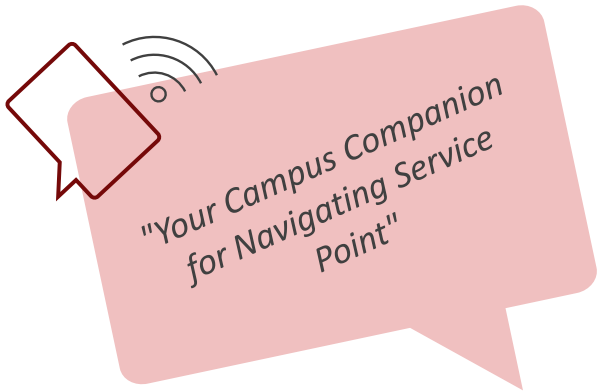
Buddy Bot

McGill Buddy Bot

Your Ultimate University Guide

Revolutionizing Student Experiences



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Our Team of Experts

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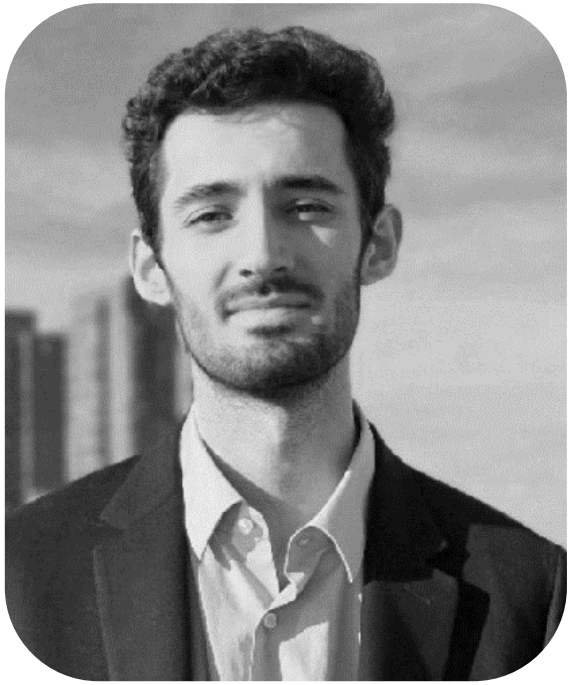


Julien Palummo
Senior Data Scientist

Meet Buddy Bot - Your Central Hub for Resources & Support

Empowering Your Academic Adventure

Background

- *McGill University offers a wide range of academic programs and services to support its students throughout their academic journey.*
- *However, navigating the university's complex and decentralized information system can be challenging and time-consuming for students, especially for those who are new, prospective or graduating.*
- *Moreover, the university's customer-service arm, Enrolment Services, faces a high volume of requests for service, which can result in delays, inefficiencies and dissatisfaction among students and staff.*

Our Solution

A chatbot designed to elevate the student experience

Providing easy access, tackling navigation issues, and optimizing Administrative Services' operations

Automating tasks like FAQs, appointment bookings, and record updates cuts staff workload, boosting efficiency

Benefits of Buddy Bot

- **Centralized System & Data-Driven Insights**
- **Enhanced Satisfaction & Engagement**
- **Increased efficiency & Productivity**

Meet Bud… Your Central Hub for Resources & Support

Empowe… …nture

Our Value Proposition

…perience.

- *M… ac… sup… acad…*
- *However, navig… university's complex and decentralized information system can be challenging and time-consuming for students, especially for those who are new, prospective or graduating.*
- *Moreover, the university's customer-service arm, Enrolment Services, faces a high volume of requests for service, which can result in delays, inefficiencies and dissatisfaction among students and staff.*

Our Solution

…and optimizing Administrative Services' operations

Engage with students' questions round the clock, using natural conversational responses

staff workload, boosting efficiency

Connect with the university's current information platforms - Minerva & myCourses, delivering personalized details to students

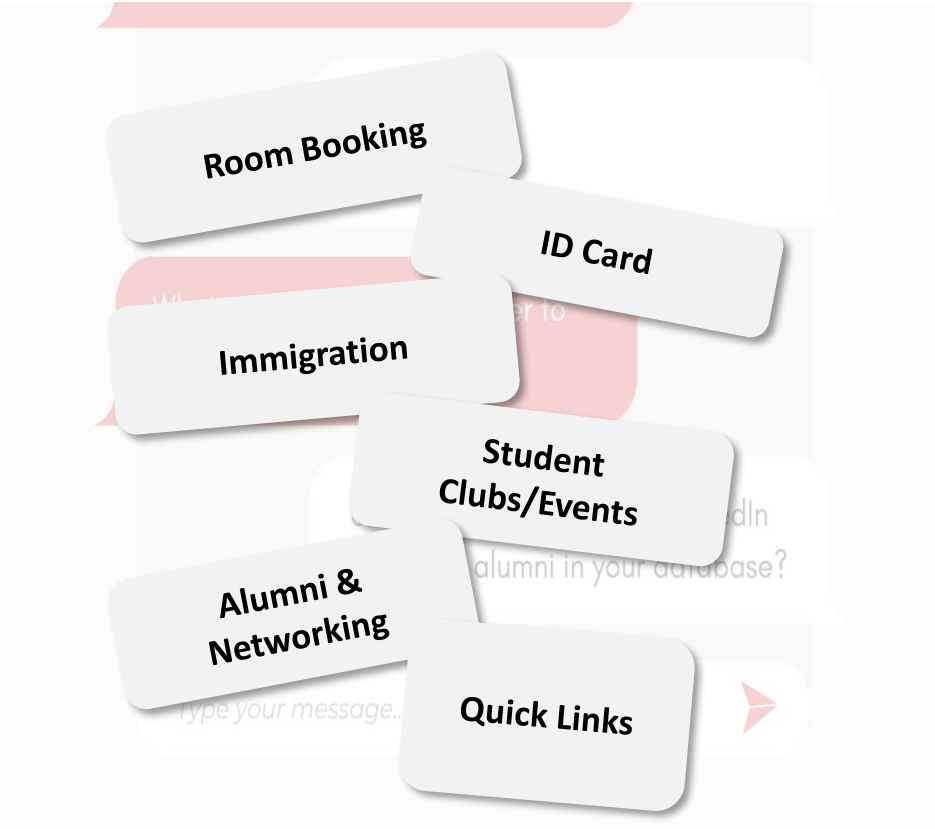
Elevate the student experience

Increased efficiency & Productivity

Unveiling Chatbot Scenarios & Decoding Data Analytics

Scenarios Overview & Data Analytics Rationale

Possible Scenarios



Data Analytics Rationale

Data Collection

- As McGill's data was unavailable, we crafted CSV datasets, easily expandable.
- Pandas helps fetch and integrate details into our Python code.

Data Preprocessing

- After obtaining McGill's student dataset, meticulous preprocessing is applied. Even with clean data, tasks like normalization and integrating diverse sources are crucial.

Data Analysis

- Using bot data, we analyze key student needs (frequent queries) and user experience from feedback.
- It would involve exploratory data analysis with descriptive and predictive techniques.

Insights Sharing

- We analyze data results, turn them into insights. Using tools like matplotlib, we create impactful charts to share findings with McGill Service Point.

Potential for Scalability:

- Professors' access to student data enriches teaching.
- API Integration

Looking Forward: Our Future Vision

Navigating Student Services with Buddy Bot

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

Consistency

Uniformity

Consolidation

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

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.

Unleashing Buddy Bot: A Live Demonstration

Real-Time Interactions with McGill's Ultimate Student Bot

Room Booking

```
            else:
                print("Sorry, I am designed to assist only the students. I suggest you reac
                print("Thanks for connecting and have a nice day ahead!")

# Main program

system = StudentAssistanceSystem()
system.main()

print("\n" + "-"*50)
print("🤖 Chatbot Feedback")
print("-"*50)
feedback = input("\nWas the information helpful? \nEnter here (Yes/No): ")
if feedback.lower() == "yes" or feedback.lower() == "y":
    print("\nI am glad I could assist you. Have a nice day ahead! 😊")
else:
    improvement = input("\nWhat could I have done better to support you? \nType here: ")
    if improvement.strip() == "":
        print("\nI am sorry, I did not understand your last prompt. Have a nice day ahead.")
    else:
        print("\nI am sorry that I could not provide the answer you were looking for. Your feedback will help me improve. Have a
```

```
Good evening! Welcome to McGill's Bot Initiative

Please enter your student ID:
```

```
In [ ]:
```

Unleashing Buddy Bot: A Live Demonstration

Real-Time Interactions with McGill's Ultimate Student Bot

Alumni Search

```
    improvement = input("\nWhat could I have done better to support you? \nType here: ")
    if improvement.strip() == "":
        print("\nI am sorry, I did not understand your last prompt. Have a nice day ahead.")
    else:
        print("\nI am sorry that I could not provide the answer you were looking for. Your feedback will help me improve. Have a
```

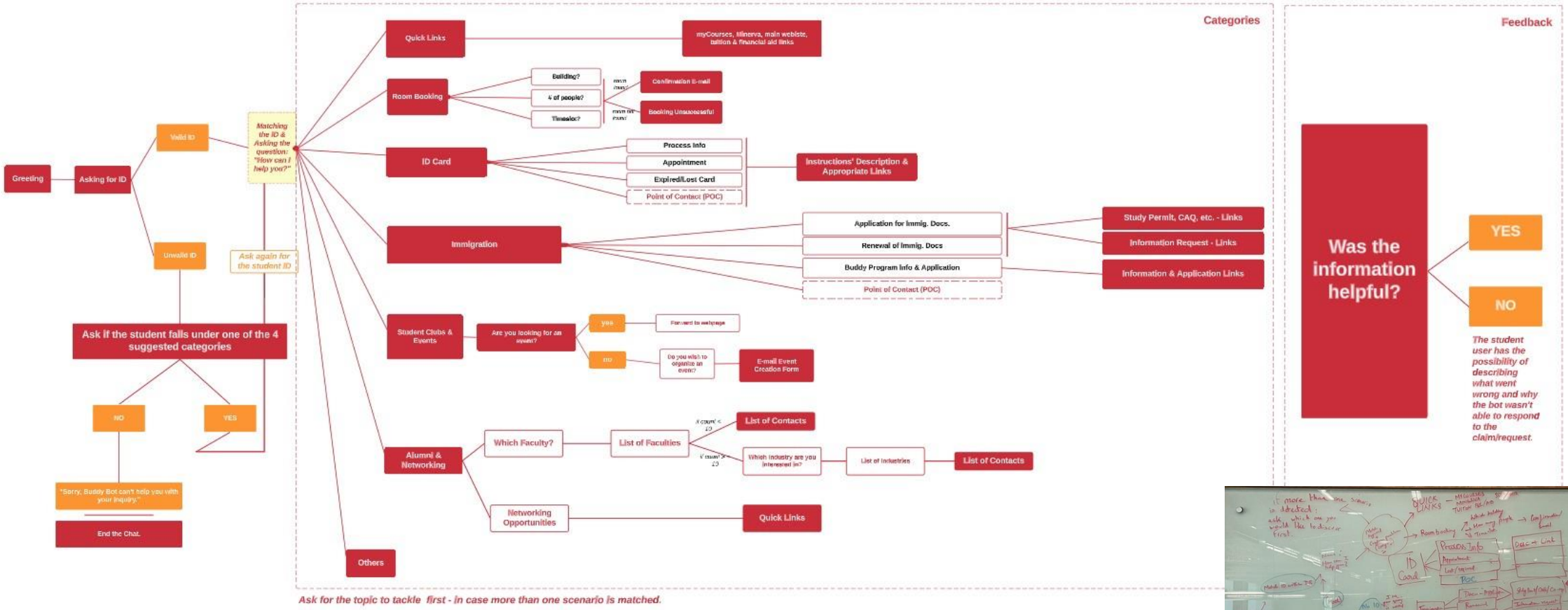
```
Good evening! Welcome to McGill's Bot Initiative

Please enter your student ID:
```

Q&A

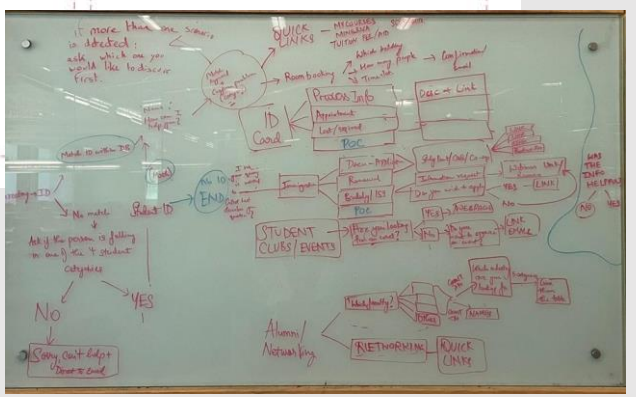
Inquisitive Interactions:
Your Queries, Our Answers

Appendix

Appendix 1 : Scenarios Decision Tree



Ask for the topic to tackle first - in case more than one scenario is matched.



[Link to View the Decision Tree (LucidChart)]

Appendix 2 : Back-end Improvements

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

	BEFORE	AFTER
Refined Library and File Management	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.
Transition to Jupyter IDE for Improved Clarity and Explanation	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.
Enhanced User Experience through Formatting	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.
Optimized Data Manipulation with Pandas	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 3 : Further Possible Scenarios

Other Possible Scenarios that could've been considered

Scenario	Objective	Description
Tuition & Student Fees	**Simplify the process of accessing and understanding tuition fee information for students.**	• 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. • 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.
Application Portal Support	**Assist students throughout the application process for various programs and services.**	• 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. • 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.
Wellness Hub	**Provide students with a supportive platform for accessing mental health and wellness resources.**	• 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. • 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.
On-campus Sports	**Enhance students' engagement with on-campus sports activities and facilities.**	• 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. • 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.

Appendix 4 : 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

Appendix 5 : Unleashing the Power of Data Analytics

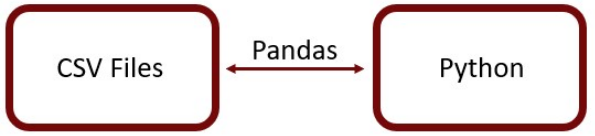
Data Collection

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).

Libraries used in our codebase

Appendix 6 : 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.

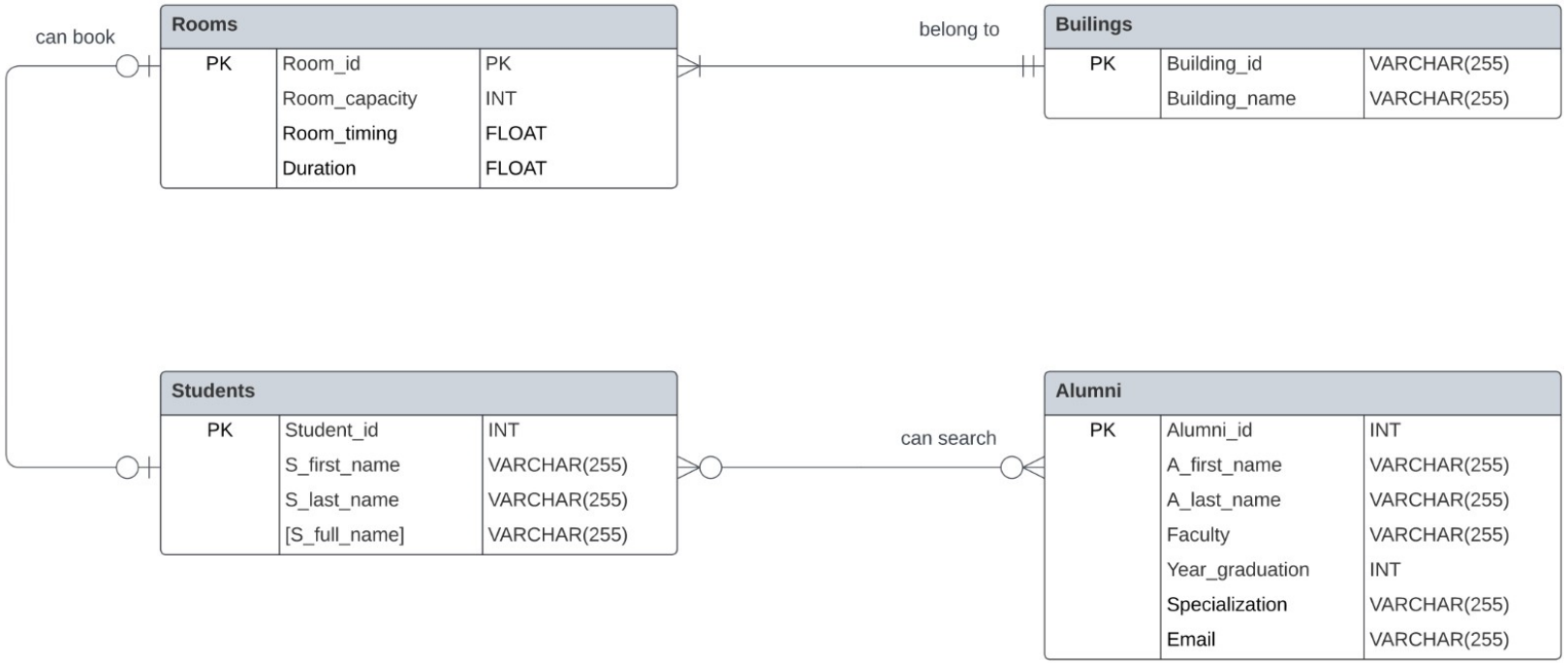
Microsoft Bot Framework

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 7 : Database Schema (ERD)



Assumptions:

1. All students have a Student ID.
2. Attribute "S_full_name" is a dervided 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.