

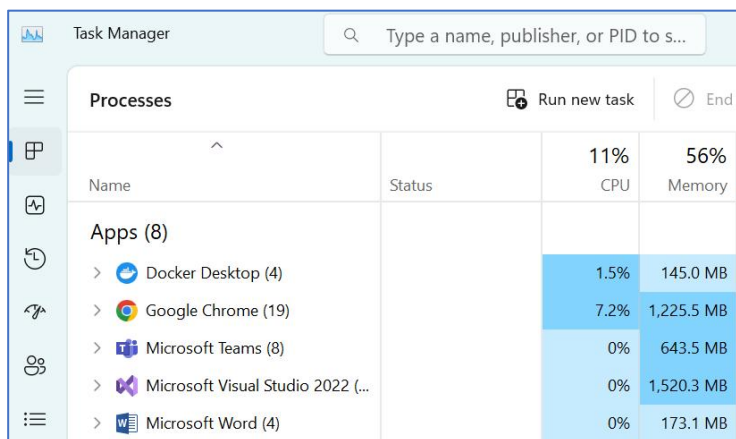
# Homework: Operating Systems

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

Submit this document as your homework.

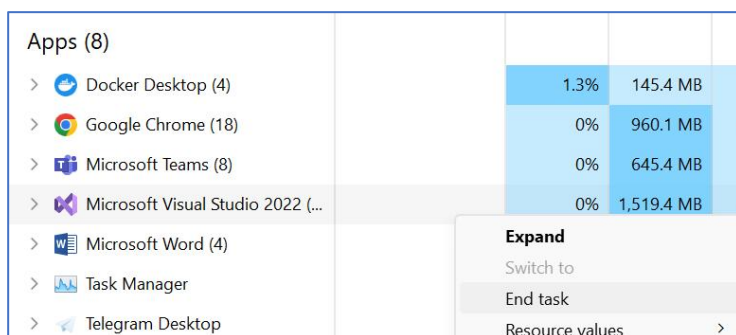
## 1. Work with Task Manager in Windows

NB: Оставям същите скрийншоти, само в тази задача!



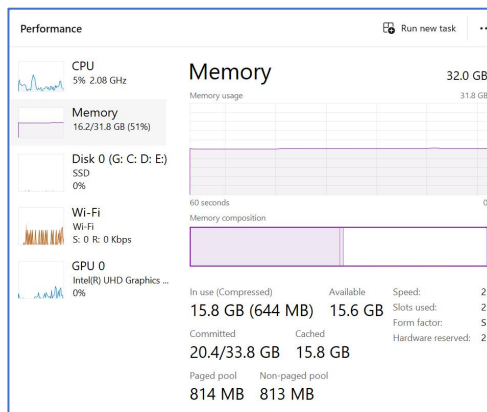
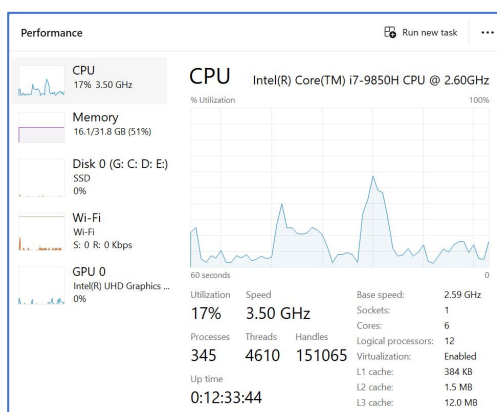
The screenshot shows the Windows Task Manager 'Processes' tab. It lists several applications with their CPU and memory usage. The 'Apps (8)' section is expanded, showing Docker Desktop (4), Google Chrome (19), Microsoft Teams (8), Microsoft Visual Studio 2022 (...), and Microsoft Word (4). The CPU usage is 11% and memory usage is 56%.

| Name                               | Status | CPU  | Memory     |
|------------------------------------|--------|------|------------|
| Apps (8)                           |        |      |            |
| Docker Desktop (4)                 |        | 1.5% | 145.0 MB   |
| Google Chrome (19)                 |        | 7.2% | 1,225.5 MB |
| Microsoft Teams (8)                |        | 0%   | 643.5 MB   |
| Microsoft Visual Studio 2022 (...) |        | 0%   | 1,520.3 MB |
| Microsoft Word (4)                 |        | 0%   | 173.1 MB   |



This screenshot shows the same Task Manager window, but with a right-click context menu open over the 'Microsoft Visual Studio 2022 (...)' process. The menu options are 'Expand', 'Switch to', 'End task', and 'Resource values'. The process details for Microsoft Visual Studio 2022 (...) are highlighted: 0% CPU and 1,519.4 MB memory.

| Name                               | Status | CPU  | Memory     |
|------------------------------------|--------|------|------------|
| Apps (8)                           |        |      |            |
| Docker Desktop (4)                 |        | 1.3% | 145.4 MB   |
| Google Chrome (18)                 |        | 0%   | 960.1 MB   |
| Microsoft Teams (8)                |        | 0%   | 645.4 MB   |
| Microsoft Visual Studio 2022 (...) |        | 0%   | 1,519.4 MB |
| Microsoft Word (4)                 |        |      |            |
| Task Manager                       |        |      |            |
| Telegram Desktop                   |        |      |            |



## 2. Play with Windows Terminal

```
PowerShell 7 (x64) - powershell
Mode                LastWriteTime         Length Name
-----
d----- 19.5.2023 r.      21:07             1. QA basic
d----- 18.5.2023 r.      18:29             2. QA Soft tehnolog
d----- 13.5.2023 r.      10:33             Док за диплома

PS F:\WORK\QA> cd '.\1. QA basic'
PS F:\WORK\QA\1. QA basic> dir

Directory: F:\WORK\QA\1. QA basic

Mode                LastWriteTime         Length Name
-----
d----- 13.5.2023 r.      10:33             Lectures
-a----- 12.3.2023 r.      19:51          801115 02.QA-Intro-Exercises.docx
-a----- 12.3.2023 r.      19:51          156049 02.QA-Intro-Homework-Yordan-Grozdev.docx
-a----- 21.3.2023 r.      22:09          2029923 Bugs-and-Bug-Tracking-Homework-Yordan-Grozdev.docx
-a----- 28.3.2023 r.      21:09          79246 Manual-Testing-Homework-Yordan-Grozdev.docx
-a----- 25.3.2023 r.      16:04              0 New Text Document.TXT
-a----- 16.5.2023 r.      19:20          62309 program.docx
-a----- 27.3.2023 r.      18:14          229611 Test-Levels-and-Test-Types-Homework-Yordan-Grozdev.docx
-a----- 19.5.2023 r.      21:07           9795 npo6a.docx

PS F:\WORK\QA\1. QA basic> Invoke-Item -Path .\npo6a.docx
PS F:\WORK\QA\1. QA basic> Invoke-Item -Path .\npo6a.docx
PS F:\WORK\QA\1. QA basic>
```

```
Select PowerShell 7 (x64) - powershell
-a----- 28.3.2023 r.      21:09          79246 Manual-Testing-Homework-Yordan-Grozdev.docx
-a----- 25.3.2023 r.      16:04              0 New Text Document.TXT
-a----- 16.5.2023 r.      19:20          62309 program.docx
-a----- 27.3.2023 r.      18:14          229611 Test-Levels-and-Test-Types-Homework-Yordan-Grozdev.docx
-a----- 19.5.2023 r.      21:07           9795 npo6a.docx

PS F:\WORK\QA\1. QA basic> Invoke-Item -Path .\npo6a.docx
PS F:\WORK\QA\1. QA basic> Invoke-Item -Path .\npo6a.docx
PS F:\WORK\QA\1. QA basic> New-Item -ItemType File -Name "DocProba2.docx"

Directory: F:\WORK\QA\1. QA basic

Mode                LastWriteTime         Length Name
-----
-a----- 19.5.2023 r.      21:16              0 DocProba2.docx

PS F:\WORK\QA\1. QA basic> dir

Directory: F:\WORK\QA\1. QA basic

Mode                LastWriteTime         Length Name
-----
d----- 13.5.2023 r.      10:33             Lectures
-a----- 12.3.2023 r.      19:51          801115 02.QA-Intro-Exercises.docx
```

```
Select PowerShell 7 (x64) - powershell
Directory: F:\WORK\QA\1. QA basic

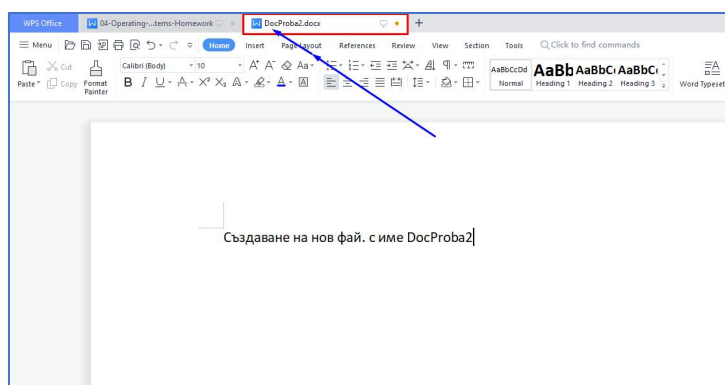
Mode                LastWriteTime         Length Name
-----
-a----- 19.5.2023 r.      21:16              0 DocProba2.docx

PS F:\WORK\QA\1. QA basic> dir

Directory: F:\WORK\QA\1. QA basic

Mode                LastWriteTime         Length Name
-----
d----- 13.5.2023 r.      10:33             Lectures
-a----- 12.3.2023 r.      19:51          801115 02.QA-Intro-Exercises.docx
-a----- 12.3.2023 r.      19:51          156049 02.QA-Intro-Homework-Yordan-Grozdev.docx
-a----- 21.3.2023 r.      22:09          2029923 Bugs-and-Bug-Tracking-Homework-Yordan-Grozdev.docx
-a----- 19.5.2023 r.      21:16              0 DocProba2.docx
-a----- 28.3.2023 r.      21:09          79246 Manual-Testing-Homework-Yordan-Grozdev.docx
-a----- 25.3.2023 r.      16:04              0 New Text Document.TXT
-a----- 16.5.2023 r.      19:20          62309 program.docx
-a----- 27.3.2023 r.      18:14          229611 Test-Levels-and-Test-Types-Homework-Yordan-Grozdev.docx
-a----- 19.5.2023 r.      21:10          9859 npo6a.docx

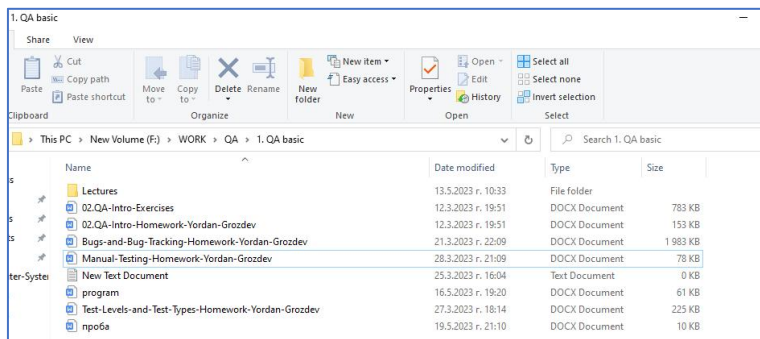
PS F:\WORK\QA\1. QA basic> Invoke-Item -Path .\DocProba2.docx
PS F:\WORK\QA\1. QA basic>
```



```
PS F:\WORK\QA\1. QA basic> Remove-Item -Path .\DocProba2.docx
PS F:\WORK\QA\1. QA basic> dir

Directory: F:\WORK\QA\1. QA basic

Mode                LastWriteTime         Length Name
----                -
d-----          13.5.2023 r.      10:33      Lectures
-a-----          12.3.2023 r.      19:51 801115 02.QA-Intro-Exercises.docx
-a-----          12.3.2023 r.      19:51 156049 02.QA-Intro-Homework-Yordan-Grozdev.docx
-a-----          21.3.2023 r.      22:09 2029923 Bugs-and-Bug-Tracking-Homework-Yordan-Grozdev.docx
-a-----          20.3.2023 r.      21:09 79246 Manual-Testing-Homework-Yordan-Grozdev.docx
-a-----          25.3.2023 r.      16:04 0 New Text Document.TXT
-a-----          16.5.2023 r.      19:20 62309 program.docx
-a-----          27.3.2023 r.      18:14 229611 Test-Levels-and-Test-Types-Homework-Yordan-Grozdev.docx
-a-----          19.5.2023 r.      21:10 9859 npo6a.docx
```



```
Select PowerShell 7 (x64) - powershell

PS F:\WORK\QA\1. QA basic> Invoke-Item -Path .\program.docx
PS F:\WORK\QA\1. QA basic> c:
PS C:\Users\GordenL> dir

Directory: C:\Users\GordenL

Mode                LastWriteTime         Length Name
----                -
d-----          14.5.2023 r.      19:03      .dotnet
d-----          13.5.2023 r.       0:37      .ld9VirtualBox
d-----          14.5.2023 r.      19:03      .nuget
d-----          14.5.2023 r.      11:45      .vscode
d-----          14.5.2023 r.      11:45      .vscode-cli
d-r-----        23.6.2020 r.      22:00 3D Objects
d-r-----        23.6.2020 r.      22:00 Contacts
d-r-----          14.5.2023 r.      12:51 Desktop
d-r-----          12.5.2023 r.      23:28 Documents
d-r-----          18.5.2023 r.      18:31 Downloads
d-r-----        23.6.2020 r.      22:00 Favorites
d-r-----        23.6.2020 r.      22:00 Links
d-r-----        23.6.2020 r.      22:00 Music
dar--l          18.5.2023 r.      18:56 OneDrive
d-r-----        23.6.2020 r.      22:00 Pictures
d-r-----        23.6.2020 r.      22:00 Saved Games
d-r-----        23.6.2020 r.      22:00 Searches
d-r-----        23.6.2020 r.      22:00 Videos
-a-----          13.5.2023 r.      14:17 112 .node_repl_history
```

```
PowerShell 7 (x64) - powershell

d-r-----        23.6.2020 r.      22:00 Contacts
d-r-----          14.5.2023 r.      12:51 Desktop
d-r-----          12.5.2023 r.      23:28 Documents
d-r-----          18.5.2023 r.      18:31 Downloads
d-r-----        23.6.2020 r.      22:00 Favorites
d-r-----        23.6.2020 r.      22:00 Links
d-r-----        23.6.2020 r.      22:00 Music
dar--l          18.5.2023 r.      18:56 OneDrive
d-r-----        23.6.2020 r.      22:00 Pictures
d-r-----        23.6.2020 r.      22:00 Saved Games
d-r-----        23.6.2020 r.      22:00 Searches
d-r-----        23.6.2020 r.      22:00 Videos
-a-----          13.5.2023 r.      14:17 112 .node_repl_history

PS C:\Users\GordenL> cd .\Desktop
PS C:\Users\GordenL\Desktop> dir

Directory: C:\Users\GordenL\Desktop

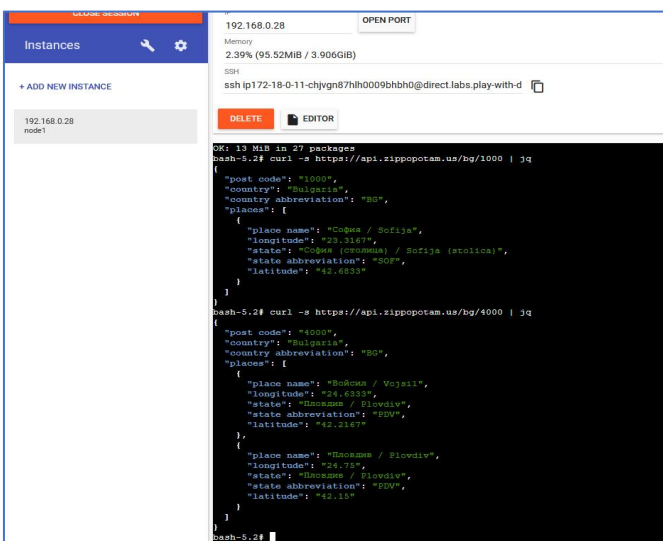
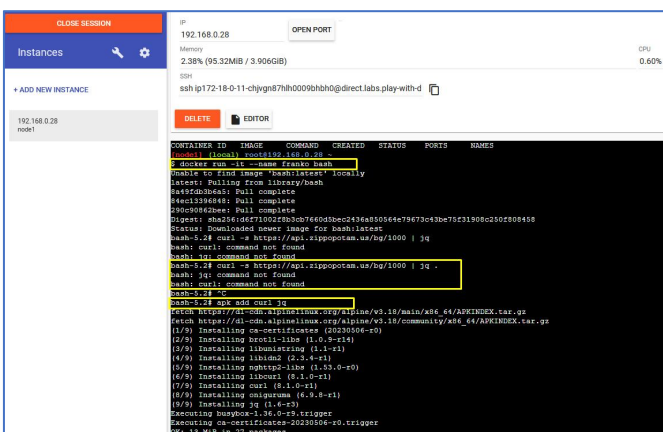
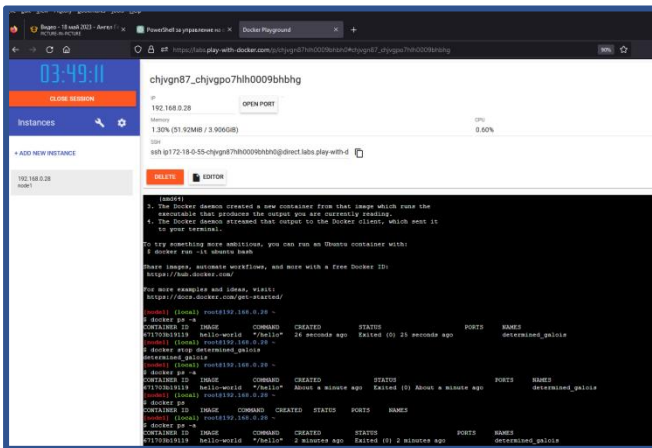
Mode                LastWriteTime         Length Name
----                -
-a-----          27.9.2021 r.      19:20 1444128 laws.7z
-a-----          12.5.2023 r.      23:30 715 LDPlayer9.lnk
-a-----          14.5.2023 r.      11:45 1406 Visual Studio Code.lnk

PS C:\Users\GordenL\Desktop>
```

## 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:



CLOSE SESSION

Instances

+

ADD NEW INSTANCE

192.168.0.28  
node1

OPEN PORT

Memory  
2.42% (96.95MiB / 3.906GiB)

SSH  
ssh ip172-18-0-11-chjygn871h0009bhbh0@direct.labs.play-with-d

DELETE

EDITOR

```
    "longitude": "24.15",
    "state": "Rhinems / Ploydiv",
    "state abbreviation": "PDV",
    "latitude": "42.15"
  }
}
bash-5.2$ curl -s https://api.zippopotam.us/de/3450 | jq
{}
bash-5.2$ curl -s https://api.zippopotam.us/de/01067 | jq
{
  "post code": "01067",
  "country": "Germany",
  "country abbreviation": "DE",
  "places": [
    {
      "place name": "Dresden",
      "longitude": "51.05",
      "state": "Sachsen",
      "state abbreviation": "SN",
      "latitude": "14612"
    },
    {
      "place name": "Dresden Friedrichstadt",
      "longitude": "51.0597",
      "state": "Sachsen",
      "state abbreviation": "SN",
      "latitude": "14612"
    },
    {
      "place name": "Dresden Innere Altstadt",
      "longitude": "51.0597",
      "state": "Sachsen",
      "state abbreviation": "SN",
      "latitude": "14612"
    }
  ]
}
```

## 4. Play with WSL

pinko@DESKTOP-50Q2956: ~

```
to run a command as administrator (user "root"), use "sudo <command>".
see "man sudo_root" for details.
```

```
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.15.90.1-microsoft-standard-WSL2 x86_64)
```

- \* Documentation: <https://help.ubuntu.com>
- \* Management: <https://landscape.canonical.com>
- \* Support: <https://ubuntu.com/advantage>

This message is shown once a day. To disable it please create the  
/home/pinko/.hushlogin file.

```
pinko@DESKTOP-50Q2956:~$
```

```
root@DESKTOP-50Q2956: /mnt/f
```

```
>>> exit
Use exit() or Ctrl-D (i.e. EOF) to exit
>>>
root@DESKTOP-50Q2956:/home# apt get -install python3
E: Invalid operation get-install
root@DESKTOP-50Q2956:/home# apt get -install python3
E: Command line option 'n' [from -install] is not understood in combination with the other options.
root@DESKTOP-50Q2956:/home# apt-get install python3
E: Invalid operation install
root@DESKTOP-50Q2956:/home# apt-get install python3
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
python3 is already the newest version (3.10.6-1~22.04).
python3 set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@DESKTOP-50Q2956:/home# cd ..
root@DESKTOP-50Q2956:/# mount -t drvfs F: /mnt/f
root@DESKTOP-50Q2956:/# cd /mnt/f
root@DESKTOP-50Q2956:/mnt/f# ls
CODESYS[1]  BIOS[2]  "System Volume Information"  >[3]
root@DESKTOP-50Q2956:/mnt/f#
```



```
root@DESKTOP-50Q2956: /mnt/f/work/qa/1. QA basic
root@DESKTOP-50Q2956:/home/pinko/demo_file# mount -t drvfs F: /mnt/f
root@DESKTOP-50Q2956:/home/pinko/demo_file# cd /mnt/f
root@DESKTOP-50Q2956:/mnt/f# ls
root@DESKTOP-50Q2956:/mnt/f# ls
root@DESKTOP-50Q2956:/mnt/f# cd work
root@DESKTOP-50Q2956:/mnt/f/work# ls
root@DESKTOP-50Q2956:/mnt/f/work# cd qa
root@DESKTOP-50Q2956:/mnt/f/work/qa# ls
root@DESKTOP-50Q2956:/mnt/f/work/qa# cd 1.\ QA\ basic/
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic# ls
02.QA-Intro-Exercises.docx      'Proba TXT.TXT'
02.QA-Intro-Homework-Yordan-Grozdev.docx  'Proba docW.docx'
Bugs-and-Bug-Tracking-Homework-Yordan-Grozdev.docx  ProbaI
02.QA-Intro-Exercises.docx      Test-Levels-and-Test-Types-Homework-Yordan-Grozdev.docx
Manual-Testing-Homework-Yordan-Grozdev.docx  program.docx
Proba
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic# nano proba.docW
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic# nano proba.docW
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic# nano proba.docW
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic# nano proba.TXT
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic# ls
02.QA-Intro-Exercises.docx      'Note blanka.TXT'
02.QA-Intro-Homework-Yordan-Grozdev.docx  Samoword.doc
Bugs-and-Bug-Tracking-Homework-Yordan-Grozdev.docx  Test-Levels-and-Test-Types-Homework-Yordan-Grozdev.docx
02.QA-Intro-Exercises.docx      'Word proba.docx'
Manual-Testing-Homework-Yordan-Grozdev.docx  program.docx
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic# nano Note\ blanka.TXT
root@DESKTOP-50Q2956:/mnt/f/work/qa/1. QA basic#
```

```
GNU nano 6.2      Note blanka.TXT *
123 note
edit from GNU nano 6.2
end_
^G Help      ^O Write Out  ^W Where Is   ^X Cut        ^T Execute    ^Q Location   ^U Undo       ^A Set Mark
^C Exit      ^R Read File  ^N Replace    ^V Paste      ^J Justify    ^_ Go To Line  ^E Redo       ^G Copy
```

```
Note blanka - Notepad
File Edit Format View Help
123 note
edit from GNU nano 6.2
end

Ln 1, Col 1    100%   Unix (LF)   UTF-8
```