RAJALAKSHMI INSTITUTE OF TECHNOLOGY
BELIEVE IN THE POSSIBILITIES
AN AUTONOMOUS INSTITUTION

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

ACADEMIC YEAR 2025 - 2026

SEMESTER III

ARTIFICIAL INTELLIGENCE LABORATORY

MINI PROJECT REVIEW

<TITLE OF THE PROJECT>

REGISTER NUMBER	2117240070305
NAME	**SHYAM FRANCIS .T**
YEAR	**2-YEAR (SEMESTER III)**
SECTION	**AI&DS-E**
FACULTY IN-CHARGE	**MS BHAVANAI**

PROBLEM STATEMENT

Background:
Students often struggle to create effective study plans that balance available time, subject difficulty, and personal performance. Traditional planners are static and cannot adapt to user behavior or learning outcomes.

Problem Statement:
To develop an AI system that intelligently generates and adapts personalized study schedules using reasoning and learning techniques.

Expected Outcome:
An adaptive, data-driven planner that:

- Creates time-efficient, constraint-based study plans.
- Learns from user feedback using reinforcement learning.
- Continuously optimizes scheduling for better learning efficiency.

THEORETICAL BACKGROUND

- **AI Concepts Involved:**
- **Constraint Satisfaction Problem (CSP):** Generates an initial valid study plan by assigning subjects to time slots under given constraints.
- **Reinforcement Learning (Q-learning):** Improves the plan dynamically based on user feedback.
- **Justification for Algorithms:**
  CSP ensures valid, logical schedules. RL enables adaptive improvement — together they form a hybrid reasoning-learning model.
- **Formula (Q-learning Update Rule):**

$$Q(s,a)=Q(s,a)+\alpha[r+\gamma\max(Q(s',a'))-Q(s,a)]$$

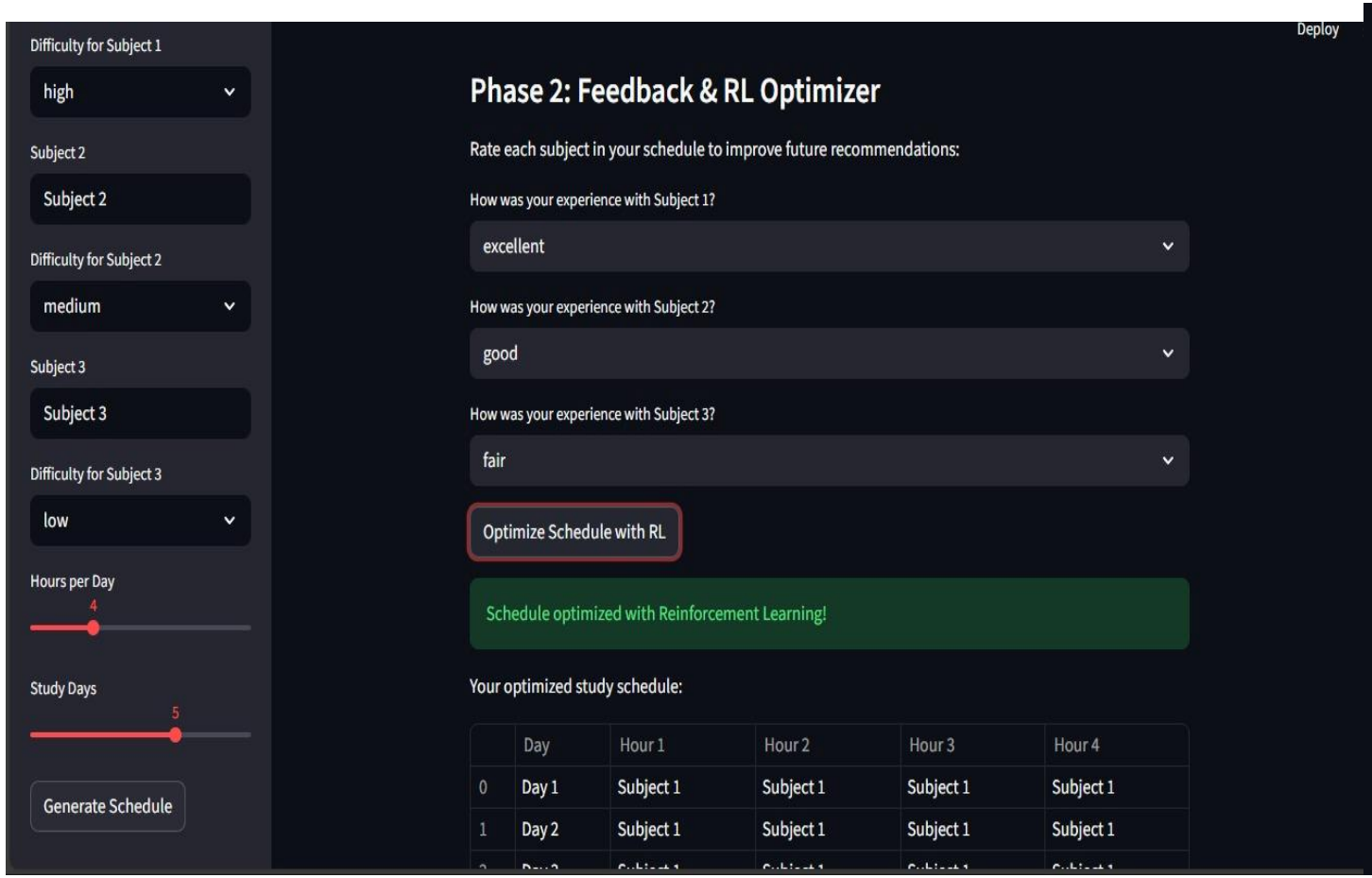
IMPLEMENTATION AND CODE

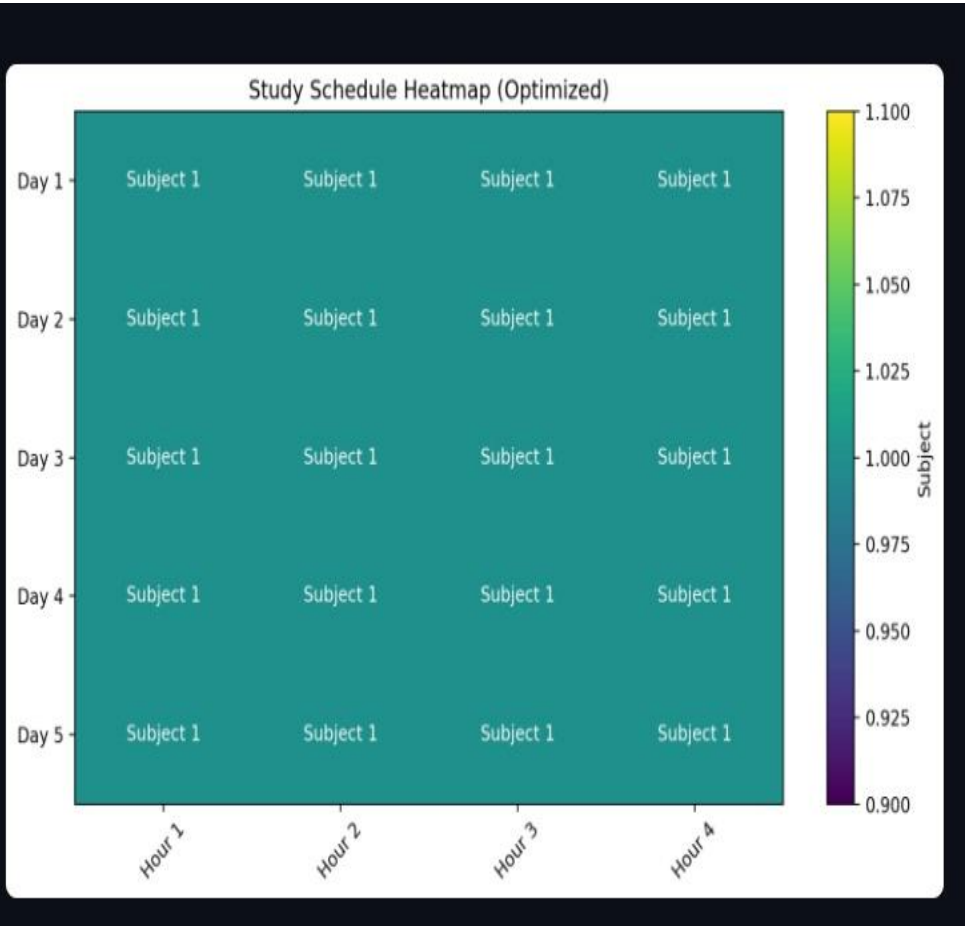
- Link to code in Git-hub Repository

List	Git-hub Repository Links
Implementation of Code Link	SHYAMFRANCIS/AI-Based-Personalized-Study-Planner
Word Document Report Link	AI-Based-Personalized-Study-Planner/shyam_AI_MINIE_PROJECTS.docx at main · SHYAMFRANCIS/AI-Based-Personalized-Study-Planner
PPT Link	SHYAMFRANCIS/AI-Based-Personalized-Study-Planner

OUTPUT AND RESULTS

Output Screen shots and explanation





OUTPUT AND RESULTS

Results and Future Enhancements

- **Results:**
- Hybrid CSP–RL model successfully implemented.
- Self-adaptive system improves study efficiency with use.
- Streamlit UI enables real-time user interaction and updates.
- **Future Enhancements:**
- Integration with Google Calendar & Notifications.
- Add voice/chatbot interface using NLP.
- Use DQN for deep reinforcement learning.
- Emotion detection via OpenCV.
- Cloud database for multi-device access.
- Gamification (badges, streaks, points).
- Integration with LMS (e.g., Moodle).

REFERENCES

References (GitHub + Libraries)

- **python-constraint Library (Official Repository)** https://github.com/python-constraint/python-constraint
- **Streamlit Framework (Official Repository)** https://github.com/streamlit/streamlit
- **ennybritz / reinforcement-learning (Educational Repository)** https://github.com/dennybritz/reinforcement-learning

Research Papers

- Momenikorbekandi, A., & Fathi, M. (2023). **"Intelligent Scheduling Based on Reinforcement Learning."**
- Russell, S., & Norvig, P. (2021). ***Artificial Intelligence: A Modern Approach*** **(4th Edition).**