

COSC478 ChatBot Development

TASK 4

David Ewing (82171165)
dew59@uclive.ac.nz

2024.10.24

Reflection on ChatBot Development

My experience developing the ChatBot has been a blend of learning and overcoming unexpected technical challenges. I apologise for my indulgence, as the instructions were to provide half a page, and I felt that this reflection deserved more. Starting this project, I had high hopes of creating a functional and responsive ChatBot using Botpress. However, as I delved into the development process, I encountered several issues that tested my technical skills and my patience. While I eventually decided to discontinue the assignment, this journey provided valuable lessons in troubleshooting, adapting to new technology, and understanding my limitations.

Challenges Encountered

One of the first significant hurdles I faced was setting up and managing variables correctly. Setting variables within Botpress nodes, such as `session.query` or `user_intent`, proved to be more complex than anticipated. Despite following instructions carefully, I often encountered unexpected behaviours, indicating a possible misconfiguration or a reflection of my lack of time dedicated to delving into clear documentation in Botpress. I ceased looking at the documentation once I found that I had updated to a recent version published on 24 October (12.31.9), and my experience with the videos suggested that although a minor change, it did not address the issues at hand. I believe I had further complicated the matter with my initial goal of integrating the Google search functionality, which required external API calls.

The API integration, explicitly using Google's Custom Search API with Axios for HTTP requests, highlighted another set of technical challenges. Although I installed Axios and modified the script accordingly, the error messages related to module loading (`require` and `import` issues) were persistent. These errors reflected Botpress's handling of different JavaScript module standards (CommonJS vs. ES6 modules), a nuance that required a deeper understanding of Node.js environments than I initially anticipated.

Key Points of Failure

Throughout the process, the following areas emerged as key points of failure:

1. **Managing Intent Classification and Variables:** Implementing intent detection required configuring several variables, but errors often arose when attempting to transition based on detected intents. Misunderstanding Botpress's handling of state and session variables added complexity to what I initially believed would be straightforward logic.
2. **HTTP Request Configuration:** Implementing the `searchGoogle.mjs` function exposed my unfamiliarity with asynchronous programming within the Botpress environment. Even after correcting the syntax and installing the necessary dependencies, such as Axios, the environment's response to ES modules presented ongoing difficulties.
3. **Error Handling and Debugging:** As errors surfaced, particularly with loading modules and setting variables, my debugging attempts using `console.log` and `console.dir()`

highlighted the need for more robust debugging tools in Botpress. While I managed to identify some issues, others remained elusive due to limited feedback from the system.

Future Extensions

Despite these challenges, I can see potential extensions that would make the ChatBot more functional and user-friendly. If I were to continue this project, I would:

- **Streamline Intent Detection:** Ensuring smoother transitions between intents and providing clearer fallback responses would improve the user experience. Having a reliable mechanism for detecting and categorising user inputs is essential.
- **Enhance API Integrations:** Integrating more diverse APIs, such as Wikipedia or OpenAI's GPT models, could expand the ChatBot's capabilities, offering more comprehensive responses and enhanced interactivity.
- **Improved Error Handling and Logging:** Embedding more sophisticated error-handling methods within custom actions, and possibly using third-party logging tools, could make debugging more manageable and transparent.

In conclusion, while this project was challenging, it provided a deep insight into the complexities of ChatBot development with Botpress. Moving forward, I would approach similar projects with a more detailed technical plan and additional testing phases to mitigate the types of issues I encountered here.