SmartStudy: Python Study Planner & Productivity Tracker

SmartStudy is a Python-based personalized study planner and productivity tracker designed to help students manage their time effectively, track their focus, and optimize study sessions.

This project is ideal for resumes targeting internships at companies like Google, where problem-solving, real-world utility, and code quality are valued.

Features:

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- Smart schedule generator based on subject priorities

- Visual progress tracker with graphs

- Built-in Pomodoro timer for focused study

- Logs focus level after each session

- Weekly report summary with insights

Source Code (smartstudy.py):

```
import json
import os
from datetime import datetime, timedelta
import matplotlib.pyplot as plt

# ========== Data Storage ==========
DATA_FILE = 'study_data.json'

def load_data():
if not os.path.exists(DATA_FILE):
return {"sessions": [], "topics": {}, "focus_log": []}
with open(DATA_FILE, 'r') as file:
return json.load(file)

def save_data(data):
with open(DATA_FILE, 'w') as file:
json.dump(data, file, indent=4)

# ========== Smart Scheduler ==========
def generate_schedule(subjects, total_hours):
```

```
schedule = {}
total_weight = sum(subjects.values())
for subject, weight in subjects.items():
allocated_time = round((weight / total_weight) * total_hours, 2)
schedule[subject] = allocated_time
return schedule

# ========== Logger ==========
def log_study_session(topic, duration):
data = load_data()
data["sessions"].append({"topic":        topic,        "duration":        duration,        "date":
str(datetime.now().date())})
data["topics"][topic] = data["topics"].get(topic, 0) + duration
save_data(data)

# ========== Focus Logger ==========
def log_focus(level):
data = load_data()
data["focus_log"].append({"level": level, "timestamp": str(datetime.now())})
save_data(data)

# ========== Visualization ==========
def plot_progress():
data = load_data()
topics = list(data["topics"].keys())
durations = list(data["topics"].values())
plt.bar(topics, durations, color='skyblue')
plt.xlabel("Topics")
plt.ylabel("Hours Spent")
plt.title("Study Progress by Topic")
plt.xticks(rotation=30)
plt.tight_layout()
plt.show()

# ========== Pomodoro Timer ==========
def pomodoro_timer():
print("\n[ Pomodoro Timer Started - 25 min study + 5 min break ]")
import time
for i in range(1, 4):
print(f"\nSession {i}: Study for 25 minutes")
time.sleep(2)  # use time.sleep(1500) for real 25 mins
print("Take a 5-minute break!")
time.sleep(1)  # use time.sleep(300) for real 5 mins
print("\nAll sessions complete. Great job!")

# ========== Report Generator ==========
def generate_report():
data = load_data()
print("\n--- Weekly Study Summary ---")
for topic, time in data["topics"].items():
print(f"{topic}: {time} hours")
plot_progress()
```

```
# ========== Main Menu ==========
def main():
while True:
print("\nSMARTSTUDY MENU")
print("1. Generate Study Schedule")
print("2. Log Study Session")
print("3. Log Focus Level")
print("4. View Progress Chart")
print("5. Pomodoro Timer")
print("6. Generate Weekly Report")
print("7. Exit")
choice = input("Enter your choice: ")

if choice == '1':
subjects = {}
print("Enter subject and priority (higher number = more important). Type 'done' to finish:")
while True:
subject = input("Subject: ")
if subject.lower() == 'done':
break
priority = int(input("Priority: "))
subjects[subject] = priority
hours = float(input("Total study hours today: "))
schedule = generate_schedule(subjects, hours)
print("\nYour Smart Schedule:")
for subj, hrs in schedule.items():
print(f"{subj}: {hrs} hrs")

elif choice == '2':
topic = input("Topic Studied: ")
duration = float(input("Duration (in hours): "))
log_study_session(topic, duration)
print("Session logged successfully!")

elif choice == '3':
level = int(input("Focus Level (1-5): "))
log_focus(level)
print("Focus logged!")

elif choice == '4':
plot_progress()

elif choice == '5':
pomodoro_timer()

elif choice == '6':
generate_report()

elif choice == '7':
print("Goodbye!")
break
```

```
else:
print("Invalid choice. Try again.")

if __name__ == "__main__":
main()
```

README Overview:

```
# SmartStudy

**SmartStudy** is a Python-based personalized study planner and productivity tracker designed to help students manage their time effectively, track their focus, and optimize study sessions.

##  Features

-  Smart schedule generator based on subject priorities
-  Visual progress tracker with graphs
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##  Tech Stack

- Python
- `json`, `datetime`, `matplotlib`
- (Optional) Tkinter for GUI

##  Getting Started

1. Clone the repo
2. Run the app:
```bash
python smartstudy.py
```

Data Privacy

All user data is stored locally in `study_data.json` for privacy.

Future Enhancements

- Add GUI using Tkinter or Streamlit
- Export weekly reports as PDF
- Connect to cloud for backup

Author

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Inspired by productivity struggles of students preparing for JEE & Boards
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