Samantha

Her-Inspired AI Terminal Assistant

Presentation Slides

github.com/compsoc-oe-week/track1_CodersBlue

Challenge, Team & Tiers

Team CodersBlue - All Tiers Complete

Challenge Goal

> *"Bridge the semantic gap between human intent and system commands"*

Core Philosophy

Samantha listens to what you want in plain English, understands your intent, and safely gets things done.

"More than a tool—she's a helpful partner."

The Problem We Solved

Steep Learning Curve
→ Natural language interface

Tedious Multi-step Tasks
→ Single command execution

Cognitive Overload
→ Focus on WHAT, not HOW

Team Members: CodersBlue

Khalid Elbagir
Zayn Sharif
Adam Azeb
Abdulwahid Yaich
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Tier Completion

✅ Tier 1: 100% Complete
✅ Tier 2: 100% Complete
✅ Tier 3: 100% Complete

"Her"-Inspired Architecture

Bridging the Semantic Gap

Key Technical Innovations

- Modular Architecture (Parser, Planner, Executor)
- Dynamic JSON Plan Generation
- Context & Pronoun Resolution ("copy them")
- Full openEuler Docker compatibility
- Uses official Qwen3-Coder-480B & Qwen2.5-VL-32B

Self-Correction Engine Example:

```
# User enters "buget"
correction = find_closest_match("buget", known_words)
# Samantha suggests 'budget'
=> "budget"
```

Technical Architecture

Core Components

CLI: `src/cli/samantha.py`
NL → Plan: `core/nl2cmd.py`
Executor: `core/executor.py`
Search: `core/search.py`
Memory: `core/memory.py`
Safety: `core/safety.py`
Suggestions: `core/suggestions.py`
openEuler: `osint/openeuler.py`

Data Flow

1. User enters a plain-English instruction.
2. **nl2cmd** produces a structured JSON plan.
3. **safety** validates paths & flags destructive steps for confirmation.
4. **executor** runs steps with error recovery & self-correction.
5. Result is returned with clear, conversational feedback.

Runtime & Model Config

```
# Environment (as used in the README)
export OPENAI_API_KEY=EMPTY
export CODER_BASE_URL=http://10.1.0.171:8000/v1
export CODER_MODEL_NAME="Qwen/..."
```

Results & Judging Criteria

Judging Criteria Excellence

✅ **Functionality & Tier Completion (40%):** ALL 3 tiers implemented

✅ **Technical Sophistication (30%):** Advanced NLP + self-correction

✅ **UX & "Her" Inspiration (20%):** Intuitive conversational interface

✅ **openEuler Integration (10%):** Docker deployment ready

Standout Achievements

🚀 **Professional Quality:** Full test suite with pytest.

🚀 **Safety-First Design:** Critical operations require user confirmation.

🚀 **Judge-Ready Demo:** A polished 2.5-minute presentation.

🚀 **Beyond Requirements:** All tiers + bonus features implemented.

Live Demo - Challenge Fulfillment

```
# Tier 1: "Go to my documents folder"
→ Navigation ✅

# Tier 2: "Find PDFs I worked on yesterday"
→ Context ✅

# Tier 3: "Find files mentioning budget"
→ Content-aware ✅

# Bonus: "Organize my messy desktop"
→ Proactive intelligence ✅
```

Live Demos in Action

Demo 1: Self-Correction

```
(.venv) [root@...]# python -m src.cli.samantha "search for buget in demo_data"
Samantha: I see you want to: 'search for buget...'.
Based on these assumptions:
  - Searching for the term 'buget' (likely a typo for 'budget')...
I will perform the following steps:
1. search_in_files "buget" "demo_data"
Should I proceed with this plan? (y/n): y
--- Execution Summary ---
Step 1 [SUCCESS]: Found content:
/work/track1_CodersBlue/demo_data/q1-budget.txt:1:This file contains the quarterly budget.
...
```

Demo 2: Multi-Step Operation

```
(.venv) [root@...]# python -m src.cli.samantha "find pdf files in demo_data then move them to backup"
Samantha: I see you want to: 'find pdf files...'.
I will perform the following steps:
1. find_files "*.pdf" "demo_data"
2. mkdir "backup"
3. mv "{result_of_step_1}" "backup"
Should I proceed with this plan? (y/n): y
--- Execution Summary ---
Plan execution finished.
Step 1 [SUCCESS]
Step 2 [SUCCESS]
Step 3 [PARTIAL]
```

Demo 3: Advanced Search (Bash Fallback)

```
(.venv) [root@...]# python -m src.cli.samantha "find files larger than 1mb in demo_data"
Samantha: I see you want to: 'find files larger than 1mb...'.
I will perform the following steps:
1. execute_bash "find demo_data -type f -size +1M"
   Reason: To search for all files larger than 1MB...
Should I proceed with this plan? (y/n): y
--- Execution Summary ---
Plan execution finished.
Step 1 [SUCCESS]
```