COSC478 ChatBot Development

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Task Two: ChatBot Design (User-Centred)

User Personas[1]

The following persona represents one of the primary users of the ChatBot:

Persona: Researcher Rebecca

- **Age**: 32
- **Occupation**: UC PhD student in Computer Science
- **Goals**:
  - Find relevant research papers for her literature review.
  - Get concise summaries to decide if a paper is worth reading in full.
  - Quickly retrieve correct citations in APA format for inclusion in her thesis.
- **Pain Points**:
  - Overwhelmed by the number of available research papers.
  - Needs to save time by getting concise, relevant information quickly.

Use Cases/Scenarios

The use cases and scenarios describe situations where the ChatBot assists users:

Use Case 1: Search for Articles

- **Scenario**: Rebecca researches "deep learning applications in medicine." - asks ChatBot to retrieve relevant articles on this topic.
- **Problem**: The traditional search process requires Rebecca to sift through irrelevant papers manually.
- **ChatBot's Role**: Searches for relevant research papers using keywords and presents a list of articles ranked by relevance.

Use Case 2: Retrieve Article Summaries

- **Scenario**: After finding a few papers on deep learning, Rebecca asks ChatBot for summaries of the selected articles to decide if they are worth further review.
- **Problem**: Reading abstracts takes time, and some abstracts do not provide enough information.
- **ChatBot's Role**: Retrieves and presents concise, preprocessed summaries of the articles.

[1]Edited content from ChatGPT 4.o was used to create the personas

Functional Requirements

The ChatBot must include the following features and functionalities:

- Ability to search for research articles using keyword queries.
- Retrieval of summaries for selected articles.
- Ability to provide citation formats (APA, IEEE, etc.) for selected articles.
- Error handling for invalid queries or incomplete searches.

User Experience (UX) Considerations

To ensure the ChatBot is easy and enjoyable to use, the following UX principles will be considered:

- **Friendly Interface**: The ChatBot will use a conversational tone, making interactions feel natural and engaging.
- **Simplicity**: User commands will be straightforward, and instructions will be clear. For example, asking "Find articles on AI in healthcare" will yield a direct response.
- **Speed**: Responses will be optimised to ensure minimal wait times.
- **Feedback**: If an article cannot be found or a query is invalid, the ChatBot will suggest alternative search strategies.

State Machine for ChatBot (Searching and Summarising)

This state machine represents the flow of a conversation for a ChatBot that assists with searching and summarising research articles. The diagram consists of several states, transitions, and events that guide the interaction between the user and the ChatBot.

States and Transitions

- **Start**: The initial state where the ChatBot waits for input from the user.
- **Waiting for Input**: The ChatBot is waiting for the user to provide a search query.
- **Searching for Articles**: The ChatBot is actively searching for relevant articles based on the user's input.
- **Displaying Results**: The ChatBot displays a list of articles for the user to choose from.
- **No Articles Found**: The ChatBot informs the user that no relevant articles were found.
- **Providing Summary**: The ChatBot provides a summary of the selected article.
- **End**: The conversation concludes when the user chooses to end the session.

Events and Triggers

- **User enters search query**: Transitions from "Waiting for Input" to "Searching for Articles".
- **Articles found**: Transitions from "Searching for Articles" to "Displaying Results".
- **No articles found**: Transitions from "Searching for Articles" to "No Articles Found".
- **User selects article**: Transitions from "Displaying Results" to "Providing Summary".
- **Summary provided**: The ChatBot transitions to "Waiting for Further Input" or ends the conversation.

States and Transitions

State	Transition (Event/Triggers)
Start (Initial)	The user initiates a conversation with the ChatBot. The ChatBot enters the initial state of *Waiting for Input*.
Wait for Input	The user enters a search query. The event *User enters search query* triggers the transition to *Searching for Articles*.
Search for Articles	The ChatBot searches the database for relevant articles. If articles are found, the transition *Articles found* leads to the *Displaying Results* state. It transitions to *No Articles Found* if no articles are found.
Display Results	The ChatBot presents a list of articles to the user. The event *User selects article* triggers the transition to *Providing Summary*.
No Articles Found	The ChatBot informs the user that no relevant articles were found. The system returns to the *Waiting for Input* state, prompting the user for a new query.
Provide Summary	The ChatBot provides a summary of the selected article. After providing the summary, the system transitions to *Waiting for Further Input* or ends the conversation if no further action is requested.
End (Final)	The conversation ends when the user chooses to exit or the session times out.

Conversation Flow Diagram

Figure 1 shows a conversation for a ChatBot that assists with searching and summarising research articles. The diagram consists of several states, transitions, and events that guide the interaction between the user and the ChatBot.

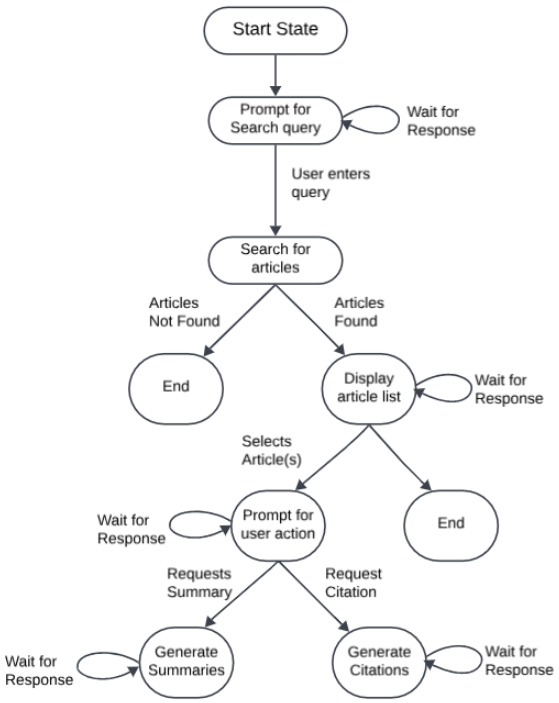

Figure 1: Conversational flow Diagram