ResBot

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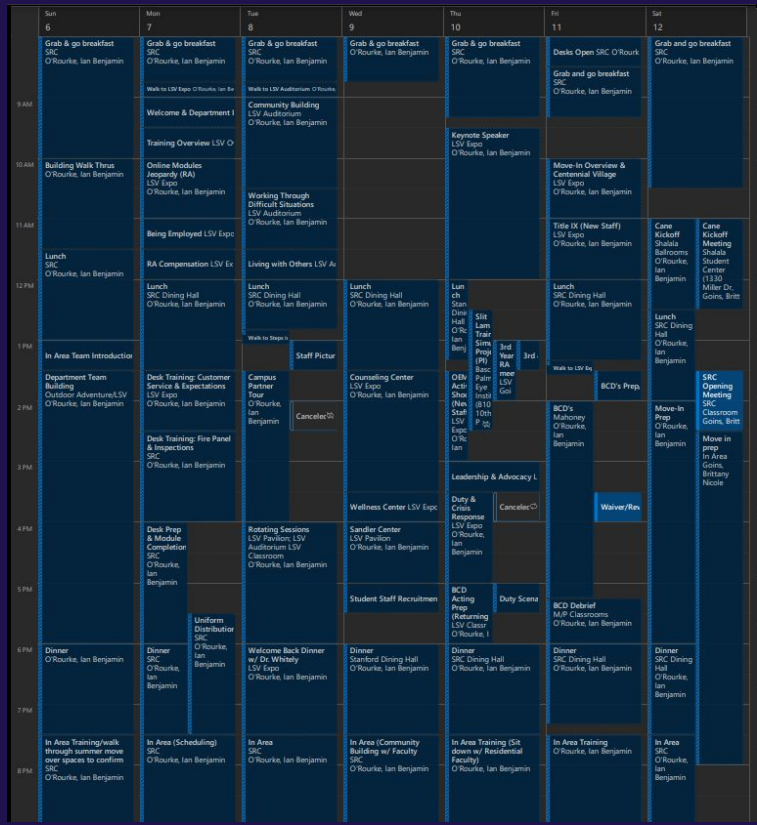
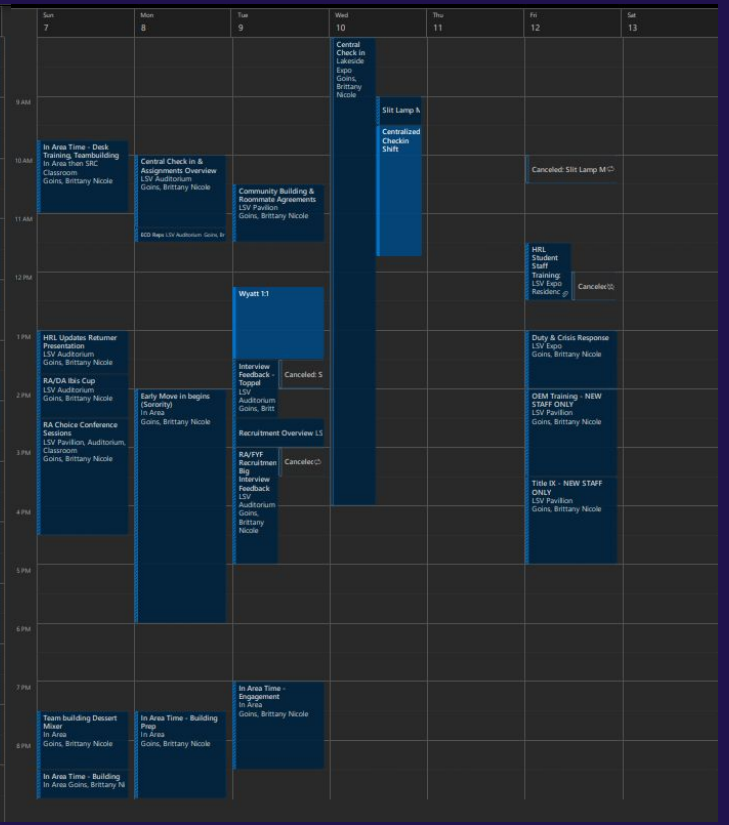
The Problem

- Housing and Residential Life (HRL) ‘training weeks’ start 10 days before the beginning of the semester
- The schedule on most days runs from 9AM-9PM
- This intense process reduces the amount of time Resident Assistants (RA) and Desk Assistants (DA) have for their Summer and Winter breaks
- It costs HRL thousands of dollars to provide meals for all the staff while the dining halls are non-operational
- The desk operation manual is both difficult to update and hard to use in a time sensitive environment

Fall and Spring Training Schedules for a returning RA





The Solution: ResBot

- A chatbot that is hosted through the 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

Functional Requirements I

1. View Handbook
    - Allows user to access the HRL guidelines handbook.
2. Play Tutorial Video
    - Allows users to find video tutorials explaining their duties.
3. Contact Staff
    - ResBot suggests HRL Staff to contact (and optionally contacts them automatically) based on the contents of a user's message (keyword recognition).

Functional Requirements II

4. Search For File
    - Allows student HRL employee to ask ResBot to retrieve a relevant file based on keyword recognition.
5. Modify Handbook
    - Allows HRL Administrative user to make edits to the master handbook file for future reference.

Non-Functional Requirements

1. File Update Speed
    - When an HRL Administrator makes updates to the handbook, the master file should be updated within a minute of editing for all employees to be able to view changes.
2. Tolerance to Ambiguity
    - Users may inquire about procedures in a way that does not exactly match the wording of the handbook. ResBot must be trained to handle a variety of prompts or synonymous trigger phrases to account for this.

System Constraints I

- Tool Constraints
  - Source Control Constraint
    - Per the project guidelines, we are required to use Github for source control.
  - Application Framework
    - We will be using Microsoft Power Virtual Agent (now part of Microsoft Copilot Studio) to develop the chat bot. Microsoft Copilot Studio allows us to directly integrate ResBot into Microsoft Teams.
- Language Constraints
  - Backend Framework
    - As we are using JSON to format the responses returned by ResBot, this portion of the backend (not managed by Microsoft Copilot Studio) will be written in Javascript.

System Constraints II

- Platform Constraints
  - Web Application Platform
    - ResBot can be used on the Microsoft Teams mobile application or desktop application (or the desktop browser edition).
- Storage Constraints
  - Data Usage Storage
    - Stores data related to all interactions including the time, location (residential college), and employee accounts involved.

System Constraints III

- Network Constraints
  - Internet Access
    - Users will need internet access for Microsoft Teams to work, which means internet access is necessary to use ResBot.
  - Access University Directory
    - ResBot must be able to access the University of Miami personnel and student contact information in order to refer users to one another.
  - Access Database
    - ResBot must be able to access an external database that stores chat logs with related metadata.

System Constraints IV

- Deployment Constraints
  - HRL Approval
    - ResBot functioning correctly relies on the Housing & Residential Life department providing access to confidential files such as employee handbooks. HRL must also provide access to their Teams channel in order to integrate ResBot into it.
- Transition & Support Constraints
  - End of Support
    - Development of the ResBot will stop at the end of the Spring semester. Thus, there will be no updates after the final day of the semester.

System Constraints V

- Budget & Schedule Constraints
  - Budget Constraint
    - Since there is no seed funding for this project, any tools used must be free.
  - Semester End Constraint
    - As this project is part of the Spring 2024 Section of CSC 431, It must be completed by the Semesters End (April 29th, 2024).
  - Free Trial Constraint
    - Microsoft Copilot Studio only provides a free trial of 60 days. Initial development of ResBot and first build must be completed within this time period. Additional development will require the purchase of a subscription.
- Miscellaneous Constraints
  - Proprietary Software
    - ResBot is built and supported by the Microsoft Copilot Studio platform. If the University administrator account lost the Copilot Studio or Power Automate ResBot would no longer be functional and would have to be decommissioned if the license is not renewed.
    - Significant updates to the Copilot Studio by Microsoft could change ResBot's functionality in unknown ways despite this being unlikely.

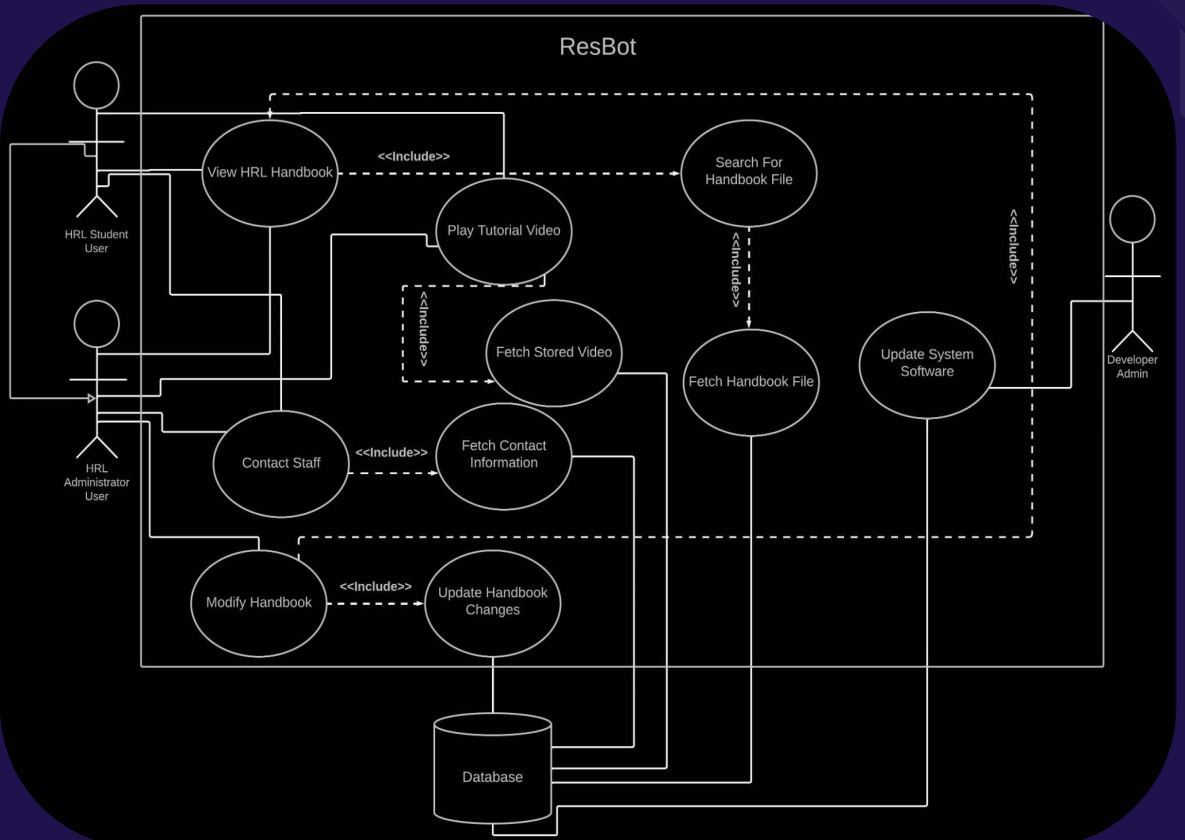
Use Cases

User Need	Basic Flow	View Handbook
Student employee has forgotten how to issue a resource at the front desk	User prompts ResBot to advise them on a front desk operation	Resbot displays an excerpt of the handbook containing a possible course of action

User Need	Basic Flow	Contact Staff
Student employee is in need of information that ResBot does not have access to	User sends a chat to ResBot regarding a question it cannot answer	ResBot can automatically notify appropriate staff ember about the user's question through Teams

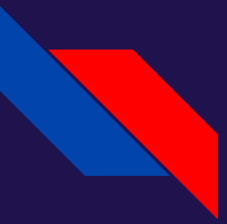
User Need	Basic Flow	Search for File
Student employee cannot find a on the HRL Teams channel	User requests the file from ResBot which searches the HRL Teams files	ResBot "replies" within the chat with a link to the relevant file(s)

Use Case Diagram



Evolutionary Requirements

1. HRL Staff Forms Integration (Functional)
    - Upon the user's request, ResBot will be able to complete appropriate forms from the HRL Staff Links site based on a conversation transcript.
2. Conversational Transcript Sharing (Non-Functional)
    - When ResBot contacts a staff member via Teams due to a user query, the message on Teams will have the transcript of the preceding conversation to provide the contacted staff member with more context in regards to issue.



Questions?