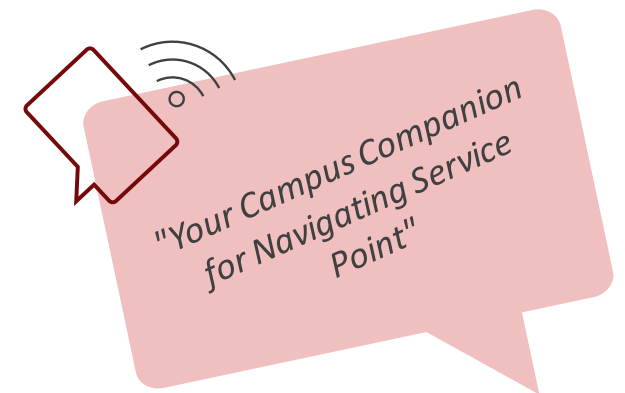


# McGill Buddy Bot

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Your Ultimate University Guide

Revolutionizing Student Experiences





# Agenda

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1. **Navigating Student Needs:** Unveiling the Problem Statement
2. **A Day in the Life:** Exploring Student-Centric Scenarios
3. **Empowering Interactions:** Delving into Scenario Features
4. **Enhancing the Student UX**
5. **Unleashing the Power of Data Analytics**
6. **Assumptions, Benefits & Challenges of our Solution**
7. **Charting Tomorrow:** Roadmap to Future Development
8. **Essential Key Takeaways**

# Unveiling the Problem Statement

## *Problem Statement*



### Mission Statement

- Act as a 24/7 intermediary between students and college administration.
- Provide continuous assistance, instant responses, and accurate guidance.
- Enhance the student experience by streamlining communication.
- Ensure students have access to essential information at any time.

### Target Audience

- **Newly admitted students:** Assisting with pre-arrival and enrollment details.
- **Current students:** Addressing academic, administrative, and campus queries.
- **Graduating students:** Providing guidance for final requirements and post-graduation steps.

### Future Expansion

- **Alumni:** Facilitating connections and updates.
- **Faculty and staff:** Providing quick access to resources.
- Evolving to support users across different academic stages.

### Updates & Refinements

- **Centralized Information:** Utilizes McGill's repository for efficient admin processes.
- **Effortless Website Navigation:** Offers instant access to different sites via chat.
- **Real-time Support:** Provides consistent assistance whenever needed.

# Exploring Student-Centric Scenarios



*Description of all possible scenarios handled by the bot*

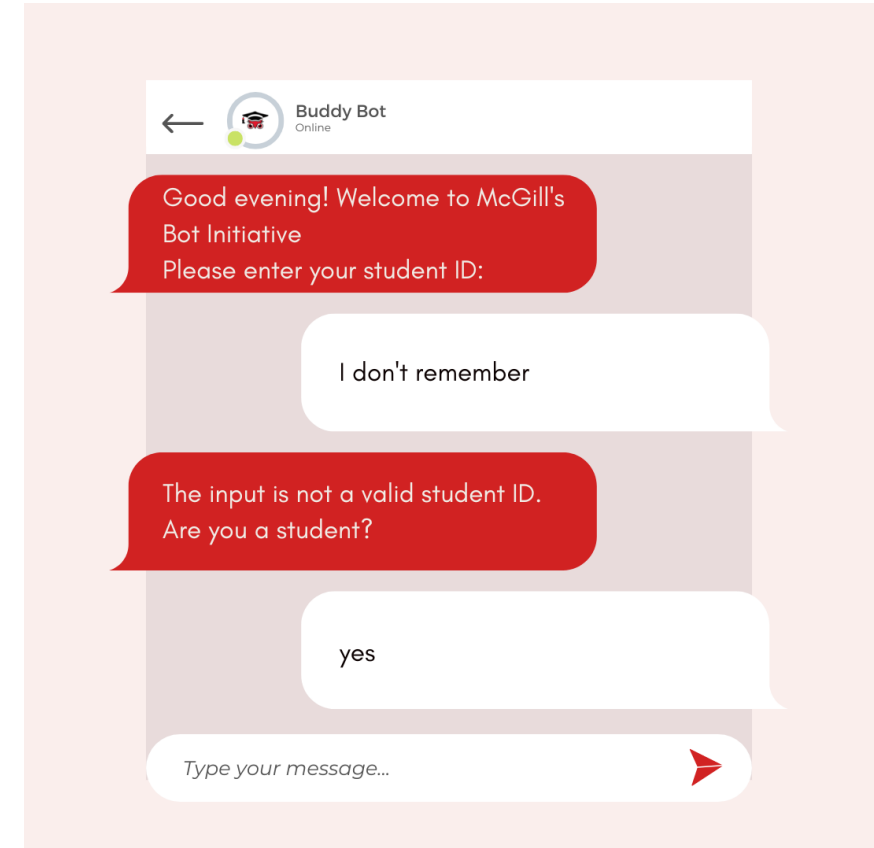
Scenario	Objective	Description
<b>Room Booking</b>	Study Room Booking	<ul style="list-style-type: none"><li>Students can reserve study rooms via the Chatbot by specifying the desired date, number of occupants, and preferred building.</li></ul>
<b>ID Card</b>	Streamlined ID Card Support	<ul style="list-style-type: none"><li>Students can inquire about their ID cards using different options.</li><li>The Chatbot directs users to relevant websites for comprehensive information and offers appointment booking for card-related tasks.</li></ul>
<b>Immigration</b>	Navigating Immigration Queries	<ul style="list-style-type: none"><li>Students can seek immigration-related guidance and receive accurate link suggestions to further information sources.</li></ul>
<b>Student Clubs &amp; Events</b>	Event Engagement and Creation	<ul style="list-style-type: none"><li>Students decide between searching for or creating an event.</li><li>For event creation, a questionnaire link is provided for submitting event details.</li><li>Event seekers are directed to a page listing all available McGill events.</li></ul>
<b>Alumni &amp; Network</b>	Networking and Alumni Search	<ul style="list-style-type: none"><li>Students explore networking events with registration links or search for alumni based on faculty and industry, accessing a list with alumni names and contact information.</li></ul>
<b>Quick Links</b>	Easy & Centralized Access	<ul style="list-style-type: none"><li>Students receive a list of convenient quick links during this scenario, enhancing access to key resources.</li></ul>
<b>Others</b>	Seamless Conversation Exit	<ul style="list-style-type: none"><li>A function is available for students to exit conversations if their query doesn't fall within the suggested categories.</li></ul>

# Initial Conversation

## Initiating a chat with Buddy Bot



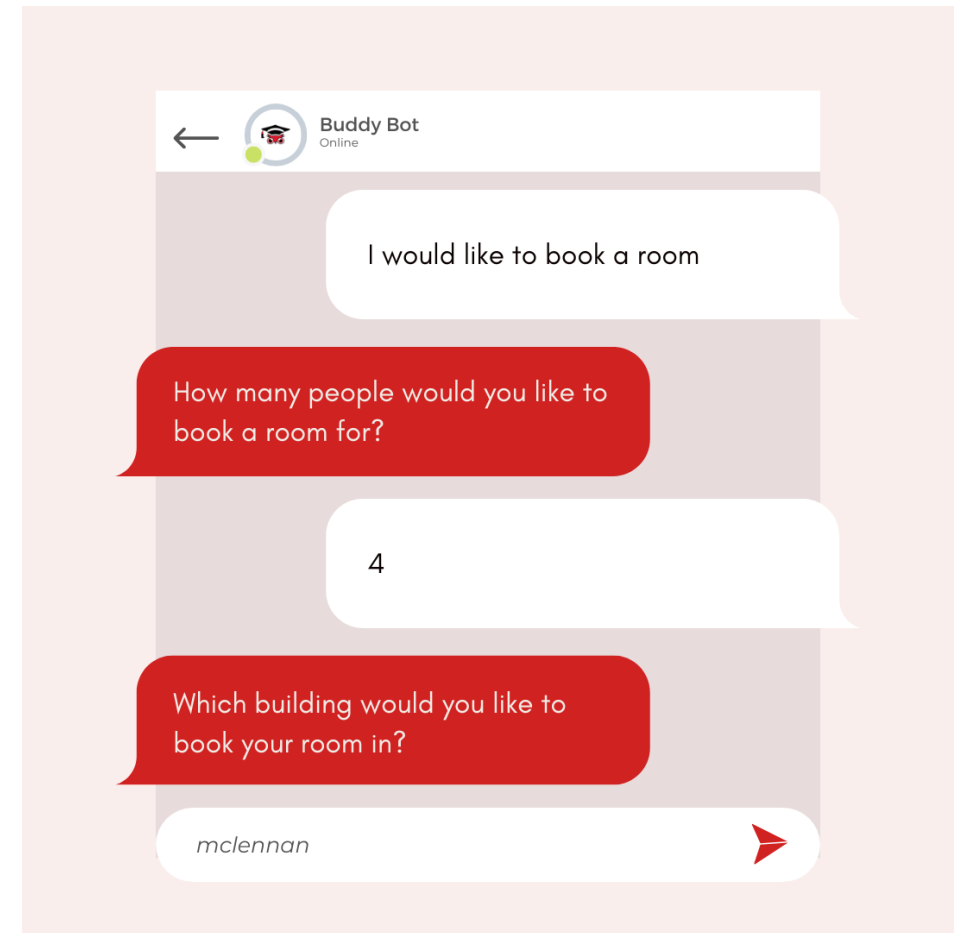
<b>Scenario's Goal</b>	The bot's conversation with students starts by identifying the type of their query. The bot uses common keywords to give relevant help to the students.
<b>Current System</b>	The students must go to the administrative services in person or email them and wait for their reply. Since these queries are handled by humans, there may be inconsistency in the response or problem resolution. Also, students may have to wait longer during holidays and so on.
<b>Code's Attributes</b>	<p>Our program is designed to assist students.</p> <ul style="list-style-type: none"><li>• It begins the conversation by introducing itself and asks students for their student ID (which acts as a unique identifier).</li><li>• It then matches the provided student ID in its database (currently a csv file) and asks a personalized question to students.</li><li>• Otherwise, it asks users to input the correct student ID. Based on the selection of the query, it provides the solution.</li><li>• In case it recognizes more than one category of question, it very intuitively asks the student for priority in which they would like the support for.</li></ul>



# Scenario 1 | Room Booking



<b>Scenario's Goal</b>	This scenario aims to streamline and simplify the room booking process across McGill Buildings for students.
<b>Current System</b>	McGill's room booking system operates disjointedly across buildings, lacking efficiency and causing many students to resort to occupying rooms without prior booking.
<b>Code's Attributes</b>	<p>The code operates dynamically, allocating the optimal room based on the student's requirements.</p> <ul style="list-style-type: none"><li>• If the designated building has no available rooms, the Bot will inquire if the student is open to booking in another building.</li><li>• Upon agreement, the Bot will directly allocate a fitting room in an alternate building and provide its room number.</li><li>• Additionally, the Bot strives to align room capacity with the selected group size, but if rooms are scarce, a larger room might be assigned.</li></ul>
<b>Future Ideas</b>	<ul style="list-style-type: none"><li>• Calendar Integration: Seamlessly sync booked room details with students' digital calendars to provide a comprehensive overview of their schedules.</li><li>• QR Code Access: Generate QR codes upon successful booking, allowing students easy and secure access to their reserved rooms without requiring physical keys.</li></ul>



## Scenario 2 | ID Card



<b>Scenario's Goal</b>	This scenario offers students a streamlined guide to their student ID card procedures. It covers information access, appointment booking with Student Services, lost/expired card solutions, and provides a main point of contact for assistance.
<b>Current System</b>	Obtaining clear instructions and information about student IDs is challenging due to varying requirements based on student status and enrollment, involvement of different university departments causing confusion, scattered information across platforms, and potential unfamiliarity with procedures, collectively making streamlined access difficult for students.
<b>Code's Attributes</b>	The student ID card code is highly intuitive and interactive, offering three clear options with detailed instructions for ID acquisition and issue resolution.
<b>Future Ideas</b>	<ul style="list-style-type: none"><li>• Future enhancements for the ID response section could include integrating AI chat features for real-time assistance - incorporating a visual guide for step-by-step ID application.</li><li>• Personalized reminders for card renewals and proactive notifications about upcoming appointments could further streamline the process.</li></ul>

The screenshot shows a chat interface for 'Buddy Bot Online'. The header includes a back arrow, a bot icon, and the text 'Buddy Bot Online'. The chat history consists of the following messages:

- Bot: "What would you like to know?"
  1. Process
  2. Book an appointment
  3. Lost/Expired ID card
- User: "2"
- Bot: "Appointment timeslots"
  1. 10:00 AM - 10:10 AM
  2. 10:10 AM - 10:20 AM
- Bot: "Please choose a timeslot number for your appointment."
- User: "5" (with a red arrow pointing right)

# Scenario 3 | Immigration



<b>Scenario's Goal</b>	This scenario provides students with procedures including: requirements, documentation, and application processes to confidently navigate their immigration journey.
<b>Current System</b>	<ul style="list-style-type: none"><li>• Varied immigration statuses (foreign, Canadian from other provinces, US) complicate matters for international students, along with Quebec's Acceptance Certificate and ISS guidance.</li><li>• Procedural gaps and renewals awareness can affect academics and compliance; ISS resources and webinars help, and the underused buddy program eases the transition.</li><li>• A comprehensive system streamlines immigration necessities through pre-arrival guidance, documentation, authorizations, and the buddy program.</li></ul>
<b>Code's Attributes</b>	The code in this scenario is quite straightforward. The bot prompts the student to indicate whether they're seeking application, document renewal, or information about the Buddy Program. Relevant links are then presented for the student to click on sequentially.
<b>Future Ideas</b>	The bot might direct users to related pages like pre-arrival resources, Montreal info, welcome services, health insurance, and more orientation materials. This eliminates website visits, offering concise guidance and enhancing bot value, simplifying students' access to desired info.

← Buddy Bot Online

Options you can choose from:

1. Immigration Documents
2. Renewal
3. ISS Buddy Program

1

Options for Application for Immigration Documents:

1. Study Permit
2. CAQ
3. Visa..

1

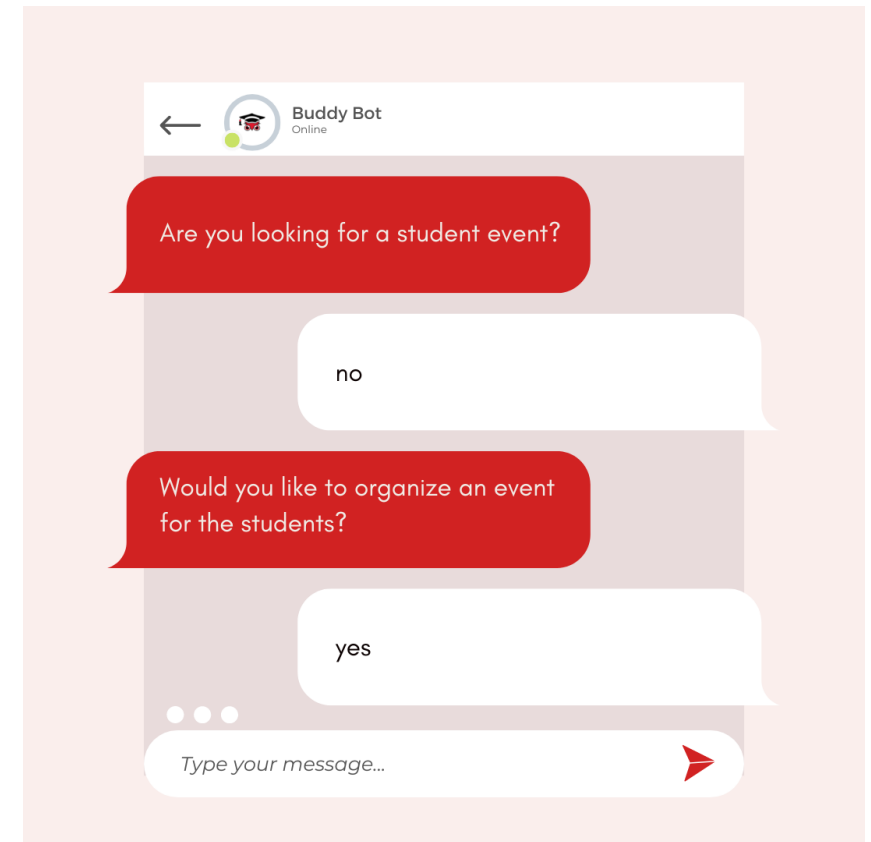
Type your message...



# Scenario 4 | Students Clubs & Events



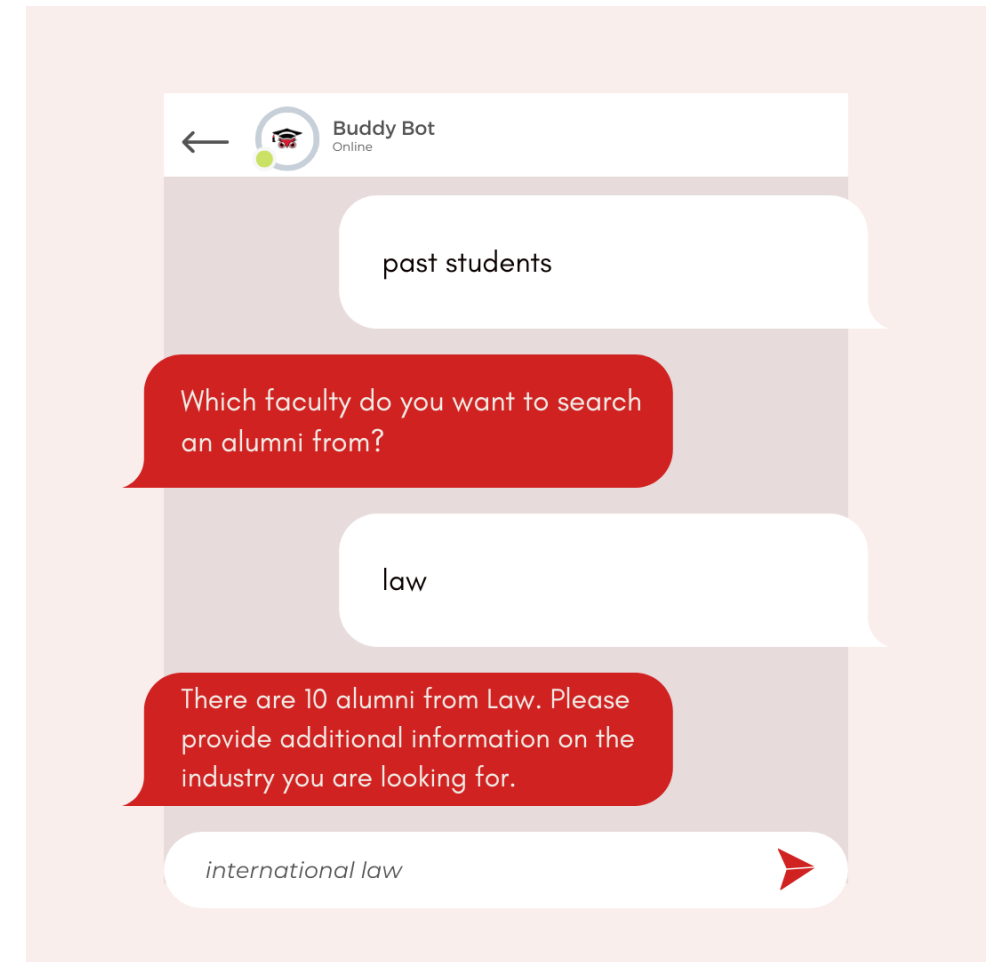
<b>Scenario's Goal</b>	This scenario facilitates students in discovering social events and offers them the opportunity to initiate their own events.
<b>Current System</b>	<ul style="list-style-type: none"><li>• Students face challenges in locating available campus events, with limited awareness of the chatbot's dedicated webpage.</li><li>• Furthermore, clubs struggle to attract attendees due to a lack of visibility.</li><li>• By offering a platform for event submission on the website, clubs can enhance their reach and attract a wider audience.</li></ul>
<b>Code's Attributes</b>	The code in this scenario is simple. The Bot starts by asking students if they're looking for events or aiming to organize one, then promptly offers relevant clickable links.
<b>Future Ideas</b>	The chatbot has the potential to directly present and upload events to students, eliminating the need for redirection to a website. This enhancement would amplify the bot's value and streamline access to the desired information for students, reducing unnecessary steps.



# Scenario 5 | Alumni & Networking



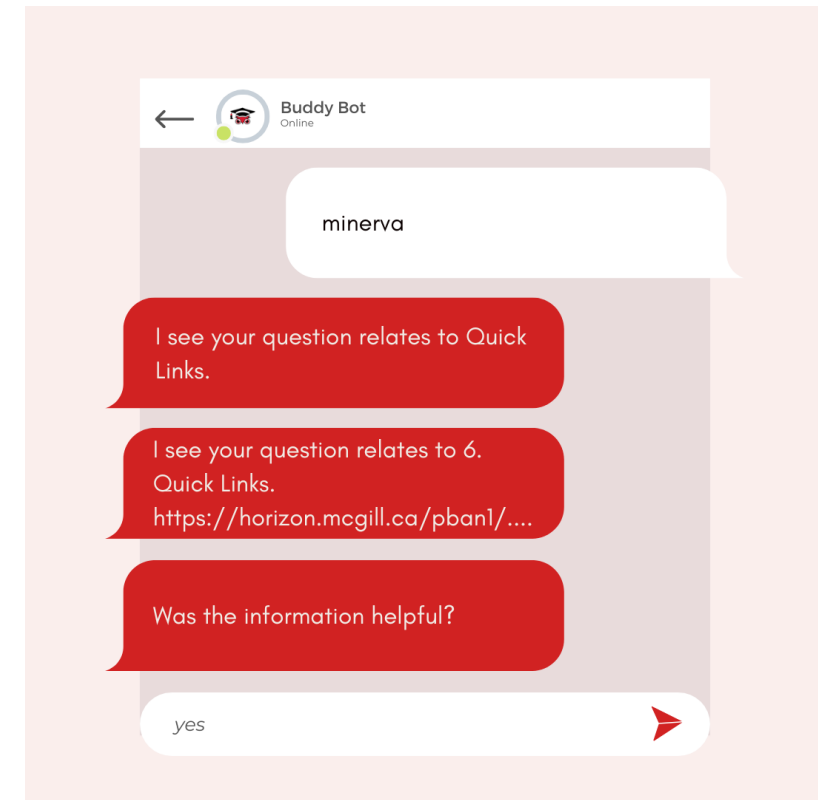
<b>Scenario's Goal</b>	This scenario provides students with insights into past McGill alumni, enhancing their networking prospects.
<b>Code's Attributes</b>	<p>The code is designed to address two main scenarios: providing details about McGill alumni and offering information about networking events.</p> <ol style="list-style-type: none"><li><b>1. Alumni Information:</b> The bot accesses the alumni database and prompts students to indicate whether they are seeking contact details of specific alumni. The code then refines the search results based on criteria like faculty and industry, ensuring precision in the provided information.</li><li><b>2. Networking Events:</b> When students inquire about networking events, the bot guides them to visit the official McGill webpage for further exploration and details.</li></ol>
<b>Future Ideas</b>	The potential expansion of the bot's functionality includes the enlargement of the alumni database. Moreover, establishing a connection to real-time updates about former graduates could offer more current and relevant insights. Furthermore, integrating links to alumni LinkedIn profiles has the potential to greatly enhance the quality of output results.



# Scenario 6 | Quick Links



<b>Scenario's Goal</b>	This scenario aims to provide students with quick and direct access to all the relevant and essential links they might need.
<b>Current System</b>	Right now, students have to go to different websites for different things, like room booking, Minerva, myCourses, and more. This can be a bit of a hassle because they need to navigate to multiple webpages.
<b>Code's Attributes</b>	This scenario offers students a comprehensive list of quick links that cover a range of topics and resources. By centralizing these links, students can swiftly access vital information without navigating multiple websites (Minerva, myCourses, etc.).
<b>Future Ideas</b>	<ul style="list-style-type: none"><li>As part of continuous improvements, the Quick Links scenario could evolve to encompass even more categories of essential resources.</li><li>By maintaining an updated and well-organized list of links, the bot can further optimize students' access to crucial information, enhancing their overall experience and convenience.</li></ul>

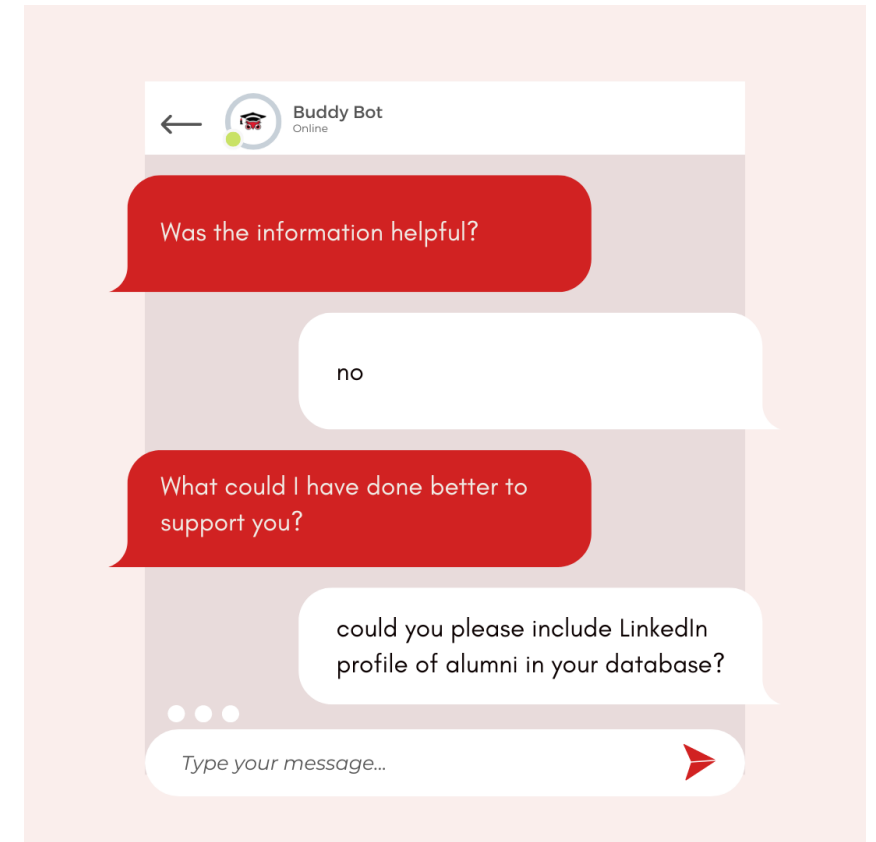


# Exit Conversation & Feedback

*Ending chat with Buddy Bot*



<b>Scenario's Goal</b>	This scenario provides students with a smooth and convenient way to conclude their interaction with the chatbot.
<b>Current System</b>	When students have finished their conversation with the chatbot, the process for exiting the conversation can sometimes be unclear or not readily available.
<b>Code's Attributes</b>	Our chatbot offers a clear and user-friendly option for users to indicate that they are done with their conversation. Additionally, the chatbot's features include an integrated functionality for asking users for feedback, ensuring continuous improvement and a user-centered experience.
<b>Future Ideas</b>	Additional enhancements, such as introducing features for saving or sharing the chat transcript, could be incorporated to elevate the user experience and offer them the choice to preserve valuable information exchanged during the conversation. Moreover, the integration of sentiment analysis could be considered, enabling the bot to gauge user emotions and responses, further refining its interactions and ensuring an empathetic and tailored engagement.





# Leveraging the Student-User Experience



## Versatile Deployment

- Accessible on McGill University's website
- Responsive design, seamless adaptability



## Engaging Personality

- Approachable, friendly tone, thoughtfully crafted persona
- Maintains professionalism while addressing student inquiries
- Embodies traits of empathy, reliability and helpfulness



## Wrapping Up Conversations

- Concluding interactions is simple with phrases
- Provides valuable university-related information



## Ensuring Data Privacy & Security

- Data is safeguarded under stringent university privacy protocols
- Alignment with user confidentiality restrictions



## Tracking Chatbot Effectiveness

- Shifting complex queries to human experts (POCs)
- Utilizing user interactions and feedback to cater the users' journey

# Unleashing the Power of Data Analytics



Data Collection



Data Preprocessing

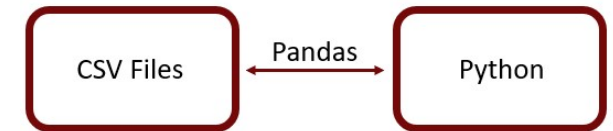


Data Analysis



Insights Sharing

We pinpointed the essential needs: data on students and alumni. Since this data wasn't accessible from McGill directly, **we created these datasets ourselves**. This information is organized into two separate **CSV** files, designed for easy expansion and versatility. By using **Pandas**, we efficiently retrieve and integrate the necessary details into our Python code.

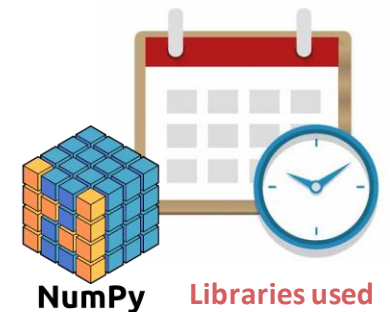


Upon obtaining the McGill internal students' dataset, a series of meticulous data preprocessing techniques would've been engaged. Even in the scenario where the data arrives in an unblemished state, there remains a need to undertake essential tasks such as **normalizing the values** and **amalgamating information** originating from diverse sources into our codebase.

Utilizing the data gathered from the bot interactions, we would conduct a **comprehensive analysis to uncover the primary requirements of students** (the most frequent purposes for which they are engaging with the bot). Additionally, we would assess the overall user experience by leveraging the insights provided in the feedback section. This analysis will be carried out through an **exploratory data analysis approach**, encompassing both **descriptive and predictive analytics techniques**.

Ultimately, we would analyze the results obtained from the data analytics phase and **translate our discoveries into meaningful insights**. Utilizing visualization tools such as matplotlib, we would craft informative charts that effectively convey our findings. These visual aids will serve as a powerful means to communicate our discoveries to McGill Service Point. By doing so, we aim to facilitate an **informed decision-making process**, allowing McGill to strategically adjust and allocate their resources in response to our insights. Visualization tools & libraries such as **Matplotlib** are used as part of our code outputs (chatbot responses, for instance).

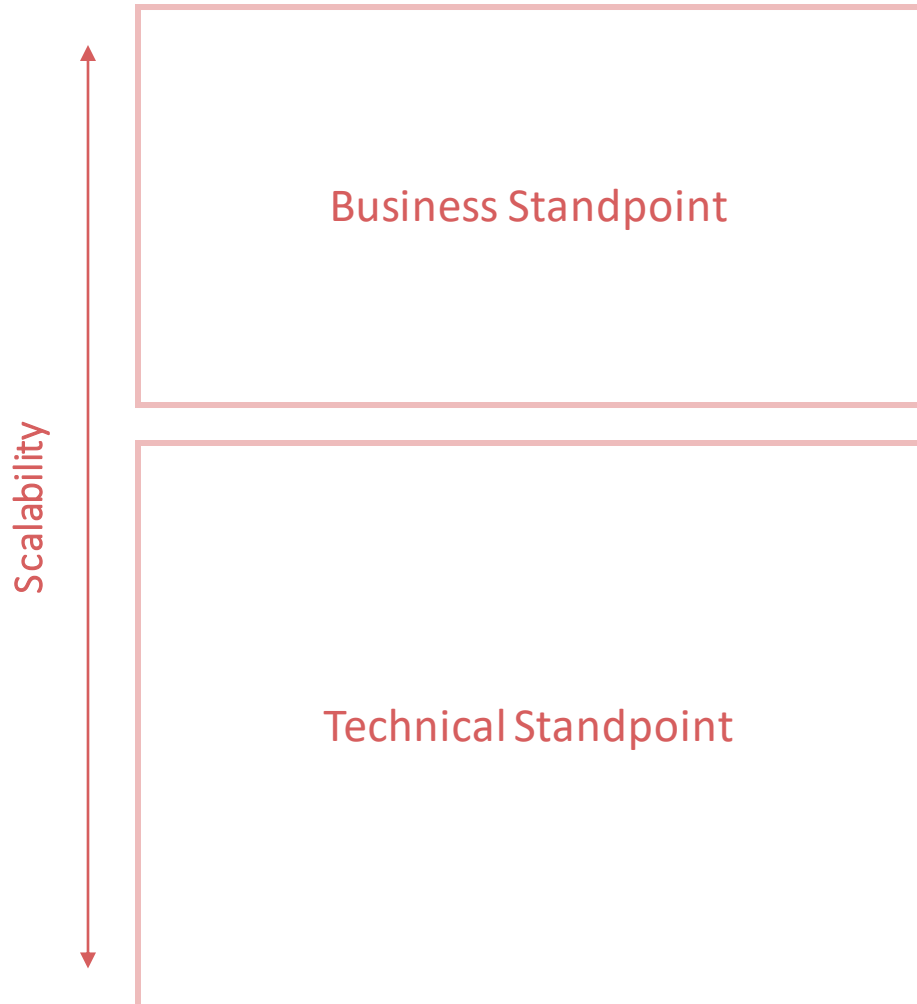
 **pandas**  
 **matplotlib**



**Libraries used  
in our codebase**

# Future Steps & Suggestions

*Leveraging Buddy Bot's Capabilities and Scope*



The Buddy Bot widens its scope to involve current students, prospective applicants, and professors. This diverse group holds the potential to provide solutions for key challenges.

- **Prospective Student Engagement:** The Buddy Bot efficiently categorizes and quantifies inquiries from prospective students. This data helps the university understand query patterns, aiding in targeted information sessions that address their needs.
- **Professor Interaction:** For professors, the Buddy Bot offers seamless access to student data like backgrounds and grades, enhancing their teaching and mentoring activities.
- **Multi-Platform Accessibility:** Extend the chatbot's reach across web, mobile apps, and social media, accommodating user preferences and enhancing engagement.
- **Machine Learning & Continuous Improvement:** Leverage machine learning to enable the chatbot to learn from interactions, refining its responses, accuracy, and user interaction over time.
- **API Integration:** Integrate external APIs, like Weather, News, and Maps, to provide users with up-to-the-minute data, enriching their experience with relevant, current information\*.
- **Events Calendar Integration:** Blend the chatbot with calendar systems and event platforms for streamlined scheduling, reminders, recommendations, and registration support, simplifying event-related tasks for users.

*\*We elaborate more on APIs & Python Libraires in the Appendix (Section 4).*

# Assumptions, Challenges & Benefits

*Unveiling main assumptions, advantages & eventual hurdles surrounding Buddy Bot*



## Assumptions

- **Limited Investment - MVP (Minimum Viable Product):**

To make the most of available resources, we're creating a basic version of the chatbot that delivers core value. This lets us launch quickly and refine the bot based on user feedback and needs.

- **Data Disparity Across Faculties**

We know each faculty has unique info. We suppose that our chatbot's set up to fetch and share accurate details for each faculty, improving user experience.

- **Alumni Research and Small Dataset**

We're starting with a small group of 100 alumni profiles. Though the real list is bigger, our bot will handle this dataset for now. Later, as we get more data, it'll ask smart questions to find the right alumni among hundreds.

## Challenges & Limitations

- **Hosting and mobile version**

The chatbot is exclusively accessible via McGill University's website, posing limitations for users favoring mobile devices without a dedicated mobile version, potentially leading to a suboptimal user experience on smaller screens.

- **Limited categories to assist students**

The bot's assistance is confined to a narrow range of predefined categories like room bookings and alumni networking, potentially leaving out essential aspects of student life such as career guidance, mental health support, and extracurricular activities.

- **Data compatibility Concerns**

Inadequate integration with college data sources and non-compliance with established business and IT rules could result in the chatbot providing inaccurate or outdated information.

## Advantages

### Benefits for **Students**

- Get instant and accurate information about college services, policies, and events.
- Save time and effort by automating tasks such as room booking, id card appointment, alumni networking, etc.

### Benefits for **McGill University**

- Ensure data consistency and accuracy across different faculties and departments.
- Analyze chatbot interactions to identify and address common student questions and issues.



Distinctive Value Proposition

Personalized Student Engagement

Through its empathetic persona and internal features, it delivers personalized assistance, adapting to each student's unique needs and preferences, leading to stronger user engagement and satisfaction.

Buddy Bot serves as a centralized hub, empowering McGill students to effortlessly navigate a complex array of university services, fostering a more streamlined and productive academic journey.

Centralized Hub

Pathways of Improvement

Real-Time Decision Support

Through seamless integration with external APIs for classes, news, and navigation, the bot enhances student experiences by providing up-to-date and pertinent information, guiding them towards well-informed decisions.

Automation & Efficiency

Automating tasks such as event scheduling, reminders, and registrations not only saves students time and effort but also enables them to prioritize academic pursuits and personal growth.

Data-Driven Insights

By employing a continuous learning mechanism, we can extract invaluable insights from user interactions, empowering McGill to make data-driven decisions for enhancing services and enriching the student experience.

Conclusion

Key Takeaways from Buddy Bot

Consistency

Uniformity

Consolidation



Buddy Bot ensures reliability through consistency, fosters a cohesive approach with uniformity, and centralizes information for easy access



# Appendix

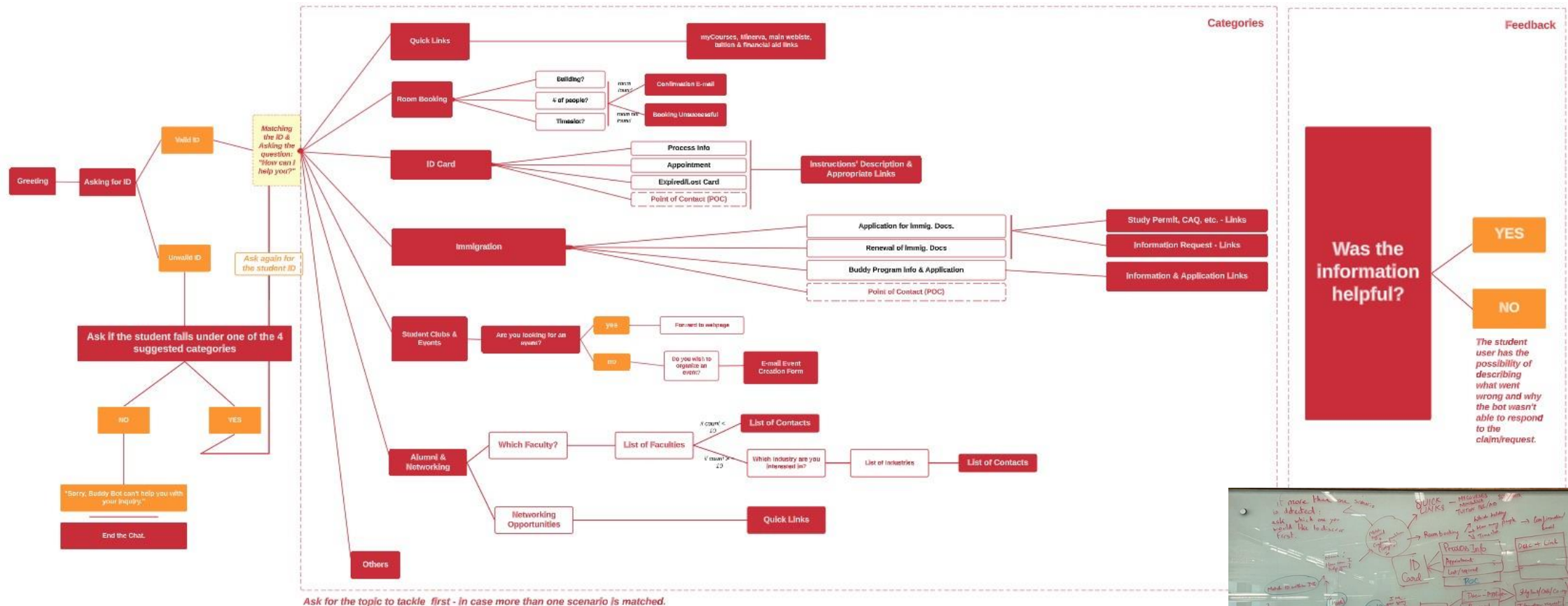
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- **Appendix 1: Scenarios' Decision Tree**
- **Appendix 2 [a to g]: Sample Conversations with Buddy Bot\***
- **Appendix 3: Code Improvements**
- **Appendix 4: Further possible scenarios that could've been considered**
- **Appendix 5: APIs & Python Libraries**
- **Appendix 6: ERD of Buddy Bot's Database**
- **Appendix 7: Essential Lessons from our Learning Experience**

*\*Sample conversations refer to illustrative/simulative conversations that a student-user could hold with Buddy Bot. This section of the Appendix gives a concrete perspective of interactions' outcomes/outputs from the bot.*



# Appendix 1 : Scenarios Decision Tree



[Link to View the Decision Tree \(LucidChart\)](#)



# Appendix 2.a. : Initial & Exit Conversations



## Sample Conversation

Buddy Bot	Student
Good afternoon! Welcome to McGill's Bot Initiative Please enter your student ID:	2000004
Hi John, I am Buddy Bot here to assist you. How can I help you today?	room booking, past students
I detected multiple scenarios in your query. Please choose which one you'd like to discuss: 1. Room Booking 2. Alumni & Networking Enter the number of your choice:	2
...	...
...	...
----- 🤖 Chatbot Feedback ----- Was the information helpful?	n
What could I have done better to support you?	Could you please also include the LinkedIn profile of alumni in your database? Thanks!
I am sorry that I could not provide the answer you were looking for. Your feedback will help me improve. Have a nice day ahead. 😊	

# Appendix 2.b. : Room Booking

## Sample Conversation



Buddy Bot	Student
Hi John, I am Buddy Bot here to assist you. How can I help you today?	I would like to book a room
I see your question relates to Room Booking. Request you to answer the below questions. How many people would you like to book a room for?	4
Which building would you like to book your room in? (McLennan/Armstrong/Bronfman)	McLennan
At what time would you like to make your booking? Please enter a time between 8 and 21.	9.5
For how long would you like to book the room> Please enter a number of hours between 1 and 4.	3.5
Your booking has been confirmed for 4.0 hour(s) from 9.0 to 13.0 in ML01. You will receive an email shortly with your booking details.	

# Appendix 2.c. : ID Card

## Sample Conversation



Buddy Bot	Student
What information would you like to know? ID card 1. Information on the process for getting a student ID card 2. Book an appointment to collect the student ID card 3. Know the process in case of lost/expired student ID card	2
Appointment timeslots for the next 3 working days (10am to 12pm on weekdays): 1. 10:00 AM - 10:10 AM 2. 10:10 AM - 10:20 AM 3. 10:20 AM - 10:30 AM 4. 10:30 AM - 10:40 AM ..	10
You have chosen timeslot 10. Your appointment is confirmed! Would you like to know about the documents to bring for the appointment and other information?	yes
Before you make your way to Service Point to get your new McGill ID card, please take note of the following important information: .. We look forward to seeing you soon!	

# Appendix 2.d. : Immigration

## Sample Conversation



Buddy Bot	Student
Here are the options you can choose from: 1. Application for Immigration Documents 2. Renewal of Immigration Documents 3. ISS Buddy Program	1
Options for Application for Immigration Documents: 1. Study Permit 2. CAQ (Certificate of Acceptance of Quebec) 3. Student Visa 4. Co-op Permit	4
Redirecting you to the Co-op/Internship work permit information... <a href="https://www.mcgill.ca/internationalstudents/work/co-op-internship-work-permit">https://www.mcgill.ca/internationalstudents/work/co-op-internship-work-permit</a>	
----- 🗣️ Chatbot Feedback ----- Was the information helpful?	yes
I am glad I could assist you. Have a nice day ahead! 😊	

# Appendix 2.e. : Student Clubs & Events



## Sample Conversation

Buddy Bot	Student
I see your question relates to Student Clubs & Events. Are you looking for a student event?	no
Would you like to organize an event for the students?	y
You can register your event on the following form: <a href="https://docs.google.com/forms/d/e/1FAIpQLScZp-hQVvMekyQVGvboKT-H4pscoPMHEGq7EDijjbGpmNcIeg/viewform?usp=sf_link">https://docs.google.com/forms/d/e/1FAIpQLScZp-hQVvMekyQVGvboKT-H4pscoPMHEGq7EDijjbGpmNcIeg/viewform?usp=sf_link</a> . It will be reviewed and if approved, posted for the other students to see.	
Was the information helpful?	yes
I am glad I could assist you. Have a nice day ahead! 😊	



# Appendix 2.f. : Alumni & Networking



## Sample Conversation

Buddy Bot	Student
Hi Jennifer, I am Buddy Bot here to assist you. How can I help you today?	<b>past students</b>
I see your question relates to Alumni & Networking. Do you want to find specific alumni or know about networking opportunities? (Type 'alumni' or 'networking')	<b>alumni</b>
Which faculty do you want to search an alumni from? (Choose from ['Management', 'Arts', 'Science', 'Engineering', 'Law'] or type 'other')	<b>law</b>
There are 10 alumni from Law. That's too many results to display. Please provide additional information on the industry you are looking for. Which industry do you want to search an alumni from?	<b>international law</b>
There are 2 alumni from Law who work in international law. Here is their information: Alumni("Gavin", "Gray", "Law", 2020, "international law", "gavin.gray@mail.mcgill.ca") Alumni("Gavin", "Gray", "Law", 2020, "international law", "gavin.gray@mail.mcgill.ca")	

# Appendix 2.g. : Quick Links

Sample Conversation



Buddy Bot	Student
Good afternoon! Welcome to McGill's Bot Initiative Please enter your student ID:	2000006
Hi Linda, I am Buddy Bot here to assist you. How can I help you today?	minerva
I see your question relates to Quick Links.	
Quick Links: ----- Title   Link ----- Minerva   <a href="https://horizon.mcgill.ca/pban1/twbkwbis.P_WWWLogin">https://horizon.mcgill.ca/pban1/twbkwbis.P_WWWLogin</a> myCourses   <a href="https://mycourses2.mcgill.ca/d2l/loginh/">https://mycourses2.mcgill.ca/d2l/loginh/</a> Scholarships   <a href="https://www.mcgill.ca/studentaid/scholarships-aid">https://www.mcgill.ca/studentaid/scholarships-aid</a> -----	
----- 🗣️ Chatbot Feedback ----- Was the information helpful?	Yes
I am glad I could assist you. Have a nice day ahead! 😊	

# Appendix 3 : Back-end Improvements

*Improvements & Critical Changes brought to the Code (First VS Final Submissions)*



	BEFORE	AFTER
✓ <b>Refined Library and File Management</b>	Initial library imports were incomplete and the query order lacked clarity.	Introduced comprehensive library imports from the outset of the code. Established function definitions upfront and incorporated structured CSV file imports.
✓ <b>Transition to Jupyter IDE for Improved Clarity and Explanation</b>	Operated within the Spyder IDE, where code explanations were insufficient, causing confusion.	Shifted to the Jupyter IDE for enhanced code readability. Integrated markdown cells to offer detailed explanations of various code scenarios, improving overall comprehension.
✓ <b>Enhanced User Experience through Formatting</b>	Bot responses and student inputs were mingled due to insufficient spacing.	Incorporated \n and \t formatting elements to ensure clear spacing between lines of code. This modification enhanced user experience by providing a seamless interaction flow.
✓ <b>Optimized Data Manipulation with Pandas</b>	Managed student information using dictionaries and random libraries.	Upgraded to utilizing the Pandas library, enabling efficient data handling through CSV file imports. This transition enhanced the capacity to manage and modify data for various applications.

# Appendix 4 : Further Possible Scenarios



*Other Possible Scenarios that could've been considered*

Scenario	Objective	Description
<b>Tuition &amp; Student Fees</b>	<b>Simplify the process of accessing and understanding tuition fee information for students.</b>	<ul style="list-style-type: none"><li>Students can utilize the chatbot to inquire about tuition fees for their specific programs and semesters. They can conveniently obtain accurate and up-to-date tuition fee information, helping them plan their finances effectively.</li><li>The bot provides detailed breakdowns of fees, including tuition, miscellaneous charges, and deadlines for payment. It can also assist with clarifying payment methods, installment options, and financial aid opportunities.</li></ul>
<b>Application Portal Support</b>	<b>Assist students throughout the application process for various programs and services.</b>	<ul style="list-style-type: none"><li>Buddy bot serves as a comprehensive guide to the application process for different programs and services offered at McGill. It provides updates on application statuses and assist with common inquiries related to application procedures.</li><li>Students can ask about admission requirements, application deadlines, necessary documents, and steps to submit their applications. They receive timely and accurate information, enhancing their application experience.</li></ul>
<b>Wellness Hub</b>	<b>Provide students with a supportive platform for accessing mental health and wellness resources.</b>	<ul style="list-style-type: none"><li>Buddy bot functions as a wellness hub, offering students a confidential space to access mental health resources and support. It directs students to relevant workshops, events, and crisis helplines.</li><li>Students can engage with the chatbot to access self-care tips, mindfulness exercises, and information about counseling services. Through empathetic interactions, the chatbot helps students prioritize their well-being and connect with appropriate resources when needed.</li></ul>
<b>On-campus Sports</b>	<b>Enhance students' engagement with on-campus sports activities and facilities.</b>	<ul style="list-style-type: none"><li>Buddy bot becomes a hub for on-campus sports enthusiasts, allowing them to explore and engage in various sports activities. It also provides information about registration processes, and sports-related events.</li><li>Students can inquire about sports facility availability, upcoming matches/try-outs, practice schedules, and intramural leagues (i.e., Red Birds). They can stay informed about on-campus sports opportunities and make the most of their recreational time.</li></ul>

# Appendix 5 : APIs & Python Libraries



*Data Analytics tools to leverage Buddy Bot's Capabilities*



## Google Maps API

The Google Maps API could have been integrated into your chatbot to offer campus navigation assistance. Buddy Bot could provide students with interactive maps and directions to various locations on campus. This would greatly enhance the user experience for students who are new to the campus or need assistance finding specific buildings, departments, or facilities. Additionally, the bot could suggest optimal routes based on real-time traffic data, helping students reach their destinations more efficiently.



## OpenWeatherMap API

Integrating the OpenWeatherMap API into our chatbot would enable it to provide current weather information to students. This feature could be particularly useful for students planning their daily activities, such as attending classes, meetings, or outdoor events. The bot could offer real-time weather updates, including temperature, humidity, and weather conditions, ensuring that students are well-prepared for the day ahead.



## Microsoft Bot Framework

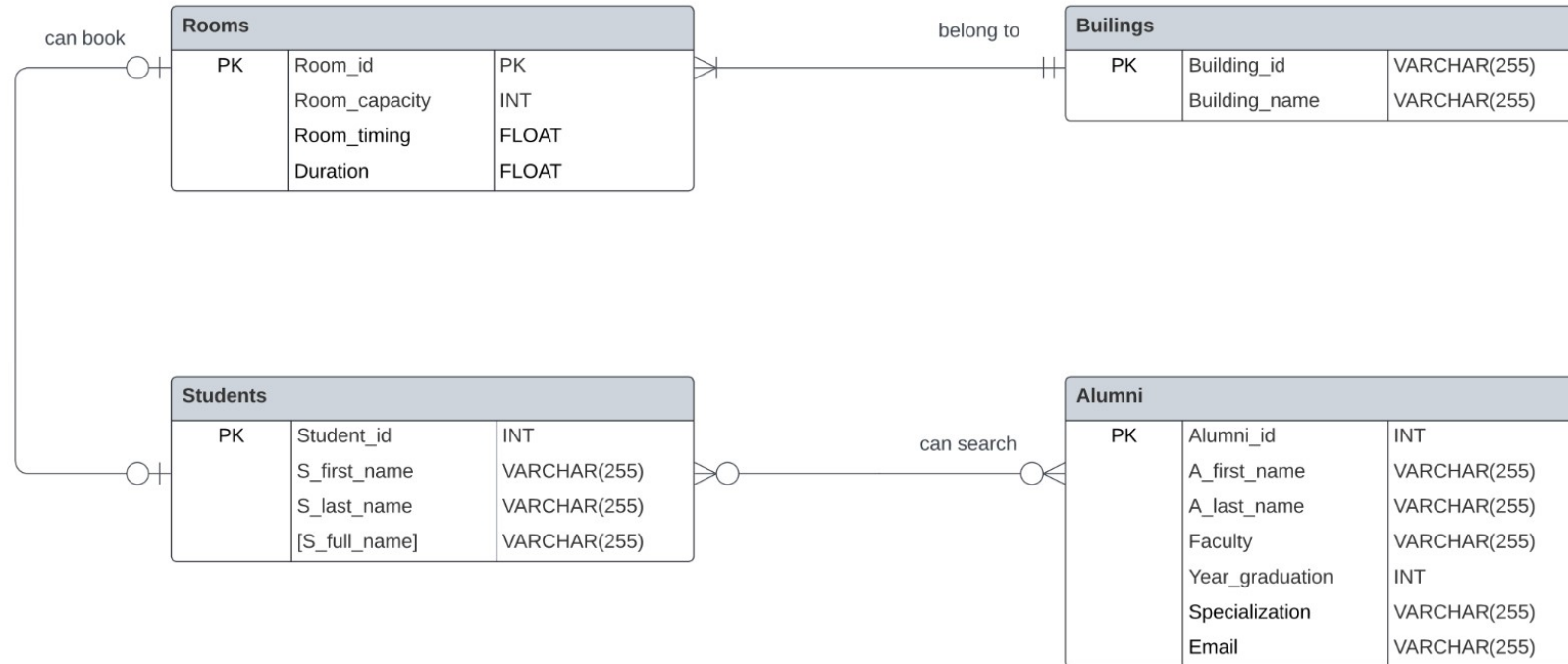
Incorporating the Microsoft Bot Framework would extend the reach of our chatbot to various platforms, including Microsoft Teams and other collaboration tools. This integration would allow students to interact with the bot seamlessly within their preferred communication and collaboration environments. For example, students could ask the bot about campus resources, schedule appointments, or receive updates directly through Teams, making the information more accessible and convenient.



## MyCourses API

Connecting the chatbot with the MyCourses API would enable it to interact with the internal course portal. This integration could offer a wide range of functionalities. Students could inquire about course registration, receive updates on class schedules, access information about professors, obtain details about exam dates and locations, and even retrieve assignments and course materials. This integration would streamline communication between students and the course portal, providing instant information to enhance their academic experience.

# Appendix 6 : Database Schema (ERD)



## Assumptions:

1. All students have a Student ID.
2. Attribute "S\_full\_name" is a derived attribute.
3. All buildings have atleast one room.
4. A student can book only one room at a given time.
5. For a given time, a room can be booked by only one student.

# Appendix 7 : Group Learning Experience



*Reflecting on Our Collaborative Learning Journey*

- **Navigating Generative AI:** Mastering generative AI was a significant challenge that pushed us to learn and adapt, enabling us to create a more intelligent and interactive chatbot. Striving to use generative AI judiciously in our code taught us the importance of finding the right balance between automation and human touch to provide meaningful interactions.
- **Adapting to Feedback:** Adapting our code based on feedback, both from our professor and others, showcased our ability to refine and improve our project through a collaborative and iterative process.
- **Complexity of Real-world Scenarios:** Tackling the intricate landscape of a university environment, with diverse student needs and categories, required us to synthesize information effectively and offer tailored responses. The complexity of the university context led to spirited debates, fostering critical thinking and problem-solving skills as we navigated through potential solutions.
- **Interdisciplinary Collaboration:** Working on the chatbot project brought us together as a team, combining our diverse skills and perspectives to develop a holistic solution that addressed the multifaceted challenges.
- **Problem-solving Discussions: Learning Through Challenges:** Overcoming obstacles, such as code adjustments and addressing the vast categories of student inquiries, reinforced our growth mindset and the value of persistence.

The culmination of our efforts resulted in a valuable enrichment – the knowledge and experience gained – becoming the most rewarding outcome of our journey.