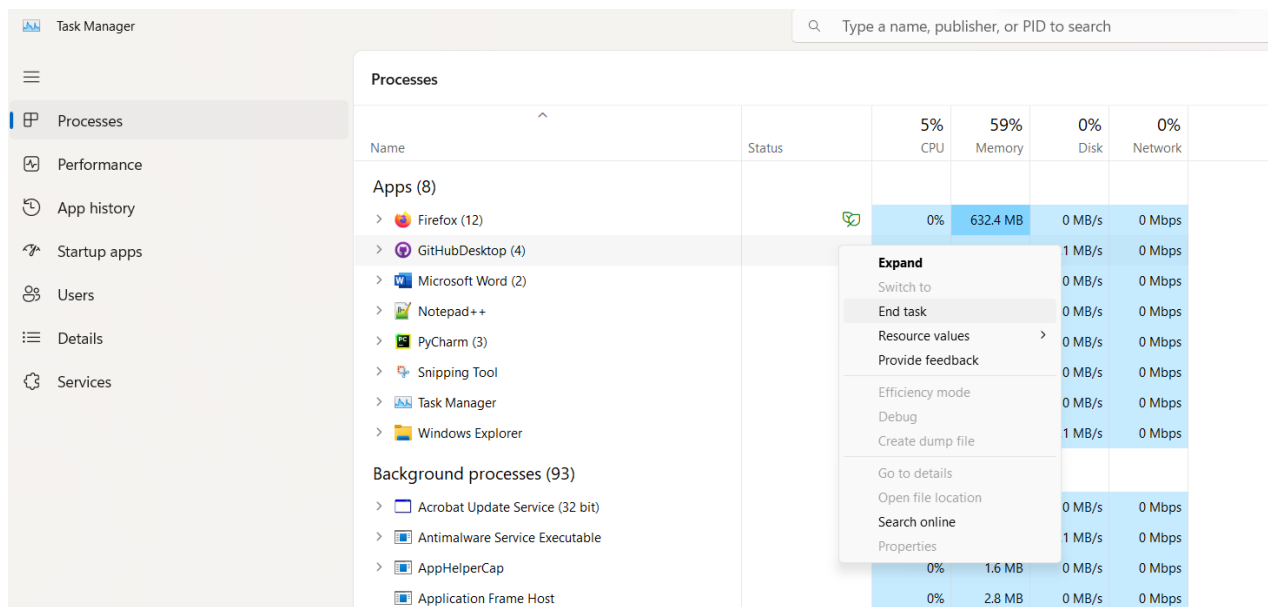


The screenshot shows the Windows Task Manager window with the 'Processes' tab selected. The left sidebar shows navigation options: Processes, Performance, App history, Startup apps, Users, Details, and Services. The main area displays a list of processes categorized into 'Apps (9)' and 'Background processes (88)'. The columns are Name, Status, CPU, Memory, Disk, and Network. The 'CPU' column shows percentages, and the 'Memory' column shows memory usage in MB. The 'Disk' and 'Network' columns show data transfer rates in MB/s and Mbps respectively.

Name	Status	CPU	Memory	Disk	Network
<b>Apps (9)</b>					
Firefox (12)		0%	605.8 MB	0 MB/s	0 Mbps
GitHubDesktop (4)		0%	129.8 MB	0 MB/s	0 Mbps
Microsoft Word (2)		0%	131.2 MB	0 MB/s	0 Mbps
Notepad++		0%	8.4 MB	0 MB/s	0 Mbps
PyCharm (3)		0%	1,326.3 MB	0 MB/s	0 Mbps
qBittorrent - A BitTorrent Client		0%	23.1 MB	0.1 MB/s	0.1 Mbps
Snipping Tool		1.1%	93.0 MB	0.1 MB/s	0 Mbps
Task Manager		0.9%	79.0 MB	0.1 MB/s	0 Mbps
Windows Explorer		1.4%	79.9 MB	0.1 MB/s	0 Mbps
<b>Background processes (88)</b>					
Acrobat Update Service (32 bit)		0%	0.3 MB	0 MB/s	0 Mbps
Antimalware Service Executable		0.5%	184.8 MB	0.1 MB/s	0 Mbps
AppHelperCap		0%	1.4 MB	0 MB/s	0 Mbps
Application Frame Host		0%	1.0 MB	0 MB/s	0 Mbps
Bing Wallpaper (32 bit)		0%	7.6 MB	0 MB/s	0 Mbps
BridgeCommunication		0%	0.7 MB	0 MB/s	0 Mbps
COM Surrogate		0%	0.8 MB	0 MB/s	0 Mbps
COM Surrogate		0%	2.7 MB	0.1 MB/s	0 Mbps
CommRecovery		0%	1.6 MB	0 MB/s	0 Mbps
CTF Loader		0.4%	3.0 MB	0 MB/s	0 Mbps
DAEMON Tools Lite Agent		0%	1.9 MB	0 MB/s	0 Mbps
Device Association Framework Provider Host		0%	0.2 MB	0 MB/s	0 Mbps
Device Association Framework Provider Host		0%	0.1 MB	0 MB/s	0 Mbps
DiagCap		0%	0.1 MB	0 MB/s	0 Mbps
Disc Soft Bus Service Lite		0%	0.1 MB	0 MB/s	0 Mbps
Elan Service		0%	0.1 MB	0 MB/s	0 Mbps
ETD Control Center		0%	0.3 MB	0 MB/s	0 Mbps
ExpressVPN Notifications (32 bit)		0%	3.7 MB	0 MB/s	0 Mbps
ExpressVPN Service (32 bit)		0%	3.9 MB	0 MB/s	0 Mbps
Google Crash Handler		0%	0.3 MB	0 MB/s	0 Mbps
Google Crash Handler (32 bit)		0%	0.3 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks		0%	2.9 MB	0 MB/s	0 Mbps

### 2. Kill a process:

- Select a process from the list and end the task.

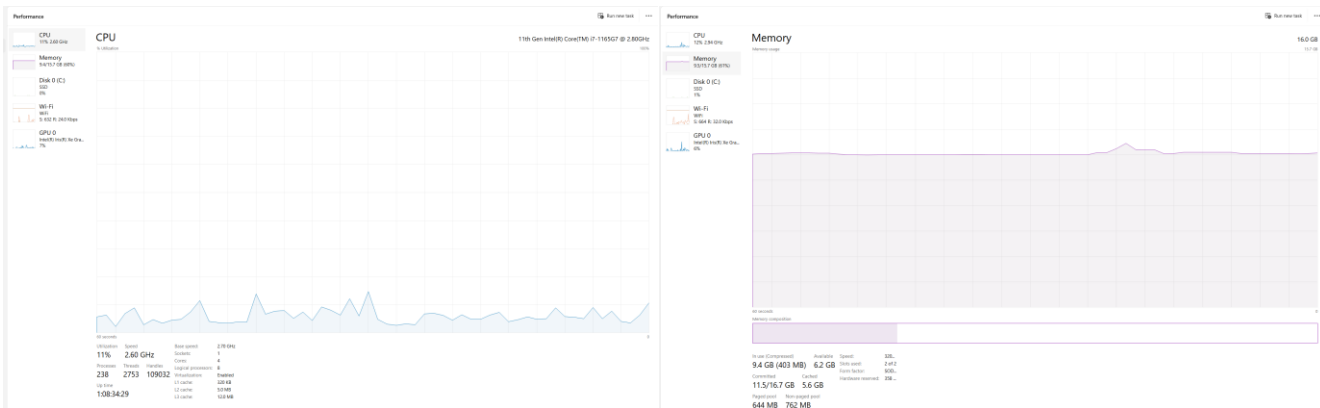


The screenshot shows the Windows Task Manager window with the 'Processes' tab selected. The left sidebar shows navigation options: Processes, Performance, App history, Startup apps, Users, Details, and Services. The main area displays a list of processes categorized into 'Apps (8)' and 'Background processes (93)'. The columns are Name, Status, CPU, Memory, Disk, and Network. The 'CPU' column shows percentages, and the 'Memory' column shows memory usage in MB. The 'Disk' and 'Network' columns show data transfer rates in MB/s and Mbps respectively. A context menu is open over the 'PyCharm (3)' process, showing options: Expand, Switch to, End task, Resource values, Provide feedback, Efficiency mode, Debug, Create dump file, Go to details, Open file location, Search online, Properties.

Name	Status	CPU	Memory	Disk	Network
<b>Apps (8)</b>					
Firefox (12)		0%	632.4 MB	0 MB/s	0 Mbps
GitHubDesktop (4)				1 MB/s	0 Mbps
Microsoft Word (2)				0 MB/s	0 Mbps
Notepad++				0 MB/s	0 Mbps
PyCharm (3)				0 MB/s	0 Mbps
Snipping Tool				0 MB/s	0 Mbps
Task Manager				0 MB/s	0 Mbps
Windows Explorer				1 MB/s	0 Mbps
<b>Background processes (93)</b>					
Acrobat Update Service (32 bit)					
Antimalware Service Executable					
AppHelperCap					
Application Frame Host					

### 3. View CPU & RAM usage:

- Navigate to the Performance tab in Task Manager and view the CPU & Memory usage.



## 2. Play with Windows Terminal

### 1. Navigate Directories:

- Use the "cd" command to navigate to different directories in the Windows Terminal:
  - Desktop
  - Documents
  - Downloads
- Example (make screenshots of all three directories):

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\emili>cd desktop
```

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\emili>cd documents

C:\Users\emili\Documents>
```

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\emili>cd downloads

C:\Users\emili\Downloads>
```

- Create folder named My\_SoftUni\_Repo on the Desktop through the Terminal.
- Example:

```

Command Prompt
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\emili>cd desktop

C:\Users\emili\Desktop>mkdir My_SoftUni_Repo

C:\Users\emili\Desktop>cd My_SoftUni_Repo

C:\Users\emili\Desktop\My_SoftUni_Repo>

```

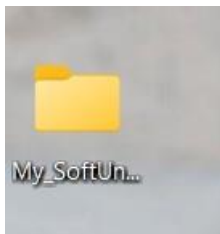
```

C:\Users\emili\Desktop\My_SoftUni_Repo>dir
Volume in drive C is Windows
Volume Serial Number is DAD2-5942

Directory of C:\Users\emili\Desktop\My_SoftUni_Repo

22-May-23  10:40    <DIR>          .
22-May-23  10:42    <DIR>          ..
               0 File(s)                0 bytes
               2 Dir(s)  569,725,009,920 bytes free

```



```

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\emili> cd desktop
PS C:\Users\emili\desktop> mkdir My_SoftUni_Repo

Directory: C:\Users\emili\desktop

Mode                LastWriteTime         Length Name
----                -
d-----         22-May-23     10:45             My_SoftUni_Repo

PS C:\Users\emili\desktop>

```

- Enter the created folder through the Terminal and make a screenshot:

```

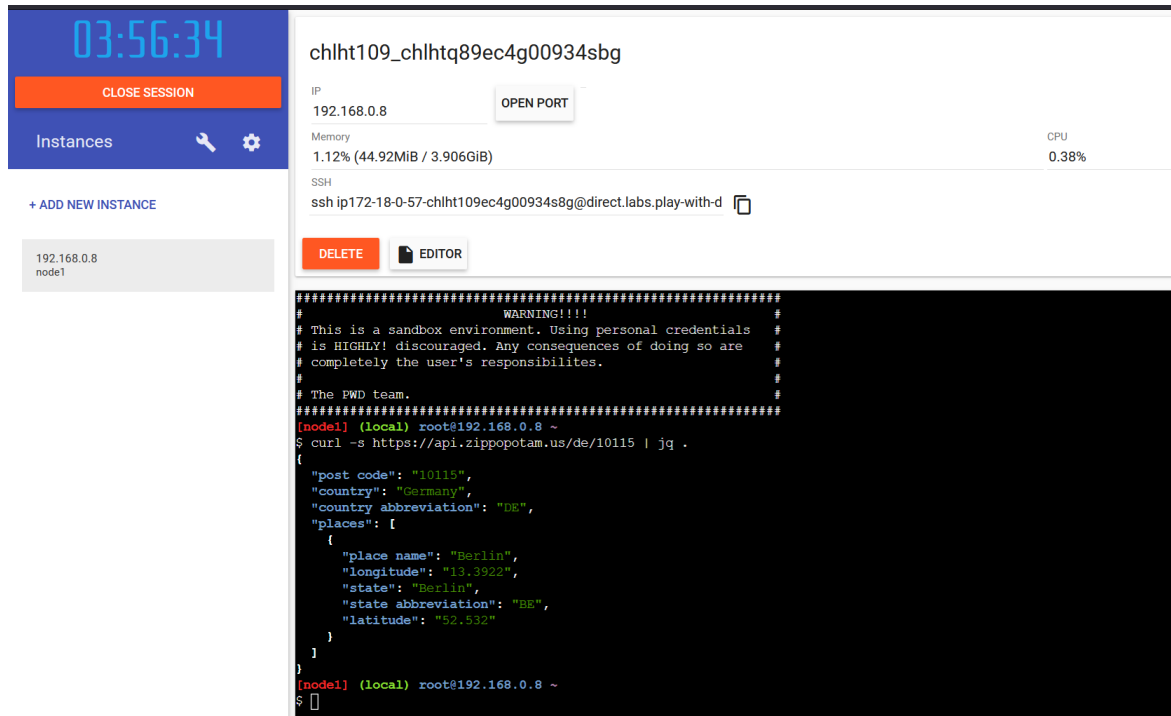
PS C:\Users\emili\desktop> cd My_SoftUni_Repo
PS C:\Users\emili\desktop\My_SoftUni_Repo> |

```

### 3. Play with Docker Playground & Run a Linux Shell inside

#### 1. Run your own container in Docker Playground and make an HTTP request from Linux Shell:

- Your task is to run a new docker container and make an HTTP request to the following API: <https://api.zippopotam.us/>
- Extend the URL with "de" for Germany, and find a valid postal code that you can use to extract information from the API.
- Replace the example images with your own screenshots.
- Examples:



The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a clock showing 03:56:34, a 'CLOSE SESSION' button, and a list of instances. The main area shows a container named 'chlh109\_chlh109ec4g00934sbg' with IP 192.168.0.8. Below the container details, there's a terminal window. The terminal output shows a warning message and a successful curl command to the Zippopotam API for Germany, returning JSON data for Berlin.

```
##### WARNING!!!! #####
# This is a sandbox environment. Using personal credentials
# is HIGHLY discouraged. Any consequences of doing so are
# completely the user's responsibilities.
#
# The FWD team.
#####
[node1] (local) root@192.168.0.8 ~
$ curl -s https://api.zippopotam.us/de/10115 | jq .
{
  "post code": "10115",
  "country": "Germany",
  "country abbreviation": "DE",
  "places": [
    {
      "place name": "Berlin",
      "longitude": "13.3922",
      "state": "Berlin",
      "state abbreviation": "BE",
      "latitude": "52.532"
    }
  ]
}
```

```
[node1] (local) root@192.168.0.8 ~
$ curl -s https://api.zippopotam.us/de/50667 | jq .
{
  "post code": "50667",
  "country": "Germany",
  "country abbreviation": "DE",
  "places": [
    {
      "place name": "Köln",
      "longitude": "50.9384",
      "state": "Nordrhein-Westfalen",
      "state abbreviation": "NW",
      "latitude": "50.9315"
    }
  ]
}
```