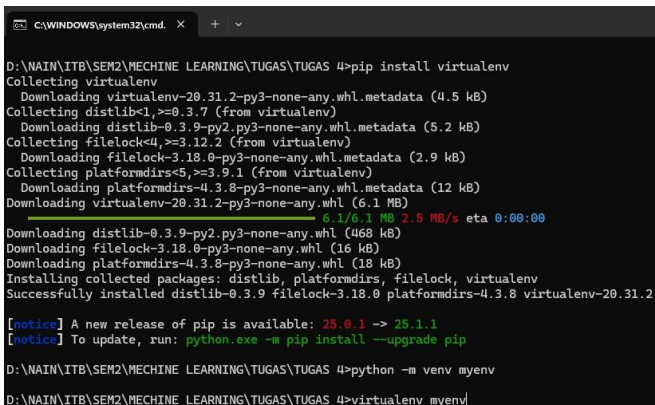


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1. Data science is the scientific process of transforming data into insight for making better decisions. The goal is to turn raw data into actionable value by applying statistical, computational, and analytical methods. Its not an independent discipline, it combines knowledge from other fields such as mathematics, computer science, and domain expertise
2. Data: raw facts or figures without context. Can be numbers, text, images, etc
Data science: a scientific process to turn data into insight and make better decisions
Data scientist: a person who performs data science, collecting, exploring, analyzing and reporting data.
3. Four foundational aspects of data science:
 - a. Mathematics, provides the theoretical framework for understanding data structures, statistical inference, functions, graphs, matrices, and algorithms. Mathematical thinking allows data scientist to model problems and analyze results accurately
 - b. Technology, involves tools and platforms used in data science, such as python programming, data cleaning libraries, Jupyter notebooks, Github for version control, and other computational environments. Technology enables the implementation of data workflows efficiently
 - c. Visualization, refers to graphical representation of data to make patterns, trends, and outliers, easier to understand. Data visualization supports better communication of results, often using charts, plots, or dashboards
 - d. Communication, includes writing clear documentation, commenting code, presenting analysis in notebooks, and creating technical reports. Effective communication ensures insights are well understood by stakeholders and collaborators
4. Jupyter Notebook: <https://pypi.org/project/notebook/>
Matplotliblib: <https://pypi.org/project/matplotlib/>
Numpy: <https://pypi.org/project/numpy/>

5. 

```
D:\MAIN\ITB\SEM2\MACHINE LEARNING\TUGAS\TUGAS 4>pip install virtualenv
Collecting virtualenv
  Downloading virtualenv-20.31.2-py3-none-any.whl.metadata (4.5 kB)
Collecting distlib<1,>=0.3.7 (from virtualenv)
  Downloading distlib-0.3.9-py2.py3-none-any.whl.metadata (5.2 kB)
Collecting filelock<4,>=3.12.2 (from virtualenv)
  Downloading filelock-3.18.0-py3-none-any.whl.metadata (2.9 kB)
Collecting platformdirs<5,>=3.9.1 (from virtualenv)
  Downloading platformdirs-4.3.8-py3-none-any.whl.metadata (12 kB)
  Downloading virtualenv-20.31.2-py3-none-any.whl (6.1 MB)
    ===== 6.1/6.1 MB 2.5 MB/s eta 0:00:00
  Downloading distlib-0.3.9-py2.py3-none-any.whl (468 kB)
  Downloading filelock-3.18.0-py3-none-any.whl (16 kB)
  Downloading platformdirs-4.3.8-py3-none-any.whl (18 kB)
Installing collected packages: distlib, platformdirs, filelock, virtualenv
Successfully installed distlib-0.3.9 filelock-3.18.0 platformdirs-4.3.8 virtualenv-20.31.2

[notice] A new release of pip is available: 25.0.1 -> 25.1.1
[notice] To update, run: python.exe -m pip install --upgrade pip

D:\MAIN\ITB\SEM2\MACHINE LEARNING\TUGAS\TUGAS 4>python -m venv myenv

D:\MAIN\ITB\SEM2\MACHINE LEARNING\TUGAS\TUGAS 4>virtualenv myenv\
```

```
C:\WINDOWS\system32\cmd. x + v
D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>virtualenv myenv
created virtual environment CPython3.13.3.final.0-64 in 18711ms
creator CPython3Windows(dest=D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4\myenv, clear=False, no_vcs_ignore=False,
global=False)
seeder FromAppData(download=False, pip=bundle, via=copy, app_data_dir=C:\Users\HP\AppData\Local\pypa\virtualenv)
added seed packages: pip==25.1.1
activators BashActivator,BatchActivator,FishActivator,NushellActivator,PowerShellActivator,PythonActivator

D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>myenv\Scripts\activate

(myenv) D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>pip install chart
Collecting chart
  Downloading chart-0.2.3.tar.gz (5.5 kB)
  Installing build dependencies ... done
  Getting requirements to build wheel ... done
  Preparing metadata (pyproject.toml) ... done
Building wheels for collected packages: chart
  Building wheel for chart (pyproject.toml) ... done
  Created wheel for chart: filename=chart-0.2.3-py3-none-any.whl size=7017 sha256=a0a76194f8db87438a52ca6098764eb5ccea0
c0d81c1f738a85f6d5dalc42e
  Stored in directory: c:\users\hp\appdata\local\pip\cache\wheels\bd\fc\4d\16f939768327a45db8adc088bb15cd830402c6f99ed7e
5673d
Successfully built chart
Installing collected packages: chart
Successfully installed chart-0.2.3

(myenv) D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>pip freeze > requirements.txt

(myenv) D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>
```

NAME	DATE	TYPE	SIZE
myenv	07/06/2025 15:41	File folder	
Data Science Phyton Venv	07/06/2025 15:21	Microsoft Word D...	16 KB
requirements	07/06/2025 16:01	Text Document	1 KB

```
C:\WINDOWS\system32\cmd. x + v
Installing build dependencies ... done
Getting requirements to build wheel ... done
Preparing metadata (pyproject.toml) ... done
Building wheels for collected packages: chart
  Building wheel for chart (pyproject.toml) ... done
  Created wheel for chart: filename=chart-0.2.3-py3-none-any.whl size=7017 sha256=a0a76194f8db87438a52ca6098764eb5ccea0
c0d81c1f738a85f6d5dalc42e
  Stored in directory: c:\users\hp\appdata\local\pip\cache\wheels\bd\fc\4d\16f939768327a45db8adc088bb15cd830402c6f99ed7e
5673d
Successfully built chart
Installing collected packages: chart
Successfully installed chart-0.2.3

(myenv) D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>pip freeze > requirements.txt

(myenv) D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>deactivate
D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>python -m venv newenv

D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>newenv\Scripts\activate

(newenv) D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>pip install -r requirements.txt
Collecting chart==0.2.3 (from -r requirements.txt (line 1))
  Using cached chart-0.2.3-py3-none-any.whl
Installing collected packages: chart
Successfully installed chart-0.2.3

[notice] A new release of pip is available: 25.0.1 -> 25.1.1
[notice] To update, run: python.exe -m pip install --upgrade pip

(newenv) D:\MAIN\ITB\SEM2\MECHINE LEARNING\TUGAS\TUGAS 4>
```