

Project Report – Group 11

Interactive Laptop Recommendation Chatbot

Lingwei Lu, Kairui Zhang, Haojun Liang, XiaoYao Wang

Supervisor: Chunyang Chen

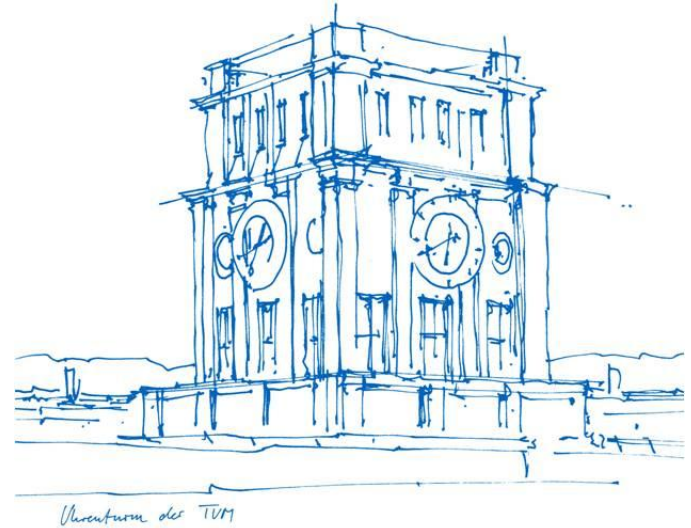
Tutors: Shen Hu, Yuetian Mao, Ludwig Felder

Foundations and Application of Generative AI

Technische Universität München

TUM School of Management / TUM School of Computation, Information and Technology

Heilbronn, 3 February 2025





Contents



- | | |
|----------|-------------------------|
| 1 | Team Introduction |
| 2 | Project Vision |
| 3 | Project Timeline |
| 4 | Project Structure |
| 5 | Current Progress & Demo |
| 6 | Project Evaluation |
| 7 | Future Improvements |



Team Introduction

Team Members



Lingwei Lu

Project Lead

Full-Stack Developer

Project Management & Requirements



Haojun Liang

Data Retriever

Backend Developer



Kairui Zhang

AI Specialist

Backend Developer

Presentation Strategist



XiaoYao Wang

Debug & Testing

Frontend Development

Project Vision

Motivations

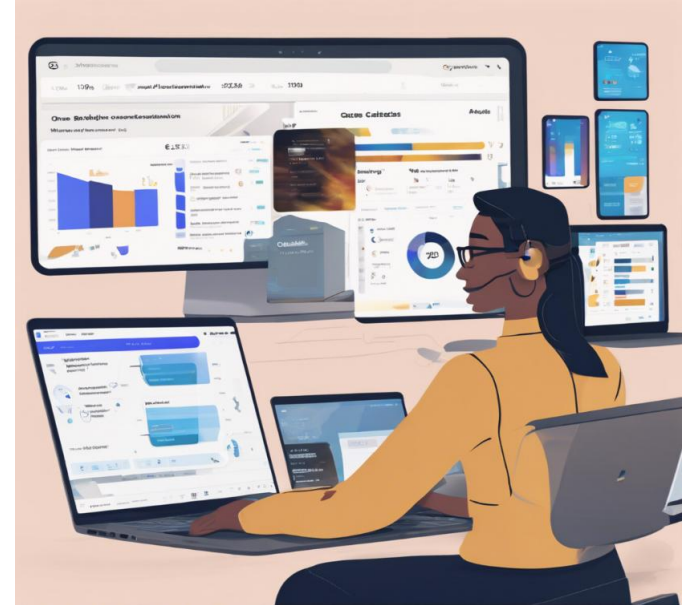
Problems that may be encountered

Laptop selection and shopping is often overwhelming due to:

- 📌 *Numerous choices*
- 📌 *Complex specs*
- 📌 *Time-consuming research*



Interactive Laptop Recommendation Chatbot



Solution & Impact

Solution - AI-powered chatbot that

- *Interacts with users*
- *Understands needs*
- *Tailored laptop recommendations*

Impact - Personalisation and decision making

Saves time •

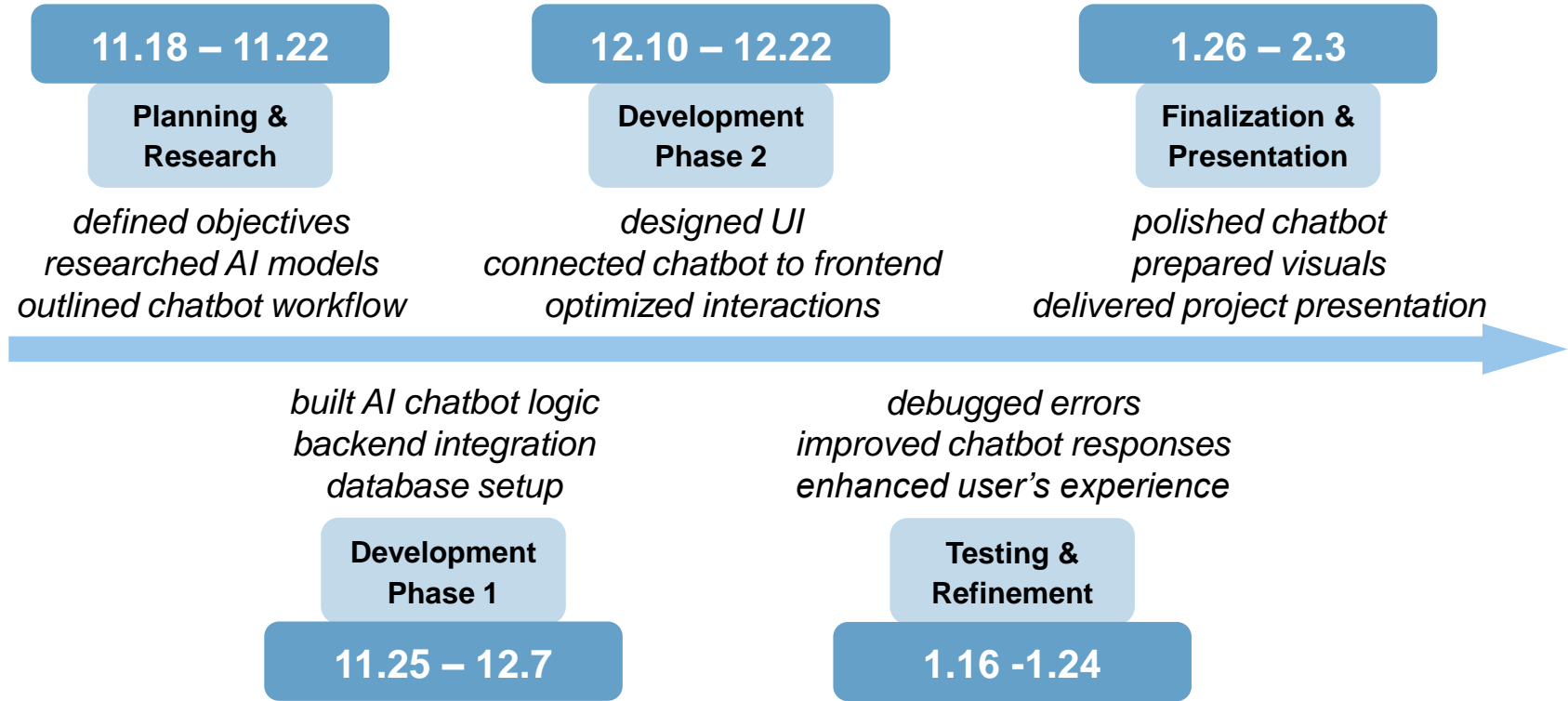
Reduces confusion •

Data-driven approach •



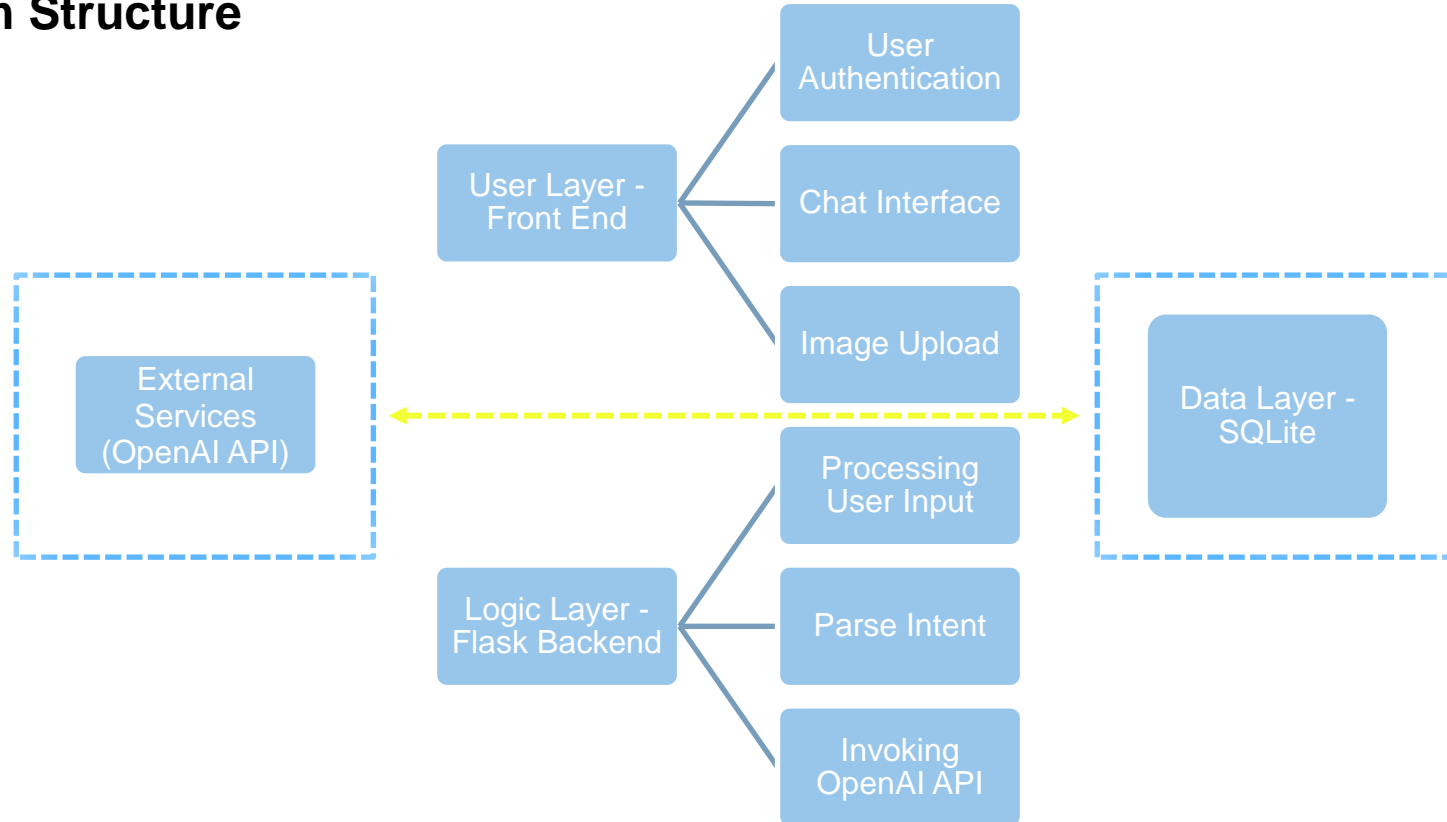
Project Timeline

Project Timeline

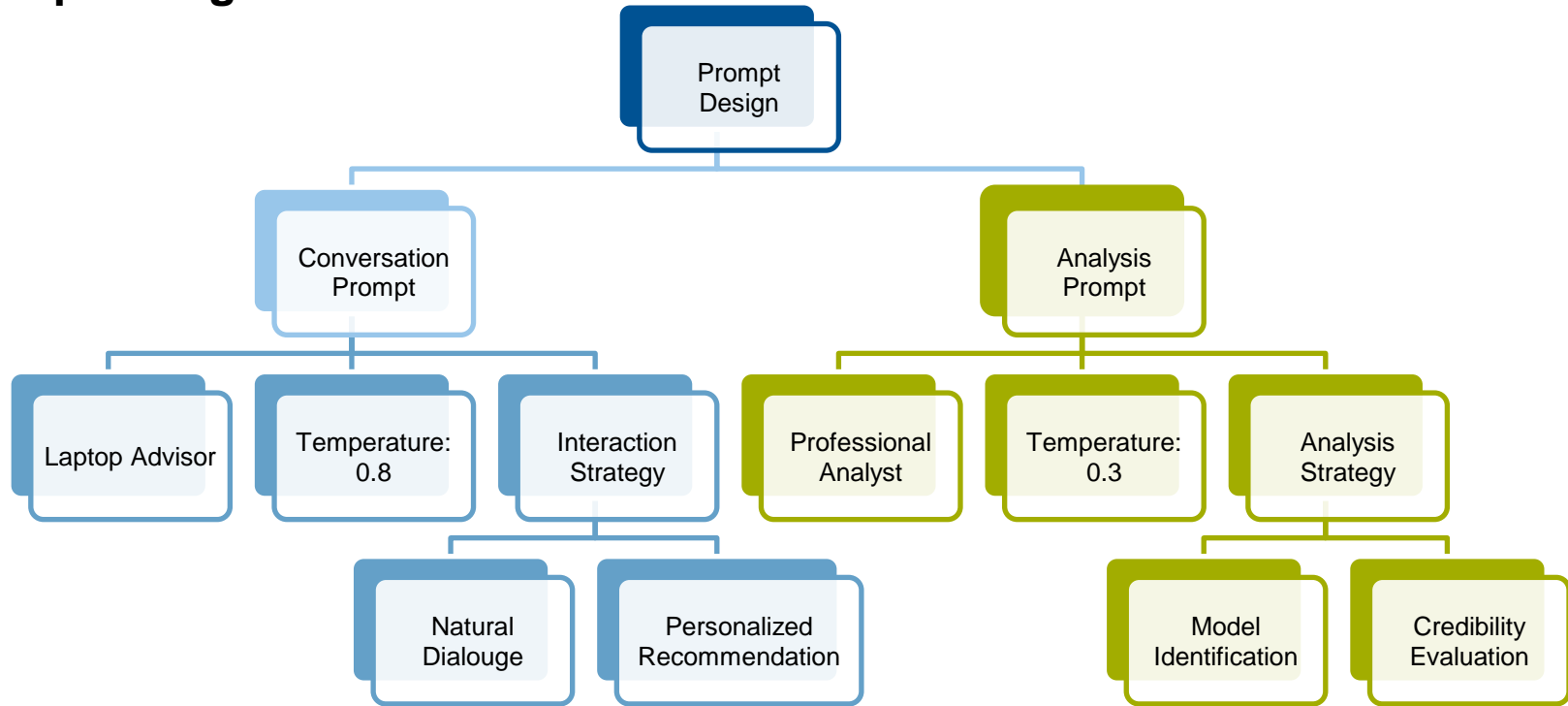


Project Structure

System Structure



Prompt Design



Methodology - Dual-layer recommendation logic

Step	Purpose
Database Queries	<i>Query the database to quickly return matching models.</i>
Fallback mechanism	<i>Try other referral strategies.</i>
Intelligent Recommendations (GPT-4)	<i>If the database query fails, invoke AI to provide personalized laptop recommendations.</i>

- Reduce the cost of AI calls
- Improve response speed
- Intelligent backing

Current Progress & Demo



What We Have Done

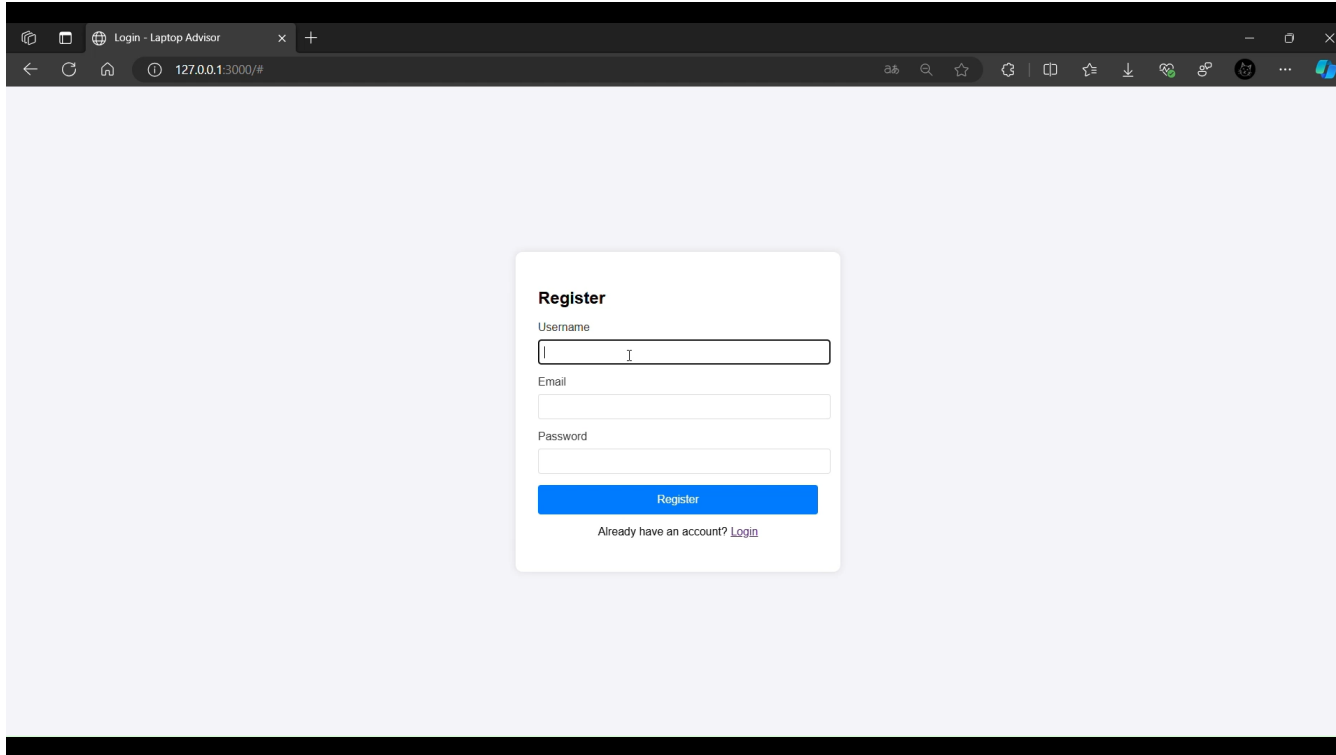
1. User authentication system
2. Chat-based interaction system
3. Laptop image recognition analysis



Ongoing Work

1. UI interface optimization
 2. API response speed optimization
 3. Update product information
- ...

Demo



The screenshot shows a web browser window with a single tab titled 'Login - Laptop Advisor'. The address bar displays '127.0.0.1:3000/#'. The main content area features a centered white card with the title 'Register'. The card contains three input fields labeled 'Username', 'Email', and 'Password'. Below these fields is a blue 'Register' button. At the bottom of the card, there is a link that says 'Already have an account? [Login](#)'.

Project Evaluation

Challenges

Image Analysis Accuracy

Varying laptop image quality and angles

Context Management

Maintaining conversation context

System Performance

Response time optimization



Solutions

Created structured prompts for consistent analysis

Created conversation state tracking and Developed user preference analysis system

Implemented caching mechanisms

Future Improvements



Feature Enhancements

- Advanced filtering options
- Price history tracking
- User reviews integration
- Export recommendations



User Experience Updates

- More interactive elements
- Enhanced mobile experience
- Social sharing features

Technical Improvements



- APIs of e-commerce platform
- Response optimization
- Additional visualization options

Q&A

Lingwei Lu, Kairui Zhang, Haojun Liang, XiaoYao Wang

Foundations and Application of Generative AI

Interactive Laptop Recommendation Chatbot