

Task 1 — Easy Level

Task Title: *Sentiment-Aware Chatbot with Langchain Memory*

Objective:

Build a simple chatbot using Langchain that maintains conversation context and detects user sentiment using a pre-trained sentiment analysis model.

Expected Deliverables:

Basic chatbot with Langchain Memory (e.g., `ConversationBufferMemory` or `SummaryMemory`)

Integration of a sentiment detection tool (VADER, TextBlob, or HuggingFace sentiment model)

Chatbot responses adapt to sentiment (e.g., more empathetic replies to negative sentiment)

Documentation of setup and code

Learning Outcomes:

Understand Langchain Memory modules

Basics of sentiment analysis (EIE)

Intro to conversational context tracking (CMM)

Task 2 — Medium Level

Task Title: *PCI Query Flow with LangGraph*

Objective:

Design a LangGraph workflow that handles a customer query, uses memory for context, and provides a predictive suggestion based on mock customer intelligence logic.

Expected Deliverables:

✓ LangGraph with at least 3 nodes:

- **Node 1:** Capture query + retrieve context
- **Node 2:** Run basic customer segmentation logic (mock PCI)
- **Node 3:** Suggest product, offer, or response based on profile

Memory persists across multiple queries

Clean visual workflow diagram of the LangGraph structure

Documentation and codebase

Learning Outcomes:

Understand LangGraph for stateful AI workflows

Basics of Predictive Customer Intelligence (PCI)

Context management in conversational flows

Task 3 — Advanced Level

Task Title: *Emotion-Aware Retention System with LangGraph*

Objective:

Build a multi-node LangGraph where:

- User conversations are processed for emotion (EIE)
- Context is maintained via Langchain Memory (CMM)
- A churn prediction model uses emotion + interaction patterns (PCI)
- Personalized recommendations/actions are suggested

Expected Deliverables:

✓ LangGraph with:

- **Emotion Detection Node:** Fine-tuned model (HuggingFace recommended)
- **Memory Node:** Tracks conversation and sentiment history
- **PCI Node:** Predicts churn risk based on history + emotion
- **Action Node:** Recommends next-best-action (discount, support escalation, etc.)

Basic UI (CLI or Streamlit) for testing

Well-commented, modular codebase

Final demo presentation

Project report with architecture diagram and reflections