ResBot

Kevin Wright, Justin Prince, Vraj Patel

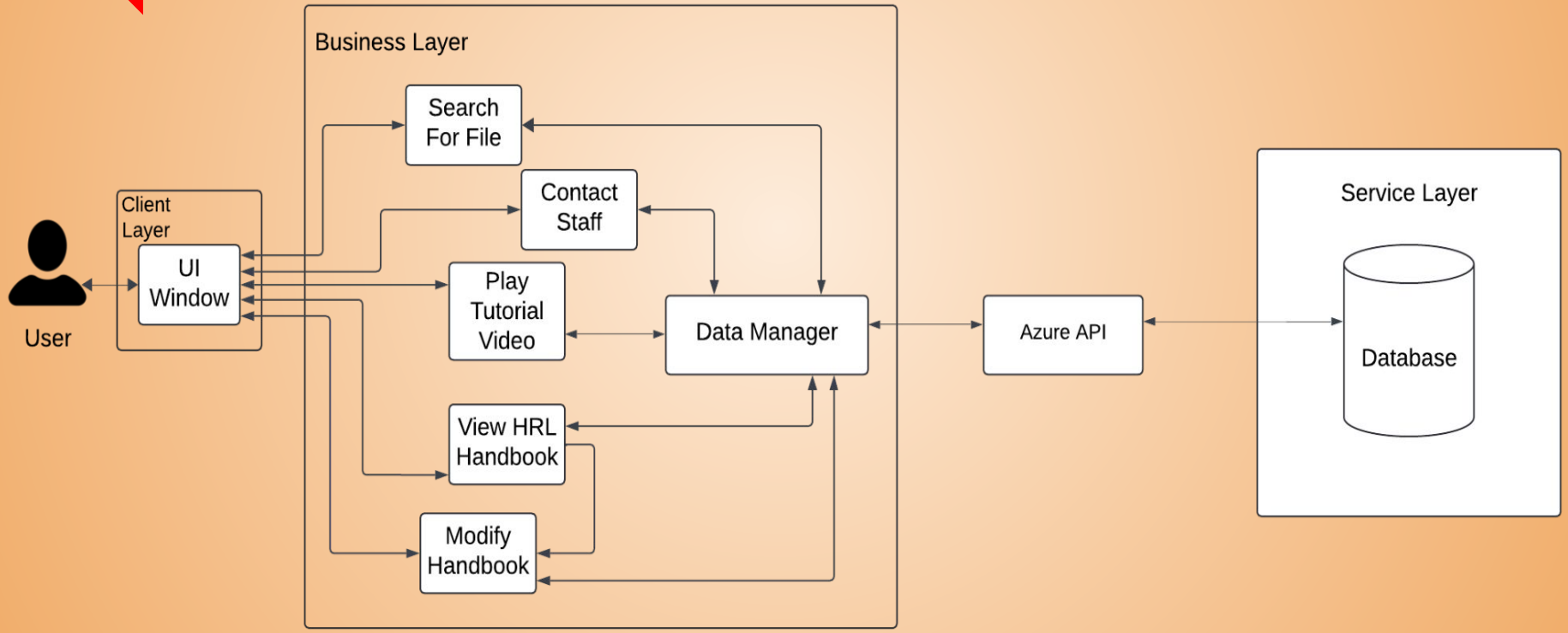
What is ResBot?

- A chatbot that is hosted through the university's HRL Microsoft Teams channel
- ResBot gives staff access to:
  - The employee handbook
  - Tutorial videos
  - Colleagues' contact information
  - Immediate responses to staff's questions
- Reduces onboarding time for both new and returning staff
- Promotes communication amongst HRL staff
- Reduces HRL costs
- Provides a more centralized solution

System Overview

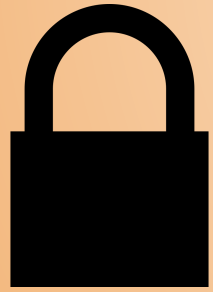
- ResBot is implemented via Microsoft Power Automate
- 3-tier architecture
  - Client layer
    - Microsoft Teams client server (web, mobile, or desktop)
  - Application layer
    - Application logic for functional requirements
  - Service Layer
    - Database
- Chatbot responses embedded into JSON messages

System Diagram

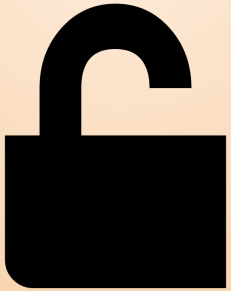


Actor Identification

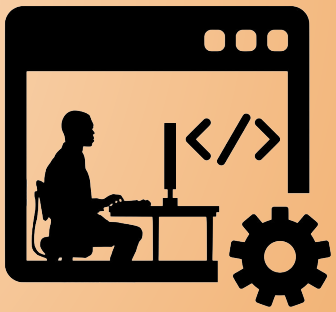
HRL Student User
(View access only)



Authorized HRL Administrator
(View & Edit access)



Developer Administrator:
(Software updates, no file access)



Architectural Style

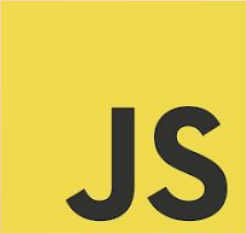
- 3-tier architecture
  - User Interface Layer
    - Uses Microsoft Power Automate to create UI elements (interactive tiles)
    - Customizes chatbot appearance
  - Application Logic Layer
    - Supplies logic for which files/information to return to the user
  - Service Layer
    - Azure Database for MySQL to host a scalable MySQL database to store and retrieve files/data.

Design Patterns

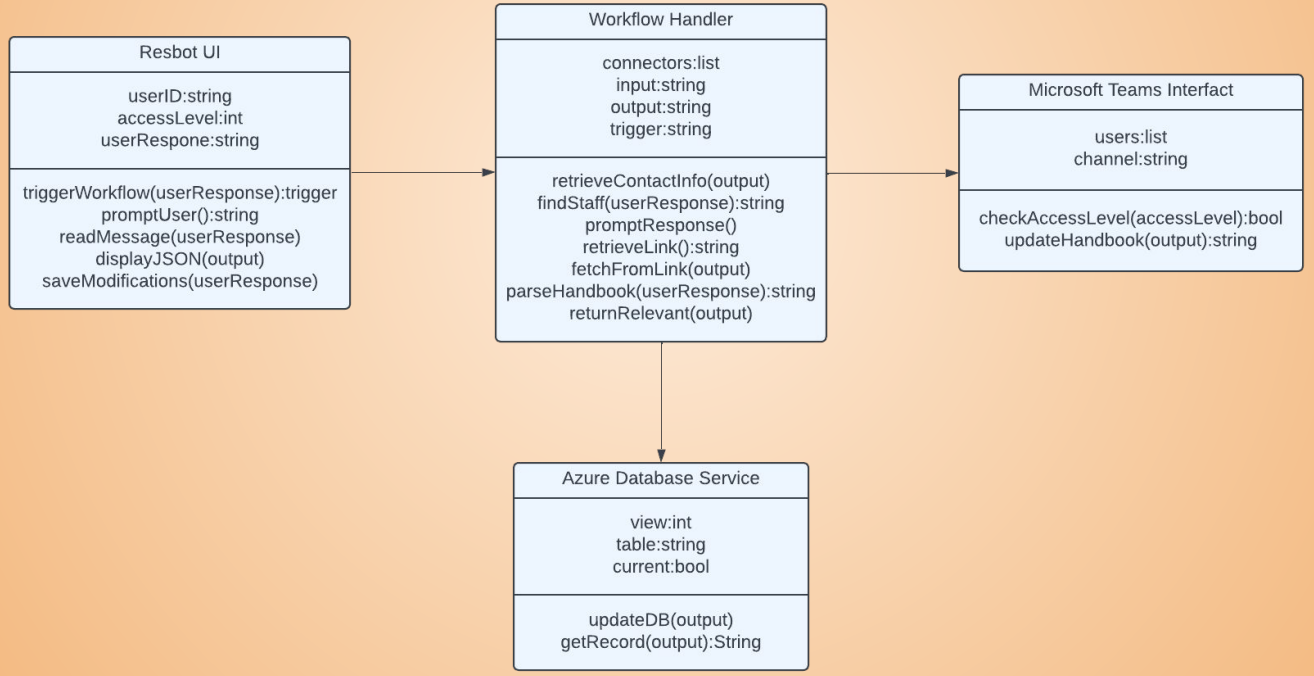
- Adaptor class
  - Allows otherwise incompatible interfaces to communicate without having their source codes modified
  - Compiles:
    - HRL Teams channel
    - Online staff registry
    - Staff form hub
    - HRL Youtube channel
- Decorator class
  - Adds functionality to an existing component without modifying its source code
  - ResBot enhances HRL Microsoft Teams channel without changing backend of the Teams channel itself

ResBot Framework

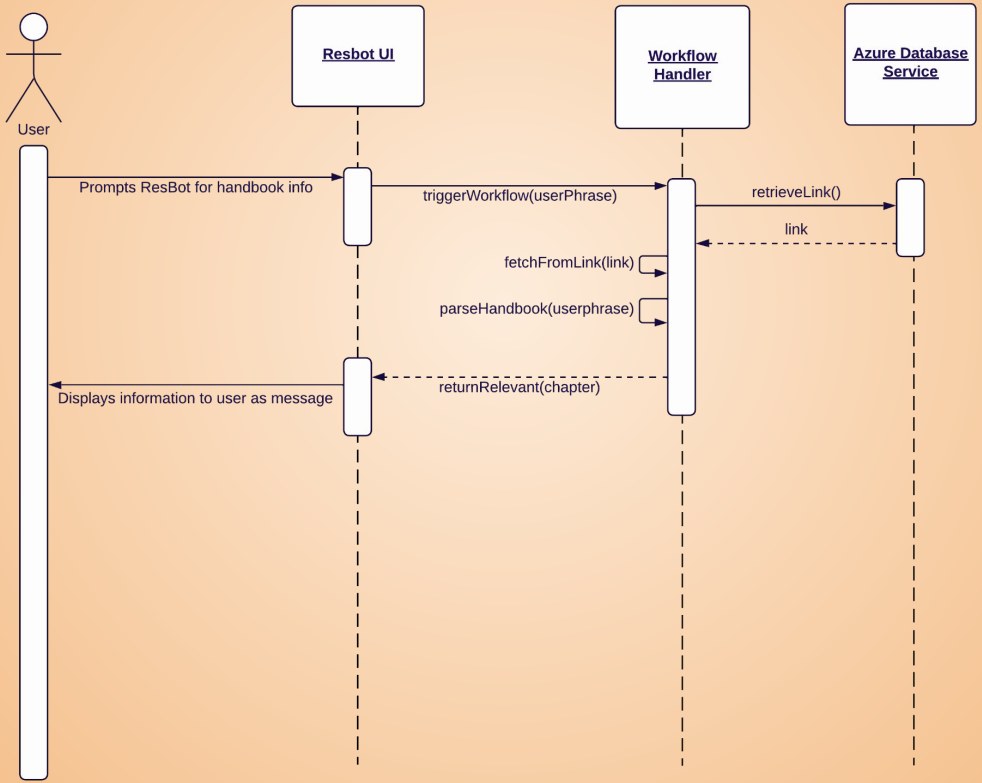
- Built on Microsoft Power Virtual Agent
- Chat responses in JSON
  - Written in Javascript
  - Allows for adaptive cards to display multimedia
- Microsoft Teams itself built on Electron framework with Node.js
- Azure Database Services
  - Smooth integration with Microsoft Teams and Microsoft Copilot Studio



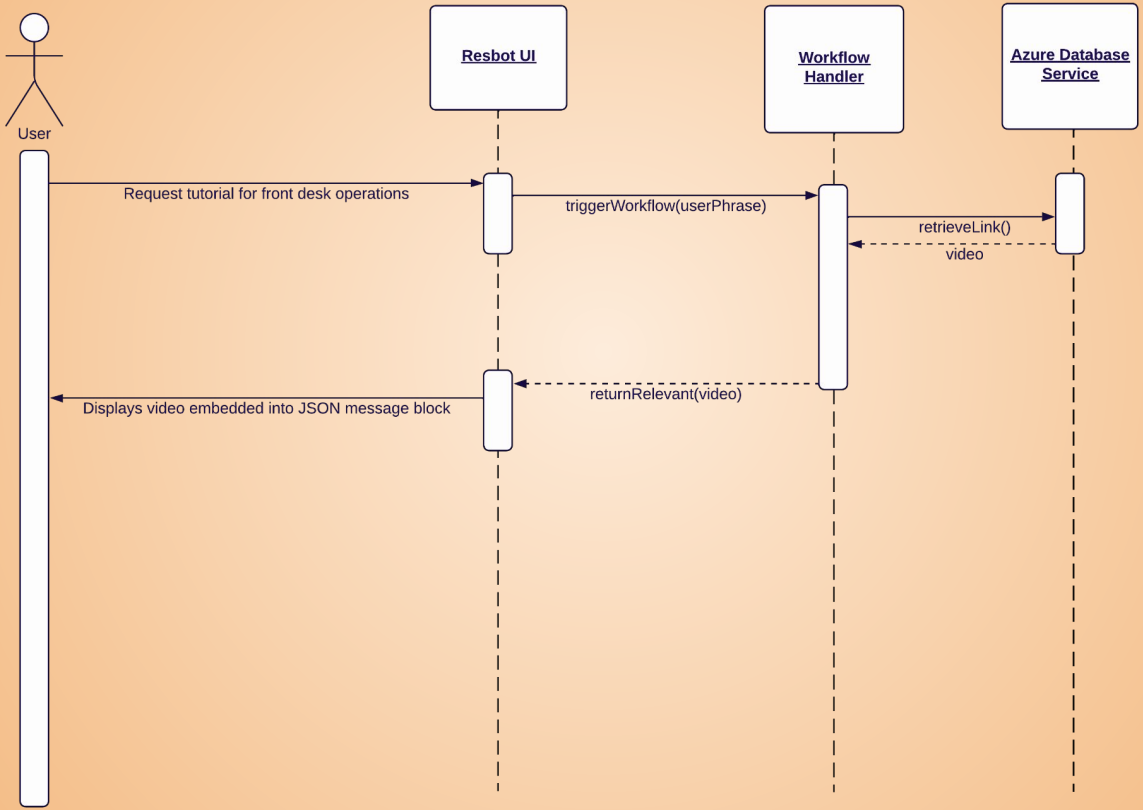
Class Diagram



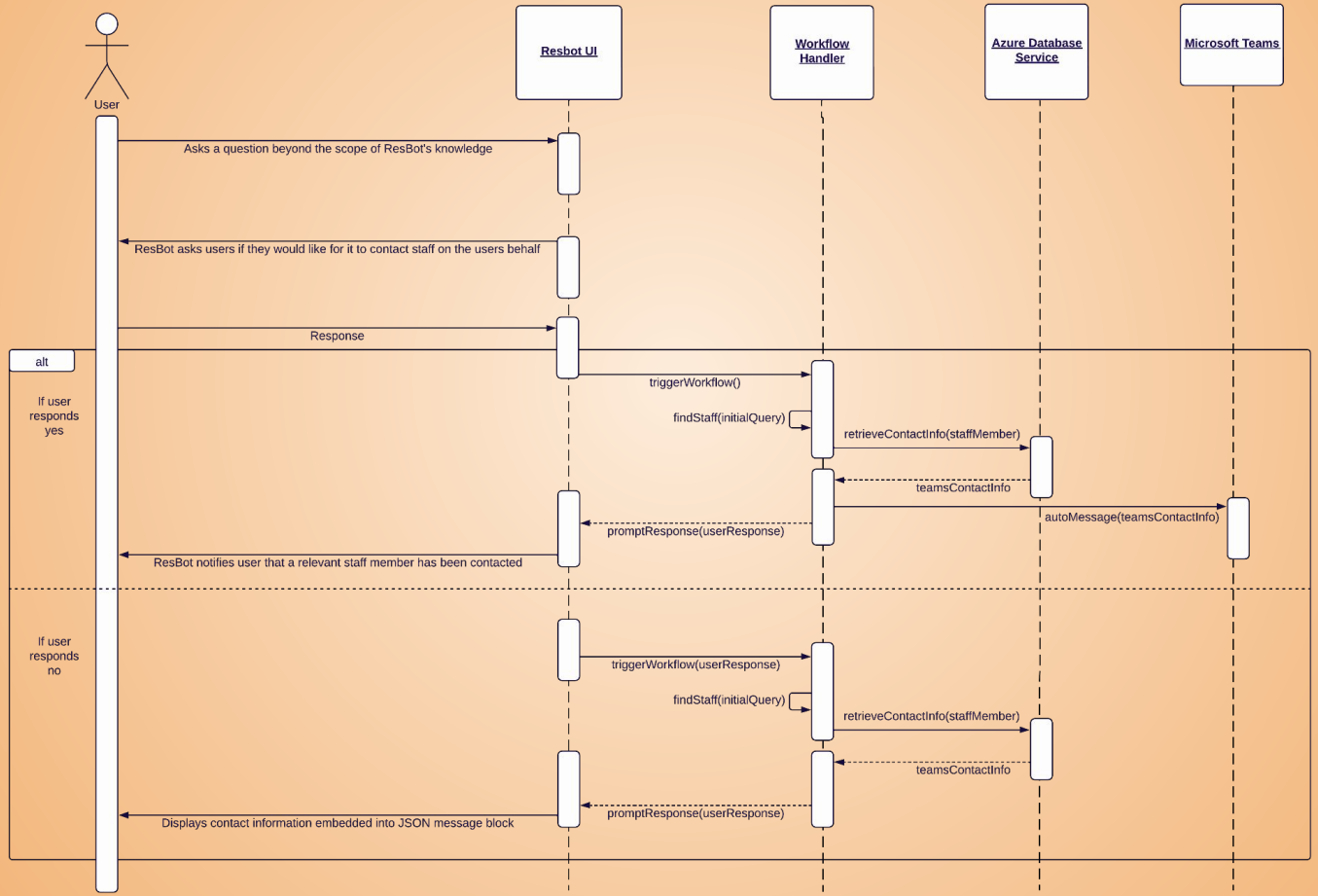
Sequence Diagram 1: View handbook



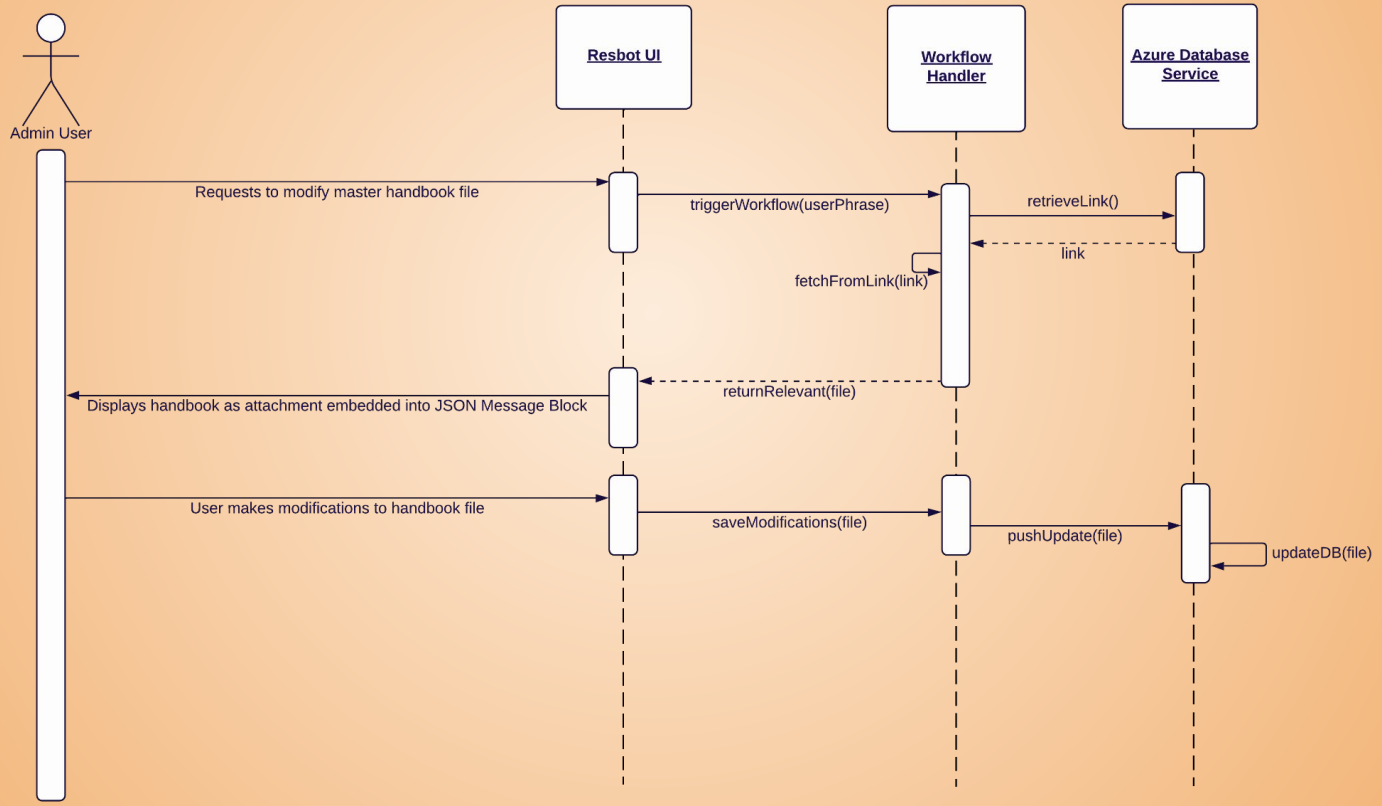
Sequence Diagram 2: Play Tutorial Video



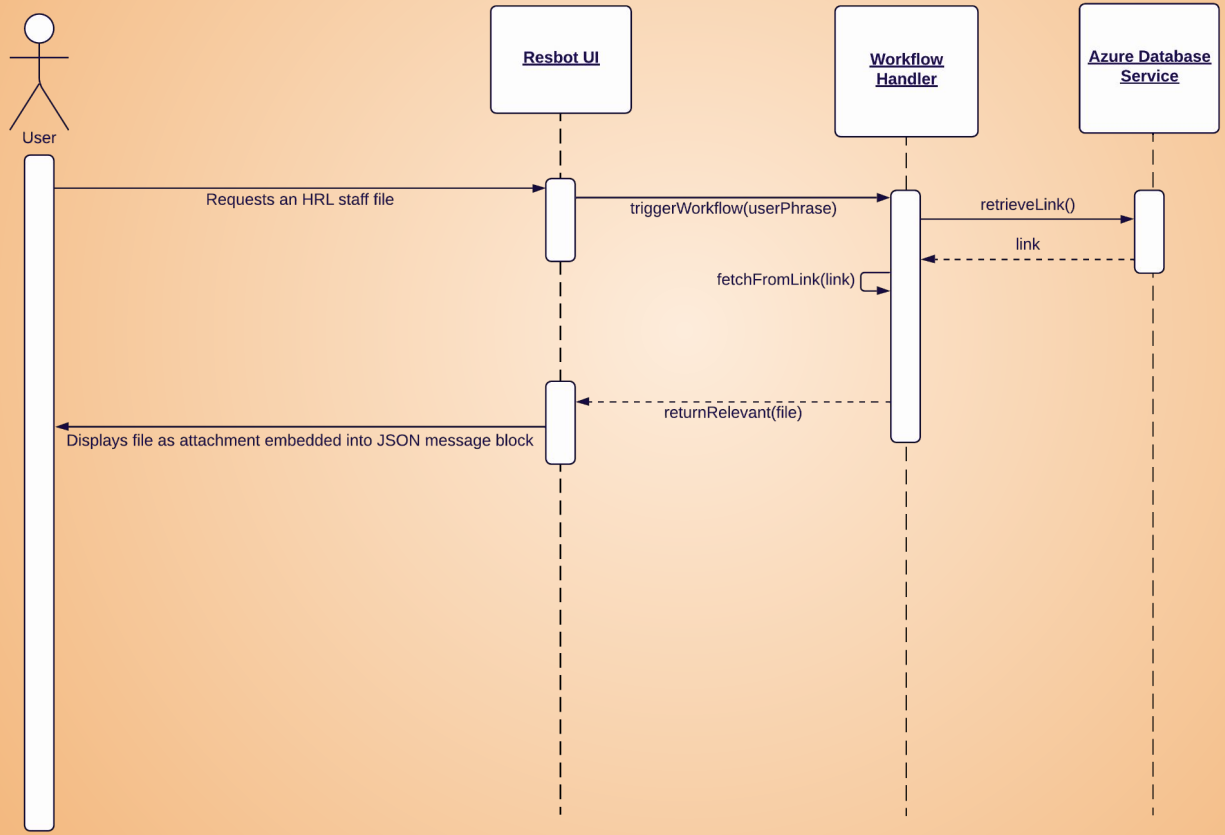
Sequence Diagram 3: Contact Staff



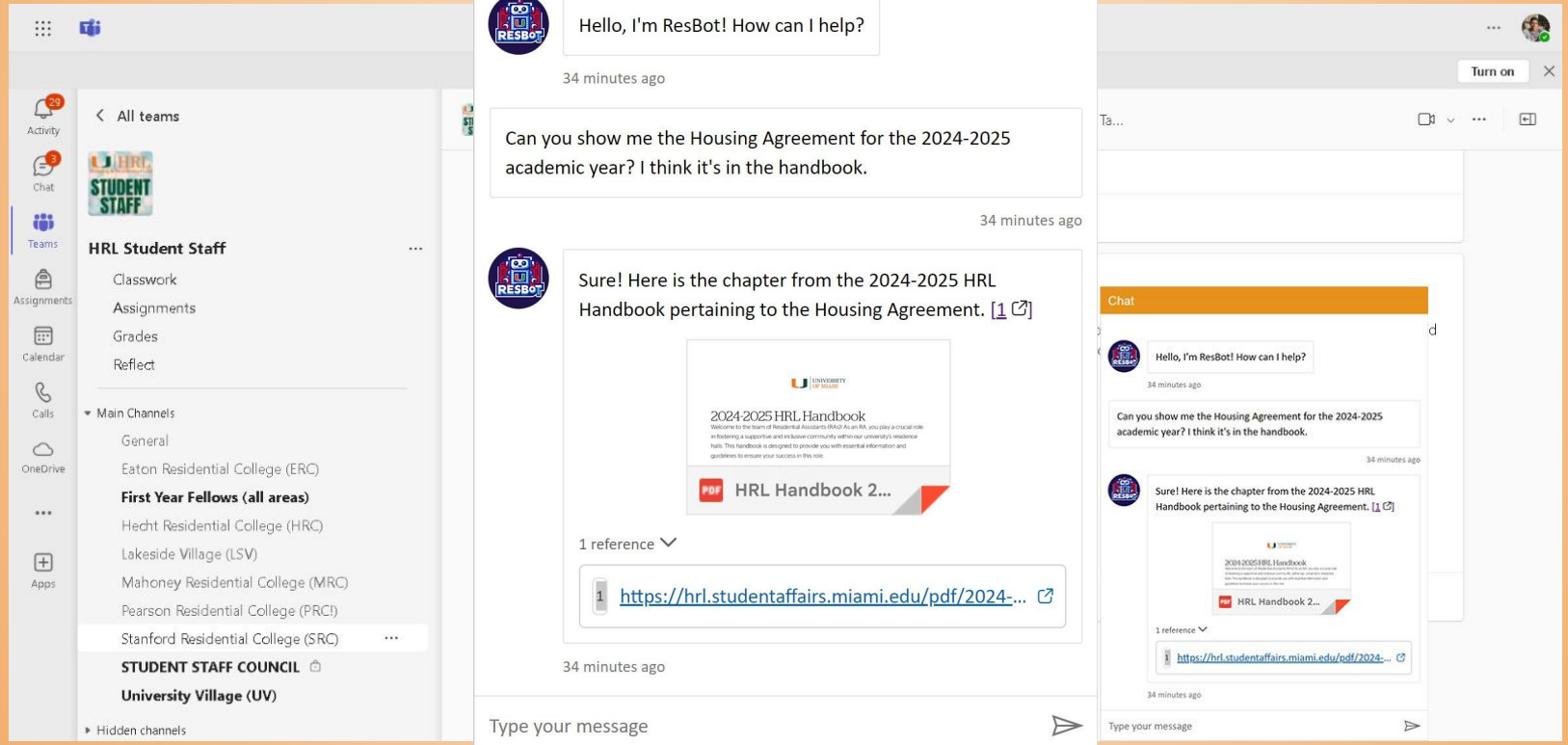
Sequence Diagram 4: Modify Handbook



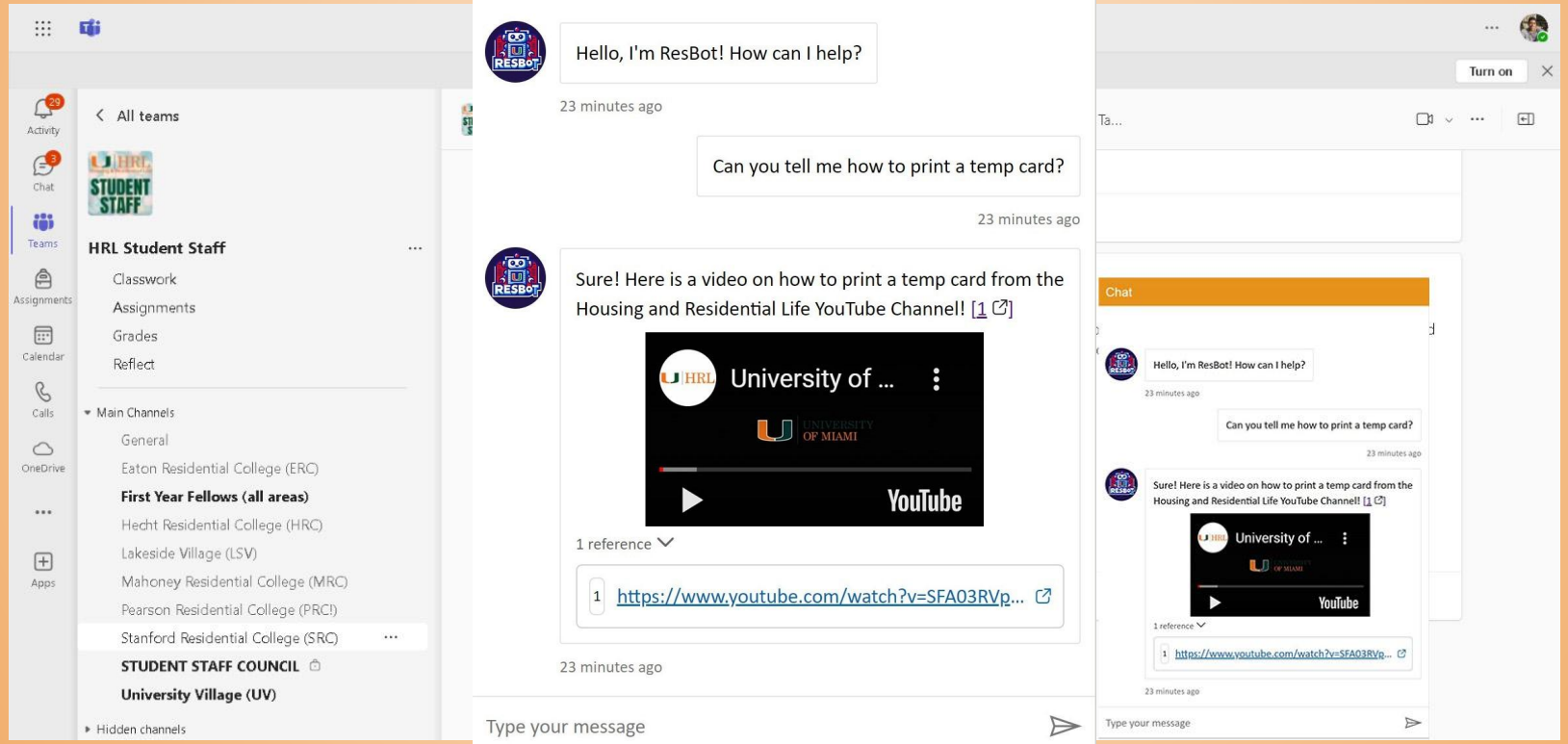
Sequence Diagram 5: Fetch File



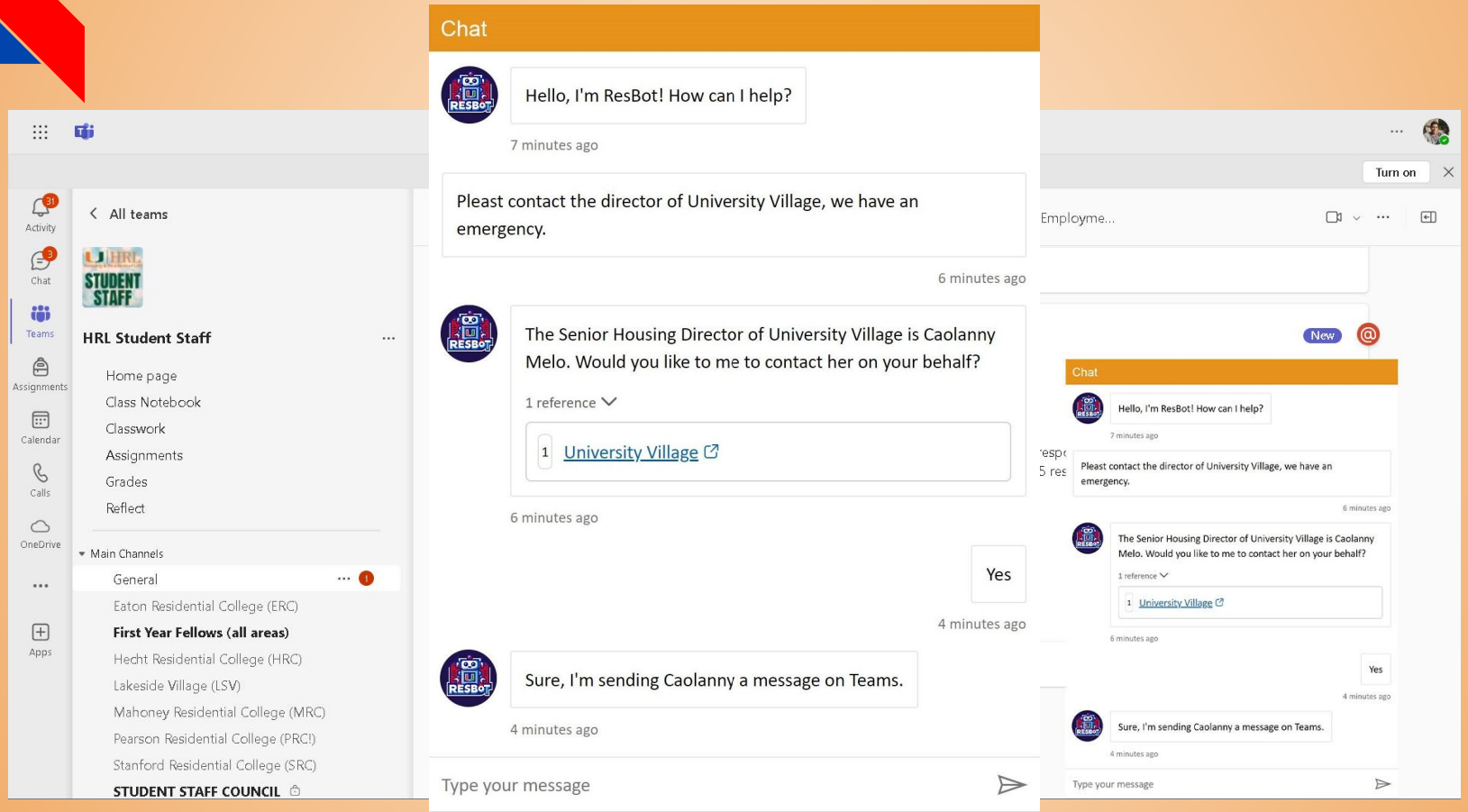
Mockup 1: View Handbook



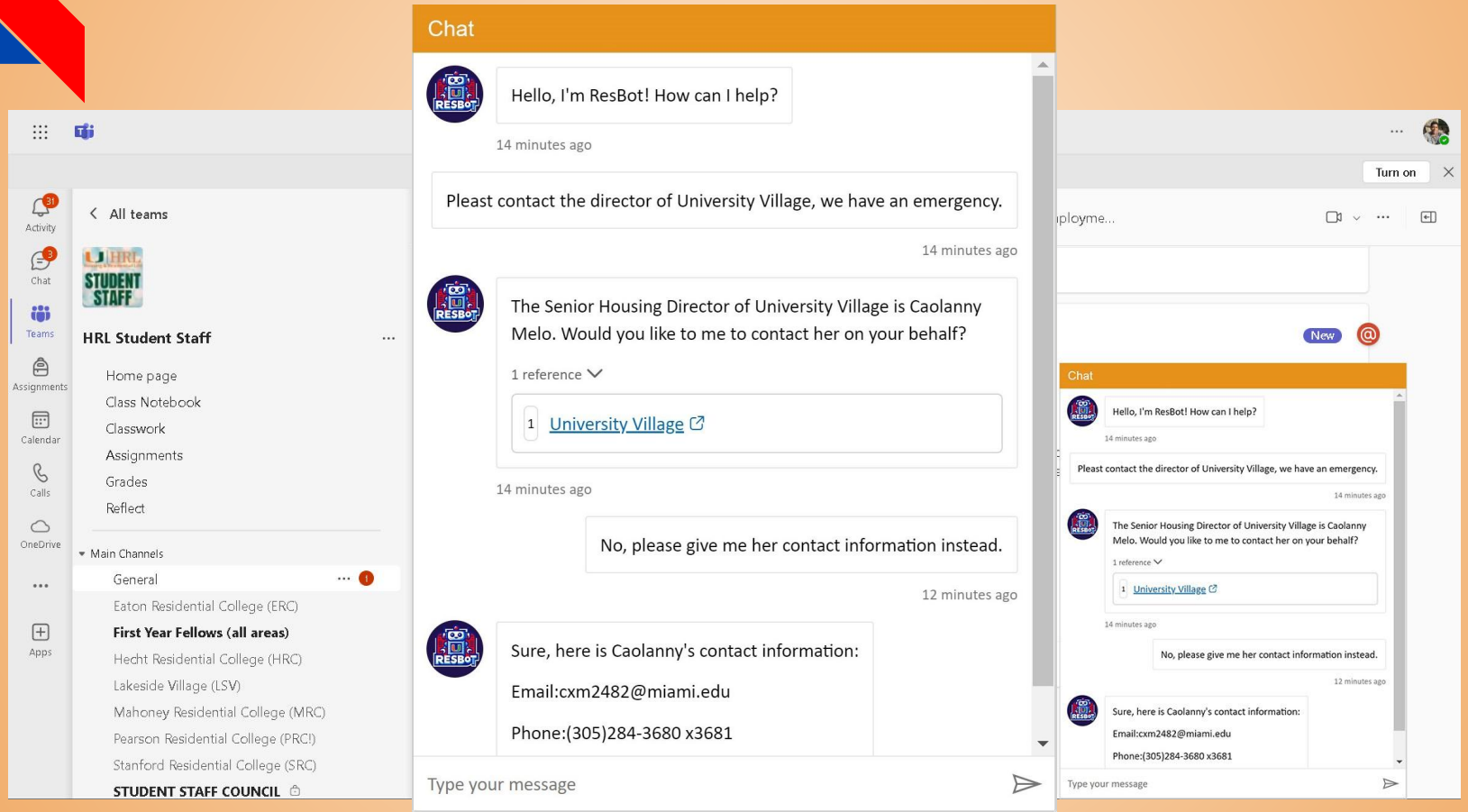
Mockup 2: Play video



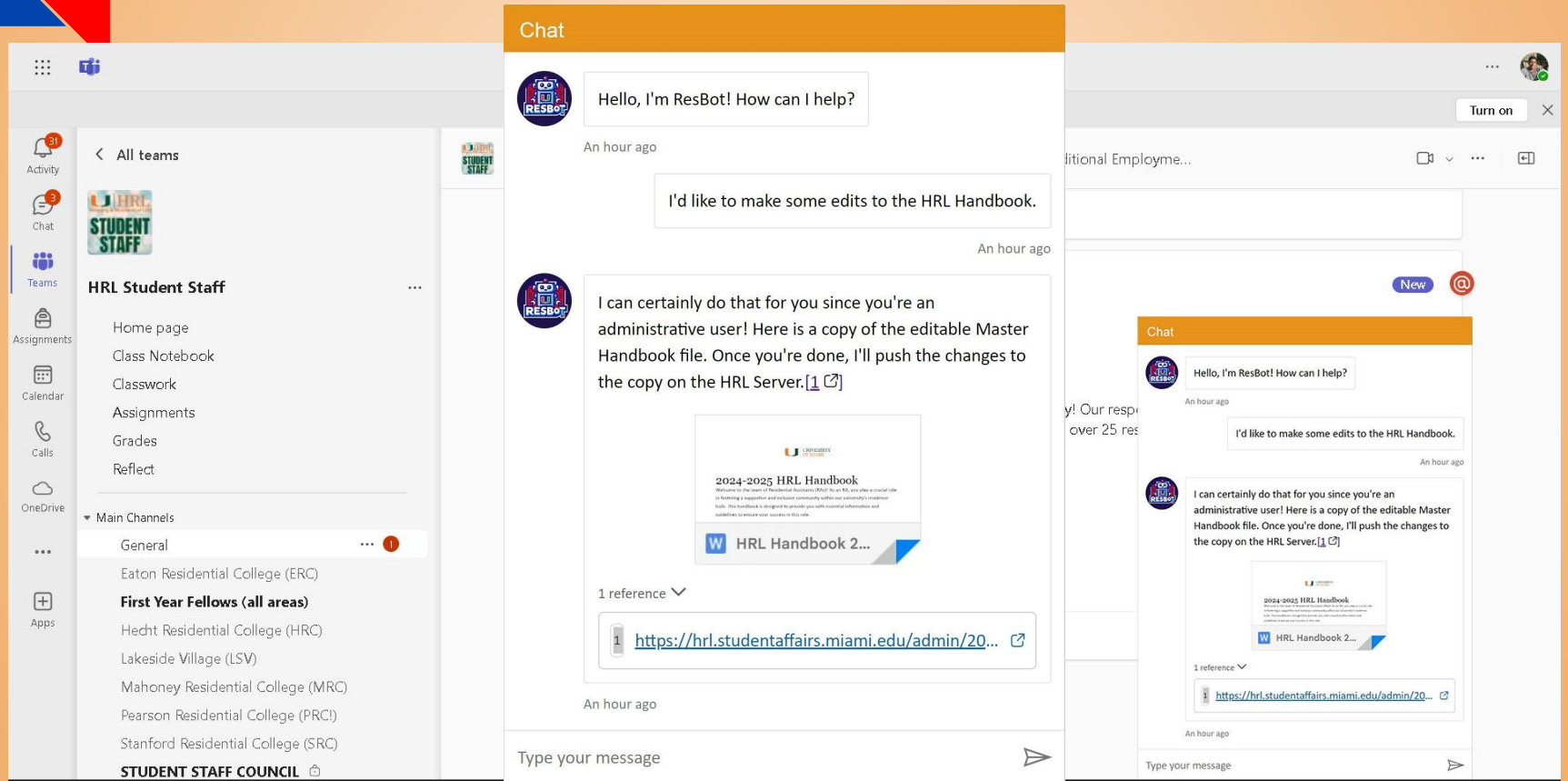
Mockup 3: Contact Staff (Yes)



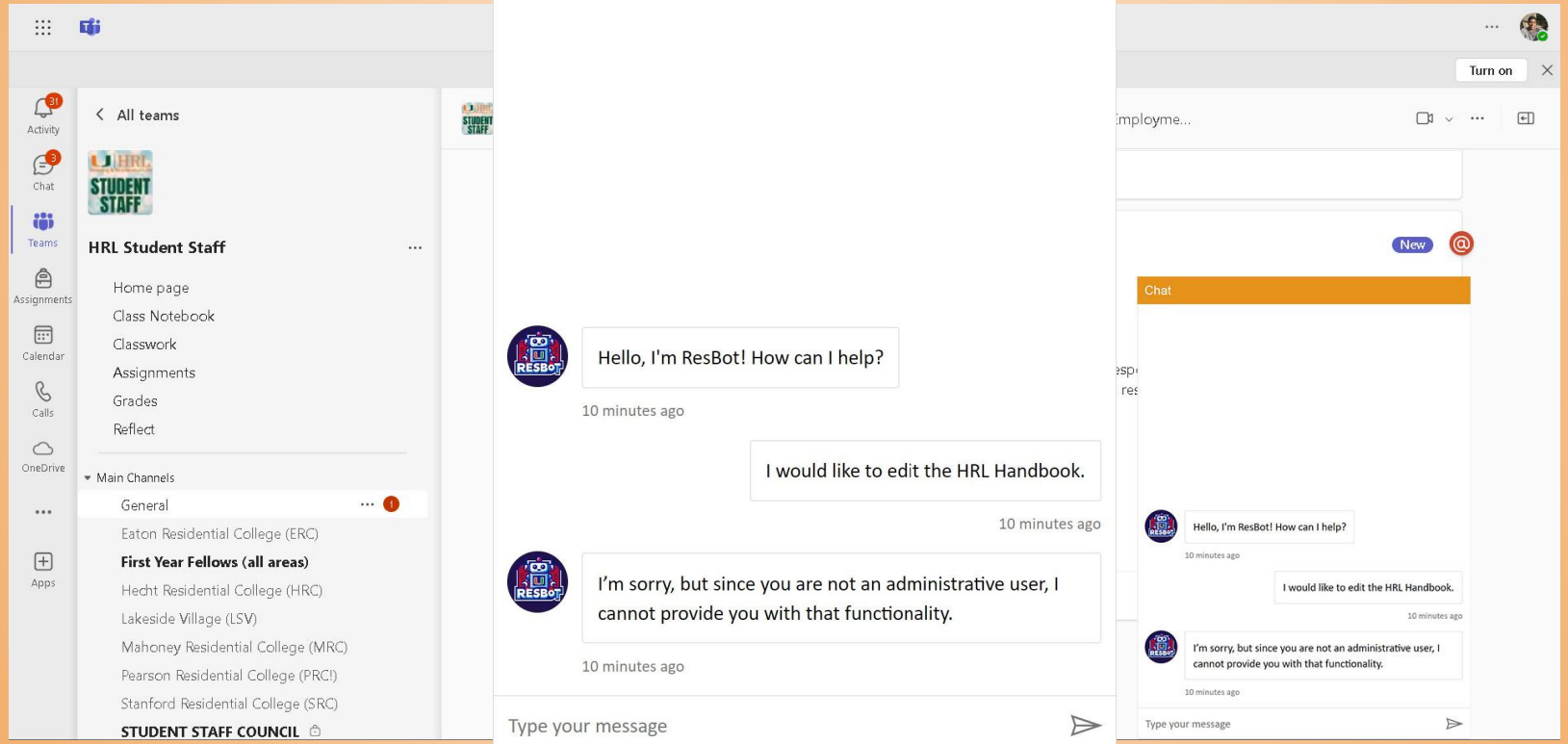
Mockup 3: Contact Staff (No)



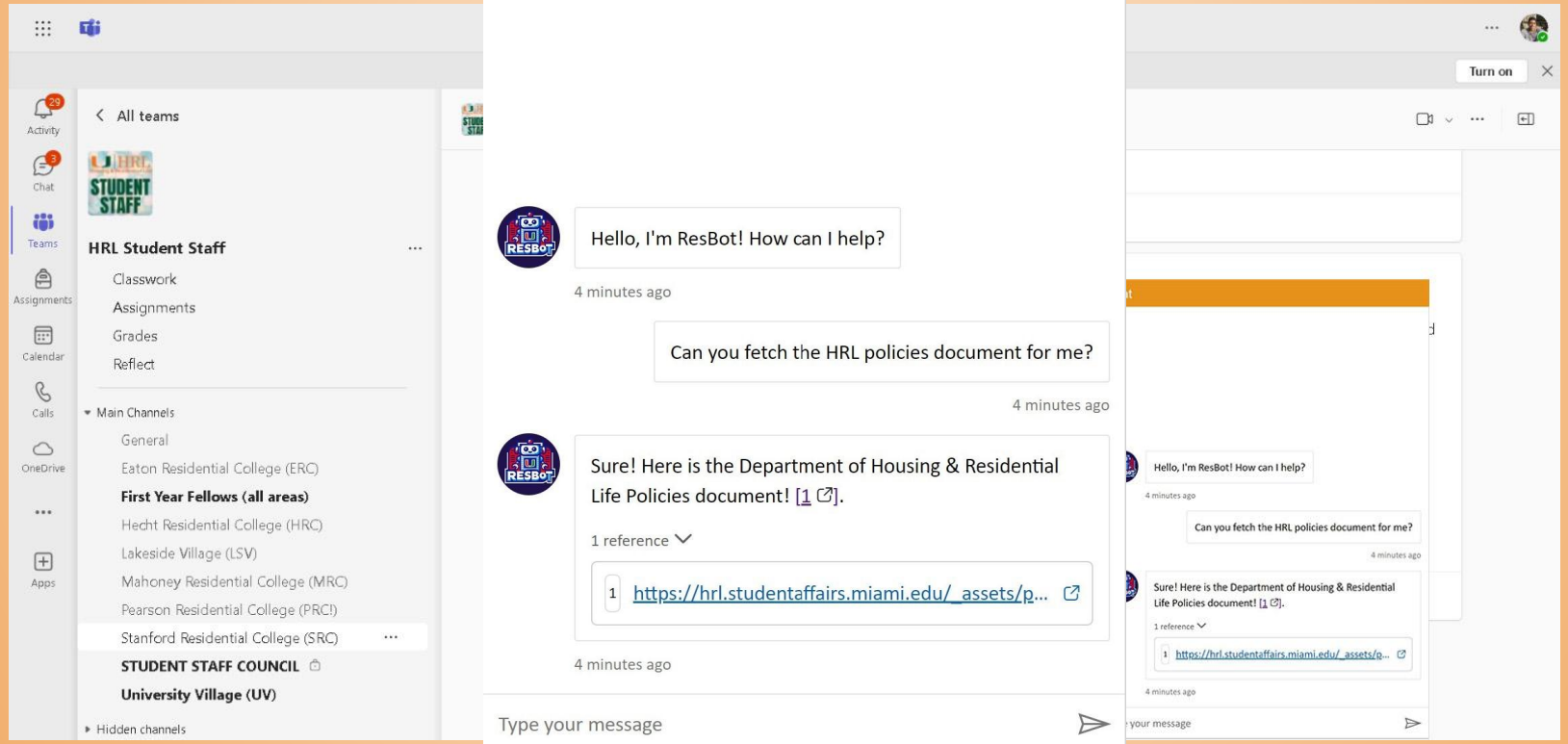
Mockup 4: Modify Handbook (Admin user)



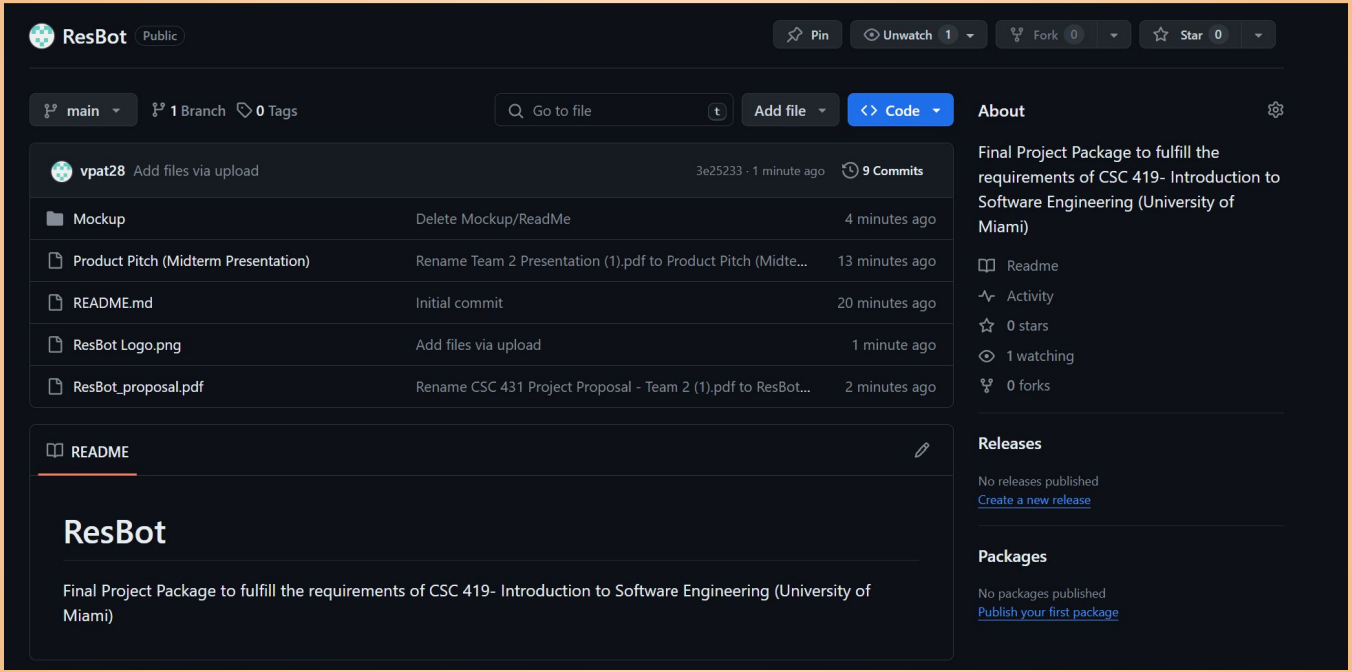
Mockup 4: Modify Handbook (Non-admin user)



Mockup 5: Fetch File



GitHub Link



https://github.com/vpat28/ResBot