Design Choices

- Tree-Based Structure:
  Each node represents a question or answer. Leaf nodes provide advice; intermediate nodes guide the diagnostic flow.
- Recursive Traversal:
  Keeps code clean and readable.
- Guidance Before Questions:
  Users are instructed to run a certain Linux command before answering. This makes the bot both educational and actionable.
- Interactive Yes/No Prompts:
  Validates input to accept only Y/N (case-insensitive). Ensures predictable flow through the troubleshooting tree. If the user inputs
  anything other than a Y/y or N/n then the question is asked again.

Technical Implementation

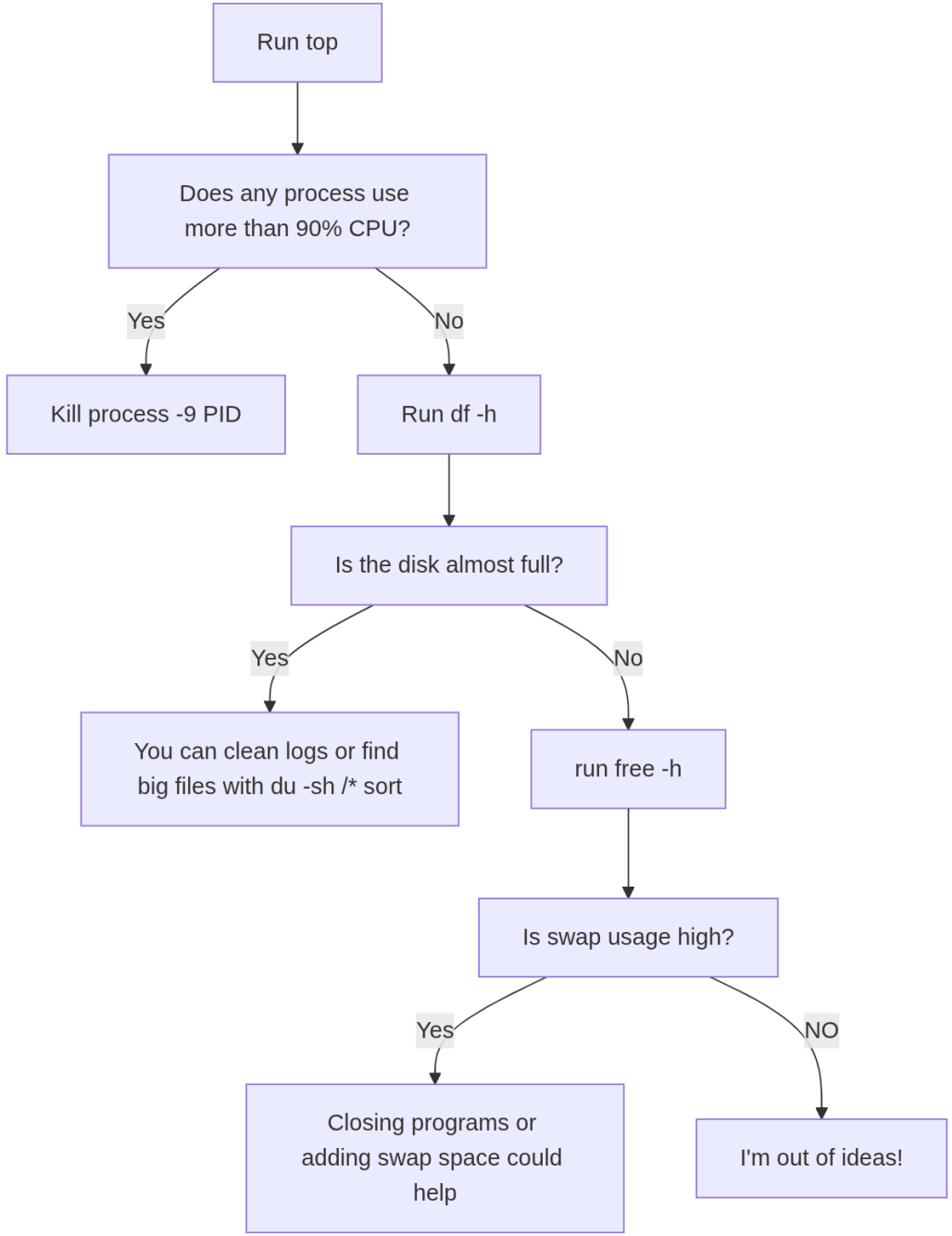
- Node-Based Design:
  Each node contains either a question with possible answers or a final piece of advice.
- Recursive Traversal:
  The chatbot starts at the root node and keeps asking questions until it reaches an answer node. If the user enters something invalid, it asks again.

Challenges

- Validating input so only Y/N is accepted.
- Combining guidance nodes (tell user what to run) with question nodes in a clean way.
- Designing the tree to be easily extensible without nested conditionals.
- Keeping the conversation natural while staying technical.

Future Improvements

- Multi-topic support: networking, file finding, package management, etc.
- Dynamic guidance: tailor commands based on the user’s Linux distribution.
- Run diagnostics internally: execute system commands and parse results.
- Improved UI: colorized output, menus, or logs of troubleshooting steps.
- Natural language input: allow more flexible user responses beyond strict Y/N.
- Logging and help: keep a session log and provide explanations for suggested commands.


Run top
Does any process use more than 90% CPU?
Yes
No
Kill process -9 PID
Run df -h
Is the disk almost full?
Yes
No
You can clean logs or find big files with du -sh /* sort
run free -h
Is swap usage high?
Yes
NO
Closing programs or adding swap space could help
I'm out of ideas!