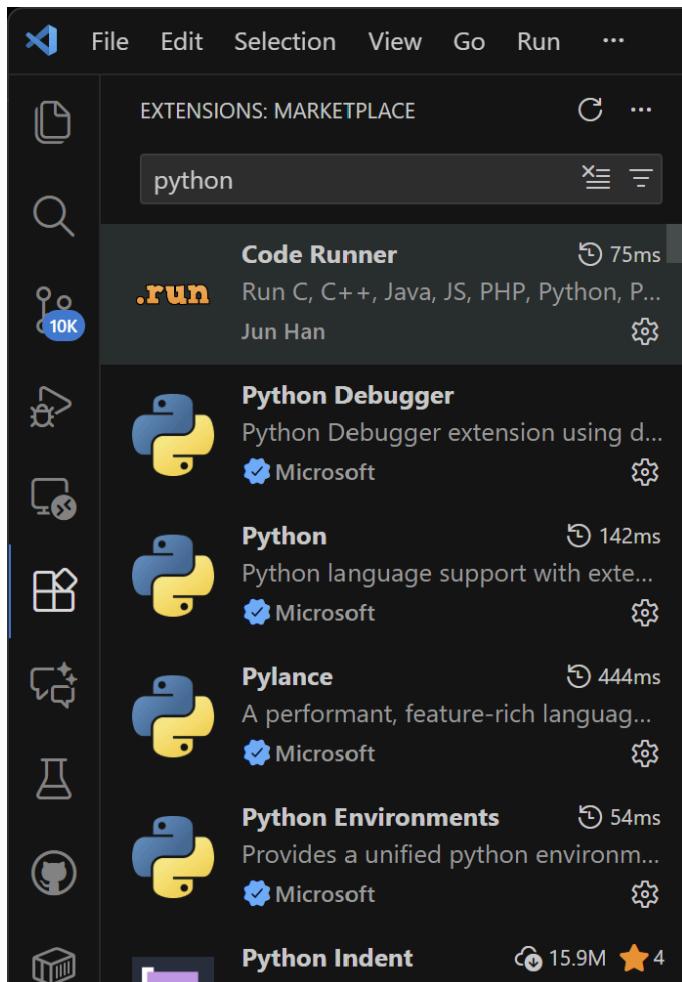


Environment Setup (25pts):

- VS Code screenshot with Python extension and virtual environment configured
- Virtual environment activation screenshot showing successful package installation
- requirements.txt with: pandas==2.3.2, requests==2.31.0, matplotlib==3.7.2



Installed Python Extensions.

```
C:\Windows\System32\cmd.exe > uv venv
Microsoft Windows [Version 10.0.26200.7171]
(c) Microsoft Corporation. All rights reserved.

C:\Users\wpmwo\OneDrive\Documents\DSSEB - SEM 3\Python for data engineering\Assignments- Re do\Python Development Environment & Fundamentals>uv venv
Using Python 3.13.2 interpreter at: C:\Users\wpmwo\AppData\Local\Programs\Python\Python313\python.exe
Creating virtual environment at: .venv
Activate with: .venv\Scripts\activate

C:\Users\wpmwo\OneDrive\Documents\DSSEB - SEM 3\Python for data engineering\Assignments- Re do\Python Development Environment & Fundamentals>.venv\Scripts\activate

(� Python Development Environment & Fundamentals) C:\Users\wpmwo\OneDrive\Documents\DSSEB - SEM 3\Python for data engineering\Assignments- Re do\Python Development Environment & Fundamentals>
```

Creating and activating the Virtual environment.

```
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
● hon Development Environment & Fundamentals> python --version
Python 3.13.2
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
● hon Development Environment & Fundamentals> uv --version
uv 0.9.11 (8d8aabb88 2025-11-20)
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
hon Development Environment & Fundamentals> uv venv --python 3.11
● Using CPython 3.11.9 interpreter at: C:\Users\wpmmpo\AppData\Local\Programs\Python\Python311\python.exe
  Creating virtual environment at: .venv
  Activate with: .venv\Scripts\activate
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
● hon Development Environment & Fundamentals> .venv\Scripts\activate
○ (Python Development Environment & Fundamentals) PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Pyt
❖ hon for data engineering\Assignments- Re do\Python Development Environment & Fundamentals> [
```

(Initially had an error due to the incompatibility of the python version and the package versions.
So needed to install python version 3.11)

```
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
● hon Development Environment & Fundamentals> python --version
Python 3.13.2
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
● hon Development Environment & Fundamentals> uv --version
uv 0.9.11 (8d8aabb88 2025-11-20)
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
hon Development Environment & Fundamentals> uv venv --python 3.11
● Using CPython 3.11.9 interpreter at: C:\Users\wpmmpo\AppData\Local\Programs\Python\Python311\python.exe
  Creating virtual environment at: .venv
  Activate with: .venv\Scripts\activate
PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Python for data engineering\Assignments- Re do\Pyt
● hon Development Environment & Fundamentals> .venv\Scripts\activate
  (Python Development Environment & Fundamentals) PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Pyt
○ hon for data engineering\Assignments- Re do\Python Development Environment & Fundamentals> ^C
  (Python Development Environment & Fundamentals) PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Pyt
● hon for data engineering\Assignments- Re do\Python Development Environment & Fundamentals> uv pip sy
  nc requirements.txt
  Resolved 3 packages in 127ms
  Prepared 2 packages in 3.27s
  Installed 3 packages in 471ms
    + matplotlib==3.7.2
    + pandas==2.3.2
    + requests==2.31.0
○ (Python Development Environment & Fundamentals) PS C:\Users\wpmmpo\OneDrive\Documents\DSSB - SEM 3\Pyt
  hon for data engineering\Assignments- Re do\Python Development Environment & Fundamentals> [
```

Packages installed



Requirements.txt file

=====

Python Script (50pts):
Create `data_analyzer.py` demonstrating:

- Variables (strings, integers, lists, dictionaries)
- Conditionals (if/elif/else)
- Loops (both while and for)
- Data structures (lists, tuples, dictionaries)
- Built-in functions: enumerate, range, id
- String to int casting
- Import from separate `utils.py` module
- if __name__ == "__main__" construct

The screenshot shows a Python development environment with two open files: `data_analyzer.py` and `utils.py`. The `data_analyzer.py` file contains the following code:

```
from utils import greet_user

#demonstration of variables
def main():
    name = "Pasindu"
    age = "26"
    hobbies = ["Reading", "Trading", "Traveling"]
    birth_date = "1999-11-04"

    profile = {
        "Name": name,
        "Age": age,
        "Hobbies": hobbies,
        "Birth Date": birth_date
    }

    age_int = int(age)
    profile["Age"] = age_int

    print(id(profile))

#demonstration of conditional statements
    print("Am I an adult?")
    if age_int < 30:
        print("You are a young adult.")
    elif age_int < 18:
        print("You are a minor.")
    else:
        print("You are an adult.")

#demonstration of loops
    print("\nHobbies:")
    for hobby in hobbies:
        print(f"Hobby: {hobby}")

    count = 0
    while count < len(hobbies):
        print(f"Hobby {count + 1}: {hobbies[count]}")
        count += 1
```

The screenshot shows a Python development environment with three tabs: `requirements.txt`, `data_analyzer.py`, and `utils.py`. The `utils.py` file contains the following code:

```
def greet_user(name: str) -> str:
    return f"Hello I am, {name}!"
```

```
(Python Development Environment & Fundamentals) PS C:\Users\wpmpo\OneDrive\Documents\DSSB - SEM 3\Pyt
● hon for data enginereeing\Assignments- Re do\Python Development Environment & Fundamentals> python da
ta_analyzer.py
2152443443904
Am I an adult?
You are a young adult.

Hobbies:
Hobby: Reading
Hobby: Trading
Hobby: Traveling
Hobby 1: Reading
Hobby 2: Trading
Hobby 3: Traveling

Using enumerate and range:
Hobby 1: Reading
Hobby 2: Trading
Hobby 3: Traveling
Number: 1
Number: 2
Number: 3
Number: 4
Number: 5
Hello I am, Pasindu!
○ (Python Development Environment & Fundamentals) PS C:\Users\wpmpo\OneDrive\Documents\DSSB - SEM 3\Pyt
✖ hon for data enginereeing\Assignments- Re do\Python Development Environment & Fundamentals> []
```

Repository (15pts) :

- Public GitHub repository: `python-fundamentals-[yourname]`
- Proper .gitignore (no virtual environment files)
- Clean commit history

The screenshot shows a GitHub repository page for the user 'Pasindu099'. The repository name is 'python-fundamentals-pasindu'. The page includes a navigation bar with links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The main content area shows a single commit from 'Pasindu099' titled 'Initial commit' made 23 minutes ago. The commit message is 'Initial commit'. Below the commit, there is a section for the 'README' file, which currently has a 'Create a README' button. To the right of the repository details, there are sections for About, Activity, Releases, and Packages, all of which are currently empty or show zero counts.

Repository link: <https://github.com/Pasindu099/python-fundamentals-pasindu.git>

Chatgpt support: <https://chatgpt.com/share/692250e0-1dd0-8005-aae3-9a7958091fa0>