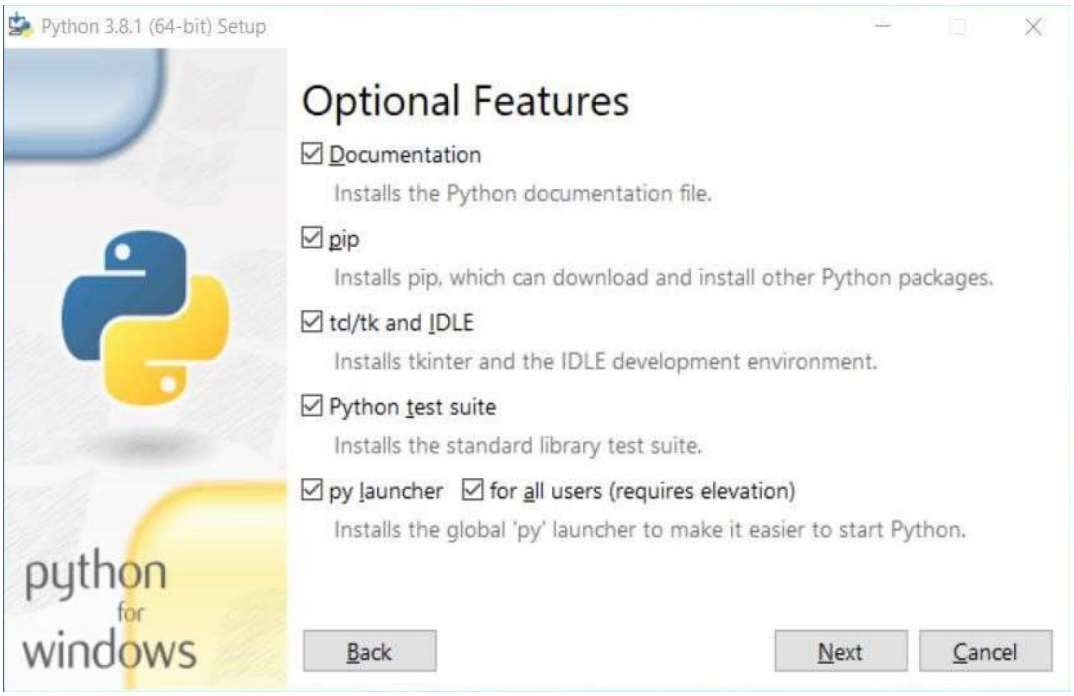
Please Read the Instructions Before Proceeding to Code/Application.

Perquisites and Development for the Code/Application: -

- Language used – Python 3+
- Code Dependency – Tkinter & Matplotlib (These are Python Libraries for Backend installation)

Status of Successful Installation: -

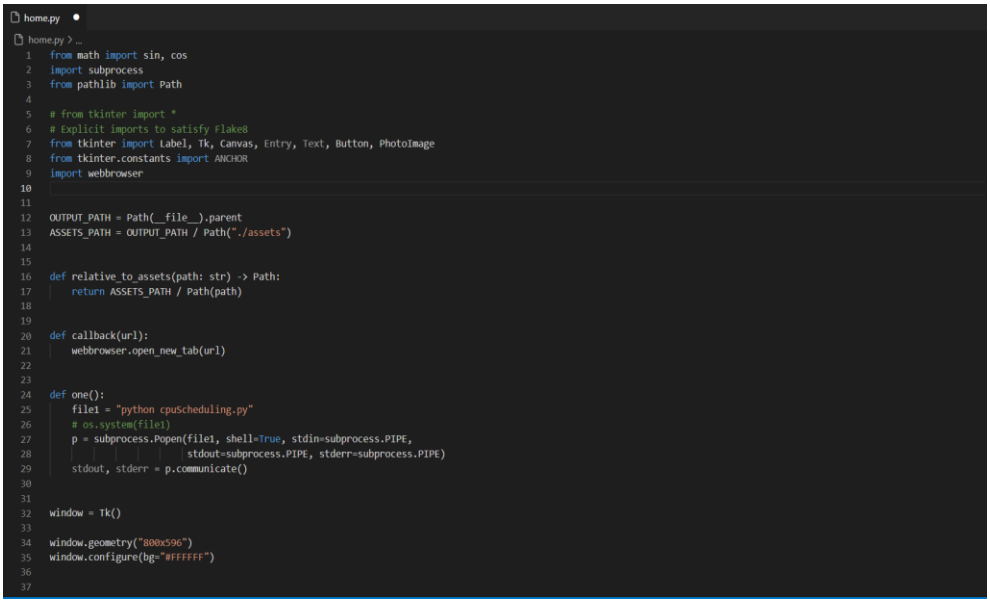
- Tkinter - At the time of installation as u can see below select tcl/tk. It will install automatically.



- Matplotlib – Used “pip install matplotlib” to install

How to Operate the Code/Application: -

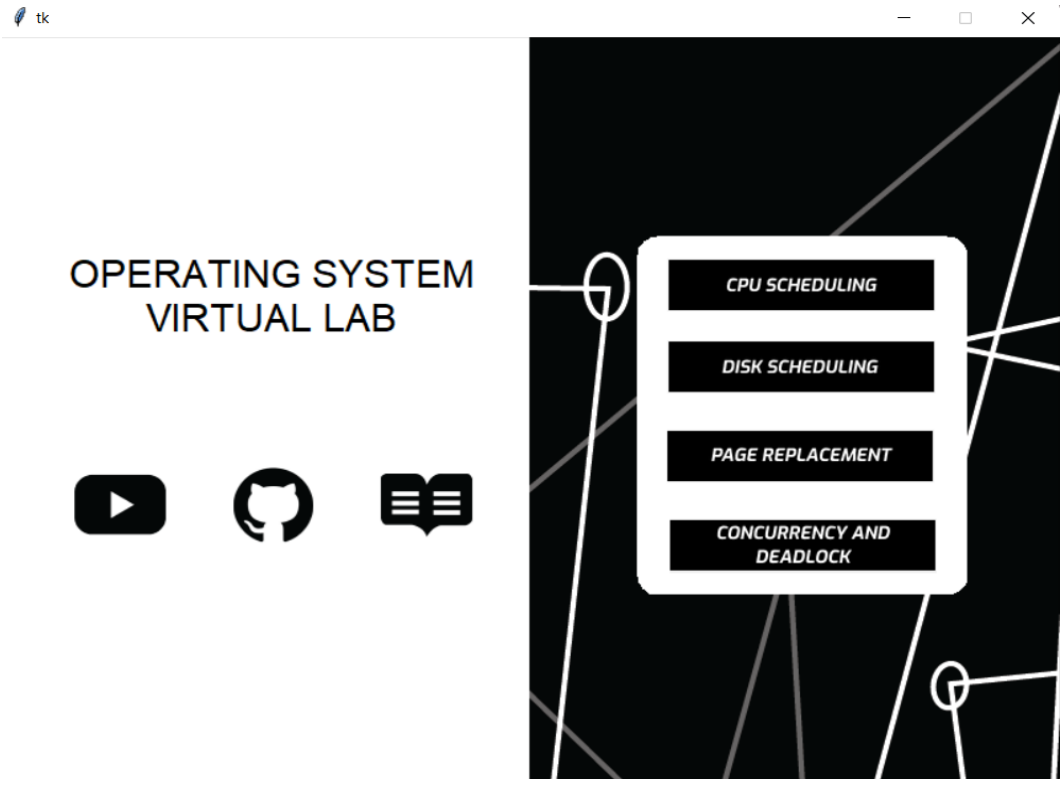
I. Open the VSCode and select the Open Project option and then select the project folder.



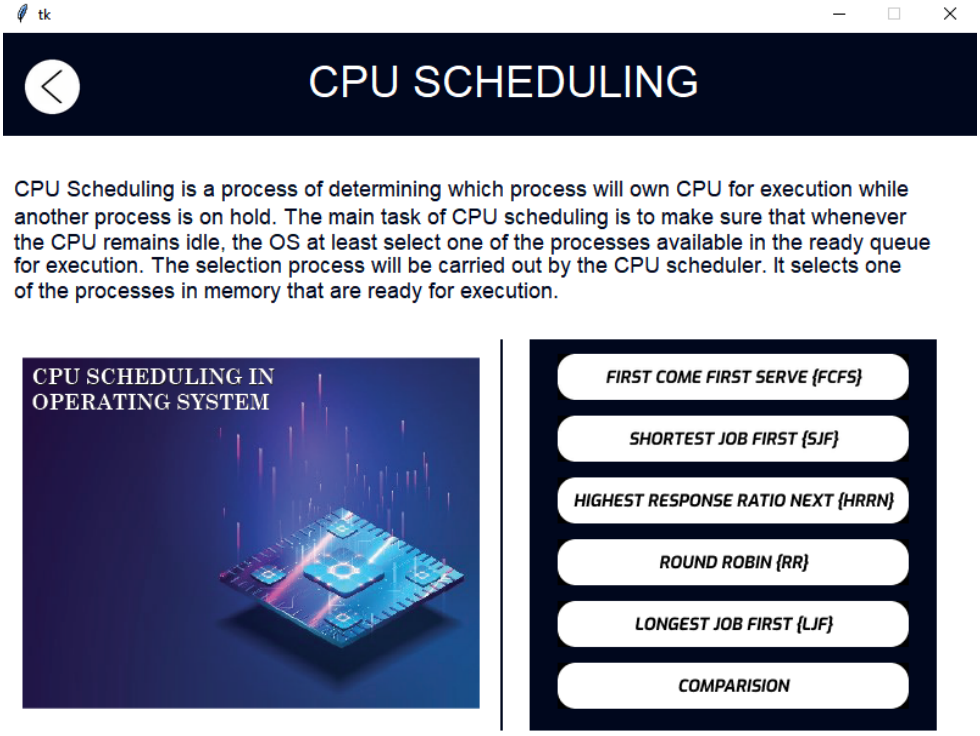
```python
from math import sin, cos
import subprocess
from pathlib import Path

# from tkinter import *
# Explicit imports to satisfy Flake8
from tkinter import Label, Tk, Canvas, Entry, Text, Button, PhotoImage
from tkinter.constants import ANCHOR
import webbrowser


OUTPUT_PATH = Path(__file__).parent
ASSETS_PATH = OUTPUT_PATH / Path("./assets")


def relative_to_assets(path: str) -> Path:
    return ASSETS_PATH / Path(path)


def callback(url):
    webbrowser.open_new_tab(url)


def one():
    file1 = "python cpuScheduling.py"
    # os.system(file1)
    p = subprocess.Popen(file1, shell=True, stdin=subprocess.PIPE,
                         stdout=subprocess.PIPE, stderr=subprocess.PIPE)
    stdout, stderr = p.communicate()


window = Tk()

window.geometry("800x596")
window.configure(bg="#FFFFFF")
```

II. Then from sidebar open the “main.py” file and press “Ctrl+Shift+F10” to run your code.

III. After the code is working you will get these kinds of interface.



IV. Then select “CPU SCHEDULING”.



V. First of when you execute the Code/Application there you will get options to selectfor which algorithm you want to visualize. The algorithm you can select are: -

a) FCFS
b) SJF
c) HRRN
d) RR
e) LJF

VI. After you select the algorithm you want to visualize you will get the option to fill thefill the textbox for every particular algorithm which collects the data where you wantto Track you want to visit and then correctly fill the information in the fields given.

VII. Then click on CALCULATE button to see the visualization of the selected algorithm.

VIII. After clicking CALCULATE you will see a tabular representation of waiting time & completion time. You can also see the average waiting time and average turnaround time. It also plots the Gantt chart for the above process.

IX. We have also added a functionality to compare the average waiting time and average turn around time of all the 5 algorithms. You just have to click the comparison button on the CPU SCHEDULING page which will take you to the comparison page where you have to input the required criteria.

X. Now, close all the windows and go back to home.py window.

XI. Then, select “Page Replacement Algorithm”.

XII. First of when you execute the Code/Application there you will get options to selectfor which algorithm you want to visualize. The algorithm you can select are: -
a) FIFO
b) LIFO
c) LRU
d) MRU
e) Optimal PRA
f) Random PRA

XIII. After you select the algorithm you want to visualize you will get the option to fill the textbox for every particular algorithm which collects the data where you wantto Track you want to visit and then correctly fill the information in the fields given.

XIV. Then click on VISUALISE button to see the visualization of the selected algorithm and GRAPH button for the Hit and Fault vs No. of Frames Graph for all algorithms.

XV. After clicking on VISUALISE button you will see the visualization of the algorithm andalso, you will get some information about the algorithm like Hit Ratio, Fault Ratio etc.

XVI. On clicking on GRAPH button, it will show the Graph of Hit and Fault V/s No. of Frames.Also, you can save the image of graph by clicking on the save button below graph.

XVII. Now, close all the windows and go back to Page Replacement Main Page.

XVIII. Now, click on “Compare All Algorithm”.

XIX. You will see the graph of Fault Ratio vs All the Algorithm.

XX. You can also save this graph for future references.

XXI. Now, close the graph and click on “Theory”.

XXII. You can refer the theories of all the six algorithms.
Enhancement’s which can be made: -
Disk Scheduling:
• Side by Side Comparisons of two Algorithms with Graph.
• 3D Animation for visualization of Algorithm.
• Also, the Minimal head movement can be for that sequence other than entered by user.
Page Replacement:
• Animation for the Visualization of the Algorithm can be done.
• Horizontal scrollbar can be inserted for the Visualization if the page reference exceeds 15.

XXIII. Now close all the windows and come back to home.py.

XXIV. Then, select “Disk Scheduling Algorithm”.

XXV. First of when you execute the Code/Application there you will get options to selectfor which algorithm you want to visualize. The algorithm you can select are: -
a) FCFS
b) SSTF
c) SCAN
d) LOOK
e) C-SCAN
f) C-LOOK

XXVI. After you select the algorithm you want to visualize you will get the option to fill thefill the textbox for every particular algorithm which collects the data where you wantto Track you want to visit and then correctly fill the information in the fields given.

XXVII. Then click on VISUALISE button to see the visualization of the selected algorithm andGRAPH button for the Total Head Movement Graph for all algorithms.

XXVIII. After clicking on VISUALISE button an animation will appear it will be the visualizationof the algorithm and also you will get some information about the algorithm like Totaltime taken, Total head movement etc.

XXIX. On clicking on GRAPH button, it will show the Graph of Total Head Movement V/s Algorithm. Also, you can save the image of graph by clicking on the save button below graph.