```
Invite de commandes

Microsoft Windows [version 10.0.26100.4946]
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C:\Users\Palaz>python -m venv homework_project

C:\Users\Palaz>homework_project\Scripts\activate

(homework_project) C:\Users\Palaz>pip list
Package     Version
---------- -------
pip         24.0
setuptools 65.5.0

[notice] A new release of pip is available: 24.0 -> 25.2
[notice] To update, run: python.exe -m pip install --upgrade pip

(homework_project) C:\Users\Palaz>pip install requests numpy pandas
```

```
(homework_project) C:\Users\Palaz>pip install requests numpy pandas
Collecting requests
  Using cached requests-2.32.5-py3-none-any.whl.metadata (4.9 kB)
Collecting numpy
  Using cached numpy-2.3.3-cp311-cp311-win_amd64.whl.metadata (60 kB)
Collecting pandas
  Using cached pandas-2.3.2-cp311-cp311-win_amd64.whl.metadata (19 kB)
Collecting charset_normalizer<4,>=2 (from requests)
  Using cached charset_normalizer-3.4.3-cp311-cp311-win_amd64.whl.metadata (37 kB)
Collecting idna<4,>=2.5 (from requests)
  Using cached idna-3.10-py3-none-any.whl.metadata (10 kB)
Collecting urllib3<3,>=1.21.1 (from requests)
  Using cached urllib3-2.5.0-py3-none-any.whl.metadata (6.5 kB)
Collecting certifi>=2017.4.17 (from requests)
  Using cached certifi-2025.8.3-py3-none-any.whl.metadata (2.4 kB)
Collecting python-dateutil>=2.8.2 (from pandas)
  Using cached python_dateutil-2.9.0.post0-py2.py3-none-any.whl.metadata (8.4 kB)
Collecting pytz>=2020.1 (from pandas)
  Using cached pytz-2025.2-py2.py3-none-any.whl.metadata (22 kB)
Collecting tzdata>=2022.7 (from pandas)
  Using cached tzdata-2025.2-py2.py3-none-any.whl.metadata (1.4 kB)
Collecting six>=1.5 (from python-dateutil>=2.8.2->pandas)
  Using cached six-1.17.0-py2.py3-none-any.whl.metadata (1.7 kB)
Using cached requests-2.32.5-py3-none-any.whl (64 kB)
Using cached numpy-2.3.3-cp311-cp311-win_amd64.whl (13.1 MB)
Using cached pandas-2.3.2-cp311-cp311-win_amd64.whl (11.3 MB)
Using cached certifi-2025.8.3-py3-none-any.whl (161 kB)
Using cached charset_normalizer-3.4.3-cp311-cp311-win_amd64.whl (107 kB)
Using cached idna-3.10-py3-none-any.whl (70 kB)
Using cached python_dateutil-2.9.0.post0-py2.py3-none-any.whl (229 kB)
Using cached pytz-2025.2-py2.py3-none-any.whl (509 kB)
Using cached tzdata-2025.2-py2.py3-none-any.whl (347 kB)
Using cached urllib3-2.5.0-py3-none-any.whl (129 kB)
Using cached six-1.17.0-py2.py3-none-any.whl (11 kB)
Installing collected packages: pytz, urllib3, tzdata, six, numpy, idna, charset_normalizer, certifi, re
quests, python-dateutil, pandas
Successfully installed certifi-2025.8.3 charset_normalizer-3.4.3 idna-3.10 numpy-2.3.3 pandas-2.3.2 pyt
hon-dateutil-2.9.0.post0 pytz-2025.2 requests-2.32.5 six-1.17.0 tzdata-2025.2 urllib3-2.5.0

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(homework_project) C:\Users\Palaz>pip list
Package            Version
------------------ -----------
certifi            2025.8.3
charset-normalizer 3.4.3
idna               3.10
numpy              2.3.3
pandas             2.3.2
pip                24.0
python-dateutil    2.9.0.post0
pytz               2025.2
requests           2.32.5
setuptools         65.5.0
six                1.17.0
tzdata             2025.2
urllib3            2.5.0

[notice] A new release of pip is available: 24.0 -> 25.2
[notice] To update, run: python.exe -m pip install --upgrade pip
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```
(homework_project) C:\Users\Palaz>pip freeze > requirements.txt

(homework_project) C:\Users\Palaz>deactivate
C:\Users\Palaz>python -m venv new_homework_project

C:\Users\Palaz>new_homework_project\Scripts\activate

(new_homework_project) C:\Users\Palaz>pip list
Package    Version
---------- -------
pip        24.0
setuptools 65.5.0

[notice] A new release of pip is available: 24.0 -> 25.2
[notice] To update, run: python.exe -m pip install --upgrade pip

(new_homework_project) C:\Users\Palaz>pip install -r requirements.txt
Collecting certifi==2025.8.3 (from -r requirements.txt (line 1))
  Using cached certifi-2025.8.3-py3-none-any.whl.metadata (2.4 kB)
Collecting charset-normalizer==3.4.3 (from -r requirements.txt (line 2))
  Using cached charset_normalizer-3.4.3-cp311-cp311-win_amd64.whl.metadata (37 kB)
Collecting idna==3.10 (from -r requirements.txt (line 3))
  Using cached idna-3.10-py3-none-any.whl.metadata (10 kB)
Collecting numpy==2.3.3 (from -r requirements.txt (line 4))
  Using cached numpy-2.3.3-cp311-cp311-win_amd64.whl.metadata (60 kB)
Collecting pandas==2.3.2 (from -r requirements.txt (line 5))
  Using cached pandas-2.3.2-cp311-cp311-win_amd64.whl.metadata (19 kB)
Collecting python-dateutil==2.9.0.post0 (from -r requirements.txt (line 6))
  Using cached python_dateutil-2.9.0.post0-py2.py3-none-any.whl.metadata (8.4 kB)
Collecting pytz==2025.2 (from -r requirements.txt (line 7))
  Using cached pytz-2025.2-py2.py3-none-any.whl.metadata (22 kB)
Collecting requests==2.32.5 (from -r requirements.txt (line 8))
  Using cached requests-2.32.5-py3-none-any.whl.metadata (4.9 kB)
Collecting six==1.17.0 (from -r requirements.txt (line 9))
  Using cached six-1.17.0-py2.py3-none-any.whl.metadata (1.7 kB)
Collecting tzdata==2025.2 (from -r requirements.txt (line 10))
  Using cached tzdata-2025.2-py2.py3-none-any.whl.metadata (1.4 kB)
Collecting urllib3==2.5.0 (from -r requirements.txt (line 11))
  Using cached urllib3-2.5.0-py3-none-any.whl.metadata (6.5 kB)
Using cached certifi-2025.8.3-py3-none-any.whl (161 kB)
Using cached charset_normalizer-3.4.3-cp311-cp311-win_amd64.whl (107 kB)
Using cached idna-3.10-py3-none-any.whl (70 kB)
Using cached numpy-2.3.3-cp311-cp311-win_amd64.whl (13.1 MB)
Using cached pandas-2.3.2-cp311-cp311-win_amd64.whl (11.3 MB)
Using cached python_dateutil-2.9.0.post0-py2.py3-none-any.whl (229 kB)
Using cached pytz-2025.2-py2.py3-none-any.whl (509 kB)
Using cached requests-2.32.5-py3-none-any.whl (64 kB)
Using cached six-1.17.0-py2.py3-none-any.whl (11 kB)
Using cached tzdata-2025.2-py2.py3-none-any.whl (347 kB)
Using cached urllib3-2.5.0-py3-none-any.whl (129 kB)
Installing collected packages: pytz, urllib3, tzdata, six, numpy, idna, charset-normalizer, certifi, re
quests, python-dateutil, pandas
Successfully installed certifi-2025.8.3 charset-normalizer-3.4.3 idna-3.10 numpy-2.3.3 pandas-2.3.2 pyt
hon-dateutil-2.9.0.post0 pytz-2025.2 requests-2.32.5 six-1.17.0 tzdata-2025.2 urllib3-2.5.0

[notice] A new release of pip is available: 24.0 -> 25.2
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(new_homework_project) C:\Users\Palaz>
```

```
(new_homework_project) C:\Users\Palaz>pip list
Package            Version
------------------ -----------
certifi            2025.8.3
charset-normalizer 3.4.3
idna               3.10
numpy              2.3.3
pandas             2.3.2
pip                24.0
python-dateutil    2.9.0.post0
pytz               2025.2
requests           2.32.5
setuptools         65.5.0
six                1.17.0
tzdata             2025.2
urllib3            2.5.0

[notice] A new release of pip is available: 24.0 -> 25.2
[notice] To update, run: python.exe -m pip install --upgrade pip

(new_homework_project) C:\Users\Palaz>
```
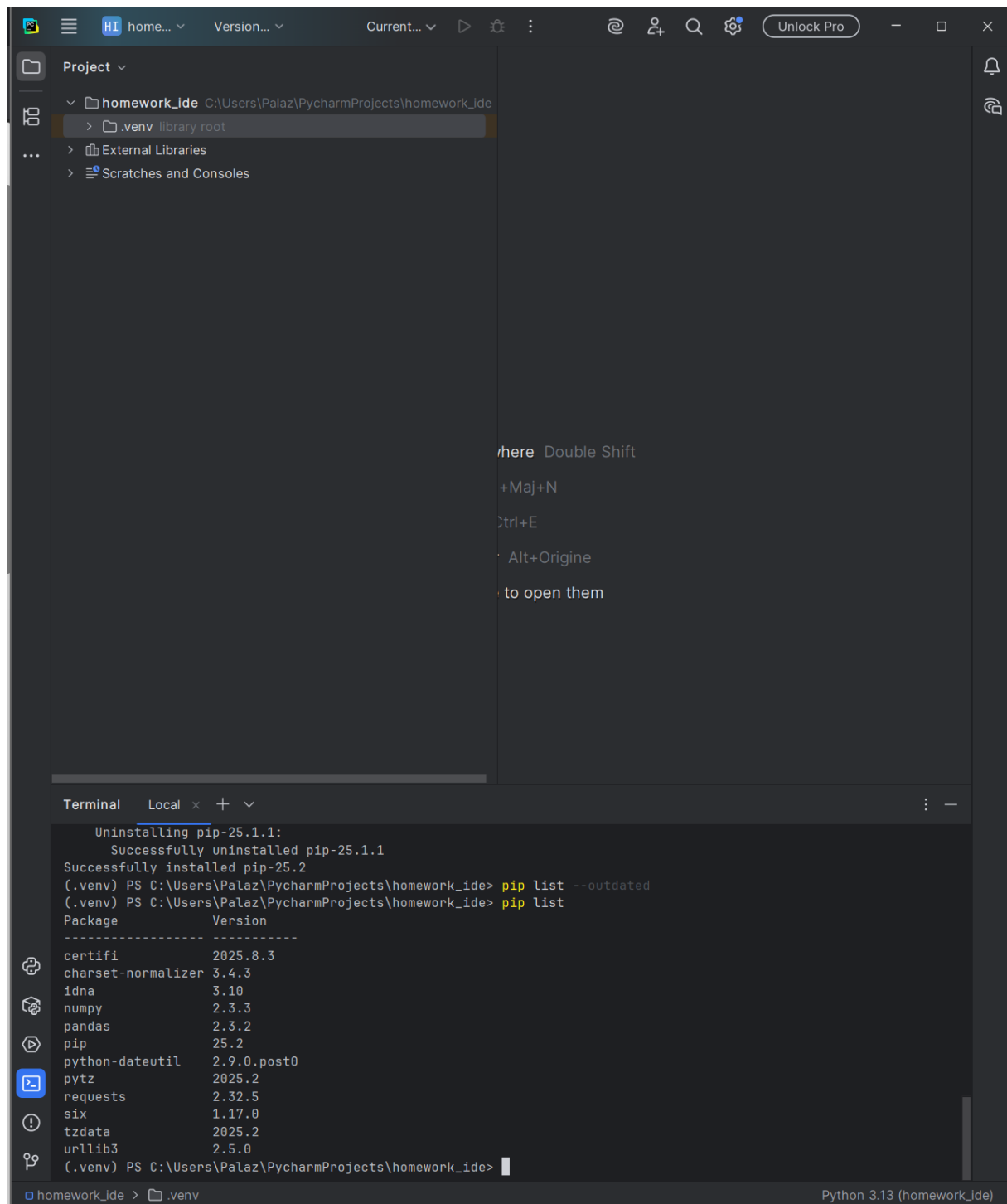
Project ∨

∨ ▢ **homework_ide** C:\Users\Palaz\PycharmProjects\homework_ide
  ⟩ ▢ .venv library root
  ⟩ ▥ External Libraries
  ⟩ ▤ Scratches and Consoles

where  Double Shift

+Maj+N

Ctrl+E

Alt+Origine

to open them

Terminal   Local ✕  +  ∨

```
    Uninstalling pip-25.1.1:
      Successfully uninstalled pip-25.1.1
Successfully installed pip-25.2
(.venv) PS C:\Users\Palaz\PycharmProjects\homework_ide> pip list --outdated
(.venv) PS C:\Users\Palaz\PycharmProjects\homework_ide> pip list
Package            Version
------------------ -----------
certifi            2025.8.3
charset-normalizer 3.4.3
idna               3.10
numpy              2.3.3
pandas             2.3.2
pip                25.2
python-dateutil    2.9.0.post0
pytz               2025.2
requests           2.32.5
six                1.17.0
tzdata             2025.2
urllib3            2.5.0
(.venv) PS C:\Users\Palaz\PycharmProjects\homework_ide>
```

▢ homework_ide  >  ▢ .venv                                    Python 3.13 (homework_ide)

## Project

```
homework_ide  C:\Users\Palaz\PycharmProjects\homework_ide
  .venv  library root
    Include
    Lib
    Scripts
    .gitignore
    CACHEDIR.TAG
    pyvenv.cfg
  main.py
External Libraries
Scratches and Consoles
```

main.py

```python
import requests
import numpy as np
import pandas as pd
from datetime import datetime


def main():  1 usage
    print("===Демонстрация работы установленных паке

    # 1. Демонстрация работы с requests
    print("1. Работа с библиотекой requests:")
    try:
        response = requests.get("https://httpbin.org
        if response.status_code == 200:
            data = response.json()
            print(f" Успешный запрос к API")
            print(f" Заголовок ответа: {data.get('
```

## Terminal — Local

```
(.venv) PS C:\Users\Palaz\PycharmProjects\homework_ide> python main.py
===Демонстрация работы установленных пакетов===

1. Работа с библиотекой requests:
    Успешный запрос к API
    Заголовок ответа: Sample Slide Show

2. Работа с библиотекой numpy:
    Массив: [1 2 3 4 5]
    Среднее значение: 3.0
    Сумма элементов: 15
    Случайная матрица 3x3:
[[7 5 6]
 [2 2 2]
 [7 4 3]]

3. Работа с библиотекой pandas:
    DataFrame сотрудников:
      Имя  Возраст  Зарплата   Город
    Анна       25     50000  Москва
    Борис      30     60000     СПб
   Виктор      35     75000  Москва
   Галина      28     55000  Казань
  Дмитрий      32     68000     СПб

    Средний возраст: 30.0
    Средняя зарплата: 61600

    Статистика по городам:
        Возраст  Зарплата
Город
Казань     28.0   55000.0
Москва     30.0   62500.0
СПб        31.0   64000.0

=== Проект успешно выполнен! ===
Время выполнения: 2025-09-26 00:03:36
(.venv) PS C:\Users\Palaz\PycharmProjects\homework_ide>
```

homework_ide > main.py          6:1   CRLF   UTF-8   4 spaces   Python 3.13 (homework_ide)