2018 California Higher Education Collaborative Conference

SONOMA STATE UNIVERSITY

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Natural Language Processing Chatbot at San Francisco State

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TECHNICAL LEAD

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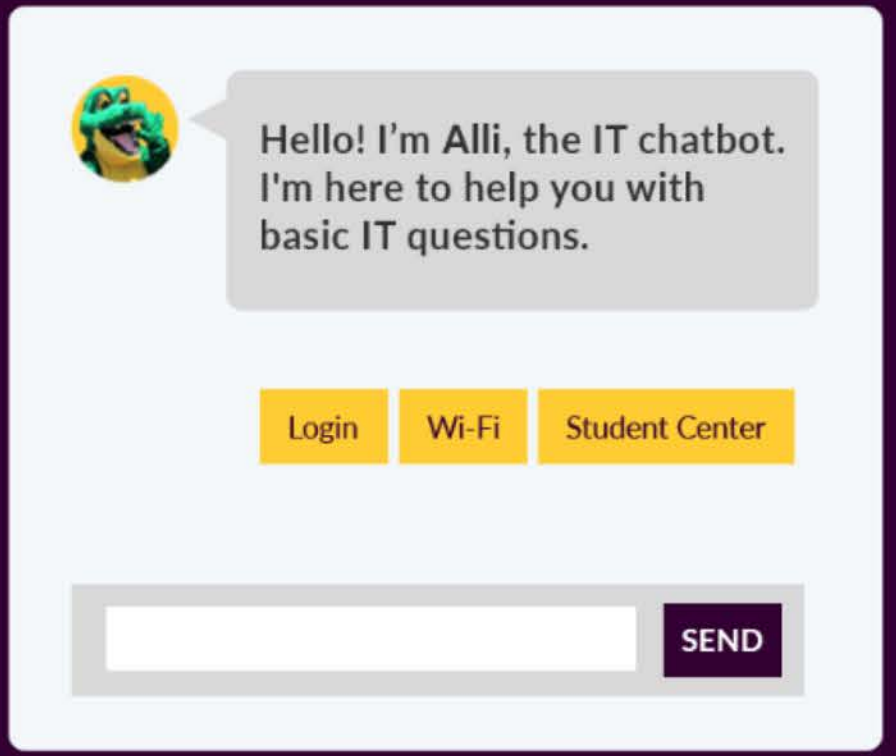
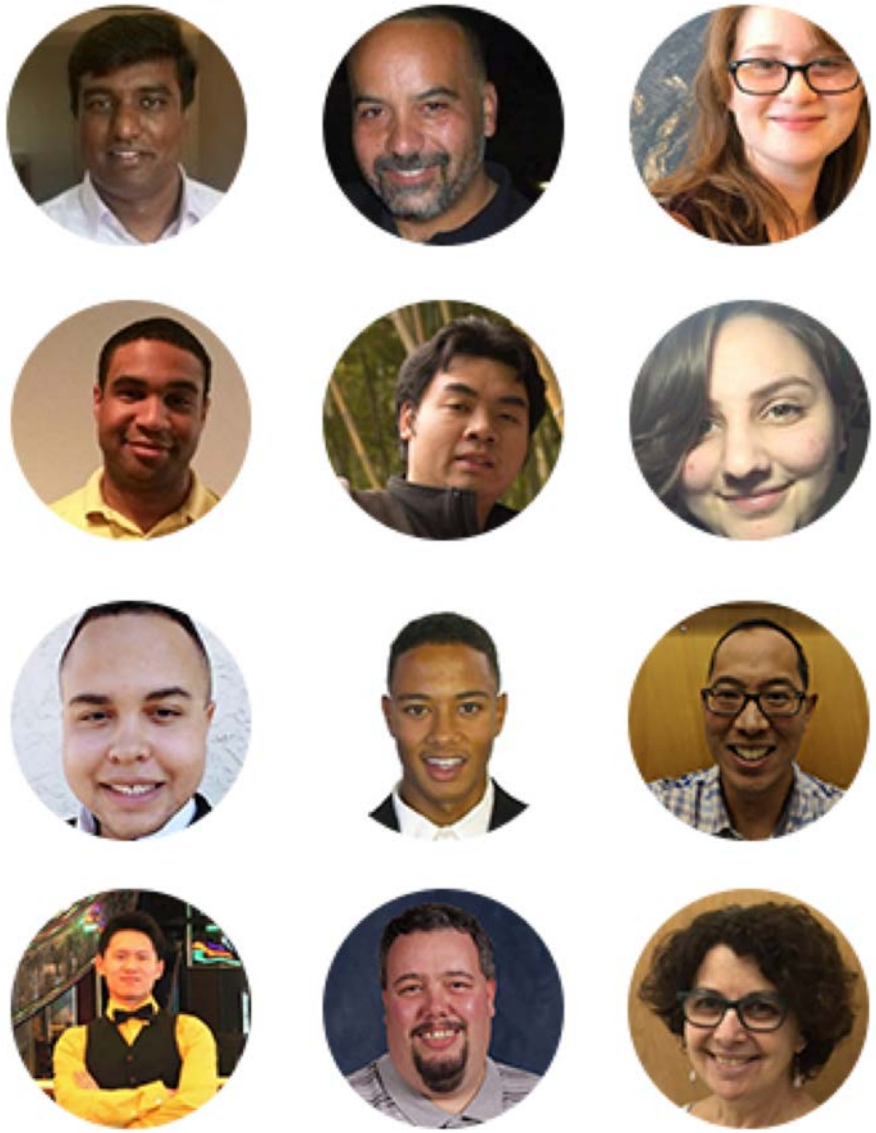
Need IT help? Chat with Alli

Get answers to your IT questions at any time of day or night



Information Technology Services

Chat at **its.sfsu.edu**



Alli Team

Collaboration

California State University Fullerton

CSUN | California State University Northridge

Partners – Jayway

Usability Graduate Class

ITEC 825

Special Thanks

Innovation Mini-Grant
funded by the Innovation Office

California State University
Office of the Chancellor,
Information Technology Services

Michael Berman
Chief Innovation Officer & Deputy CIO
at California State University, Chancellor's Office

Nish Malik
Associate Vice President & Chief Information Officer (CIO)
at San Francisco State University

Wendy M. Chapman, PMP
Senior IT Director
at San Francisco State University

Problem

Students, faculty and staff are not able to **get quick answers** to basic IT services on **their schedule**.

Goals

Prototype an AI chatbot as a proof of concept for key ITS services

Reduce Level 0 support questions/tickets

Explore acceptance and use of a chatbot

What is a AI Chatbot?

An AI-powered chatbot is a smart version which uses **natural language processing (NLP)** and **machine learning (ML)** to better understand the intent of the human and provide a **more natural, near human-level communication**.

Architecture

ALLI ARCHITECTURE

NLP

NATURAL LANGUAGE PROCESSING

NLP Exercise

Identifies Intents and Entities

I want to reset my password

NLP Exercise

Identifies Intents and Entities

How to access the student portal

NLP Training - Intent

Access

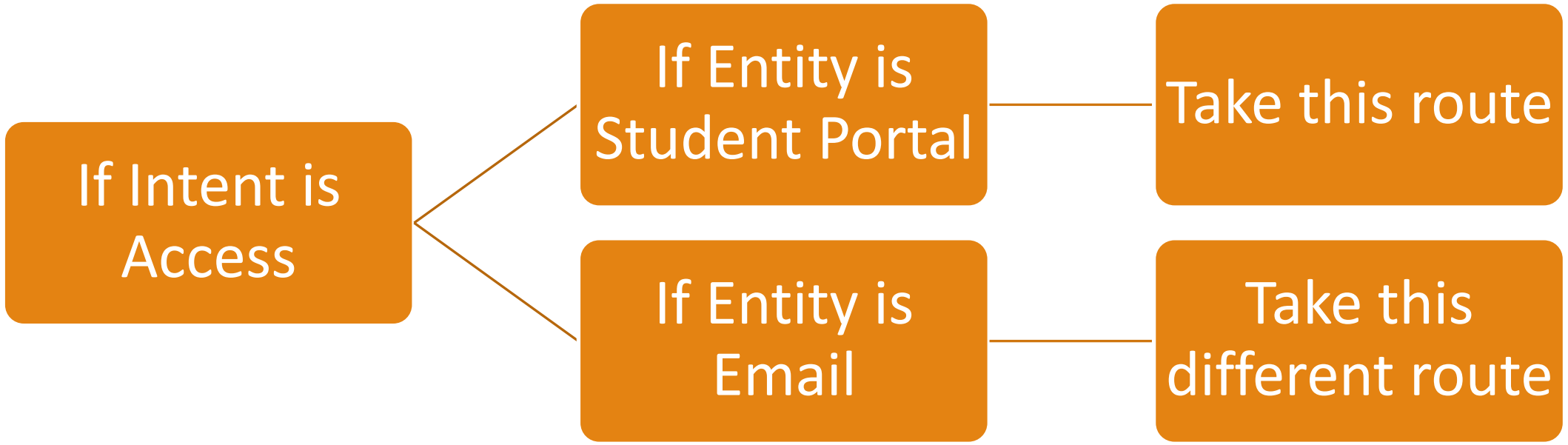
Training Keywords/Phrases:

- Access
- Login
- Get onto
- Log into

Business Logic

PROCESSING THE OUTPUT FROM NLP ENGINE

Business Logic



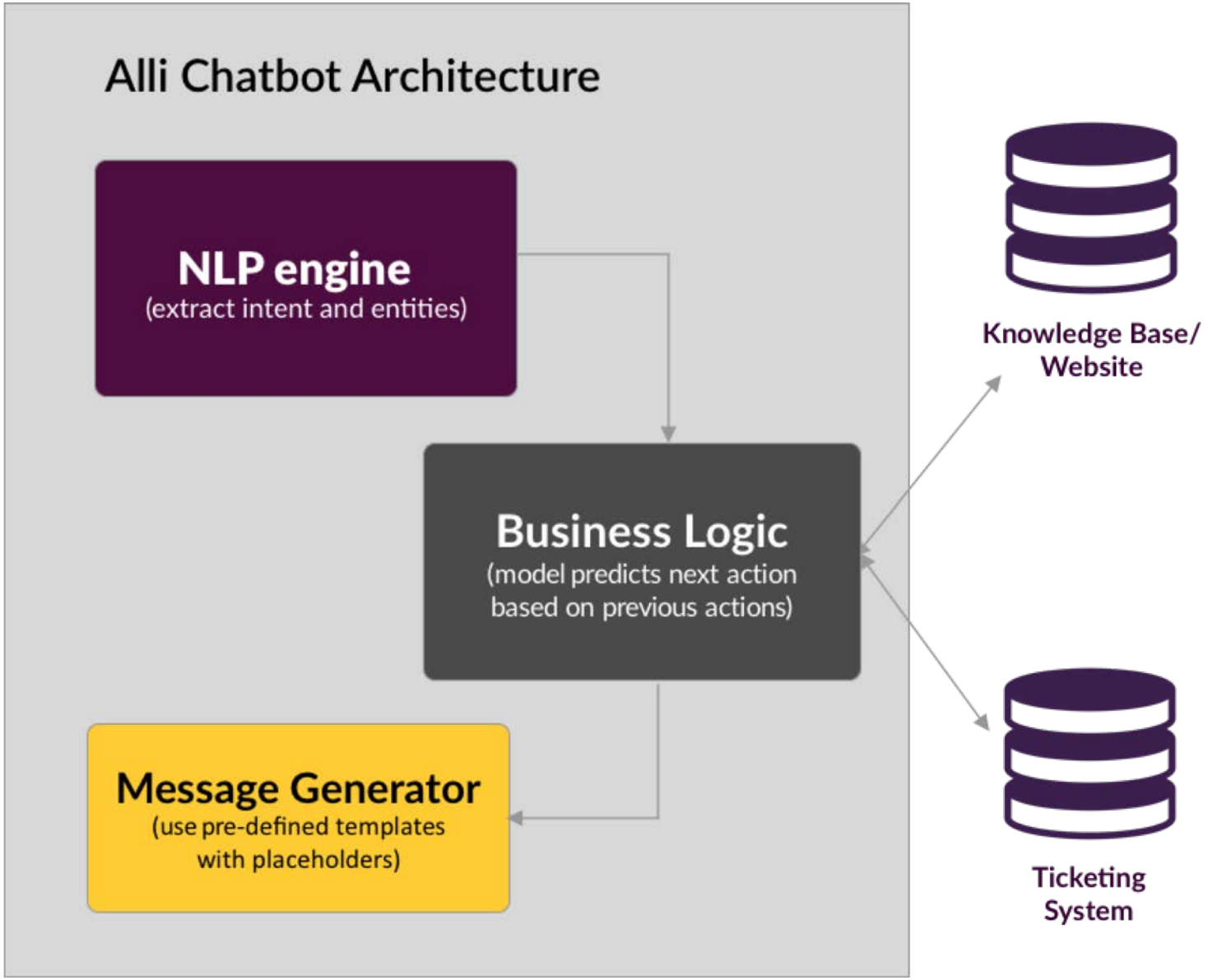
Message Generator

DIALOGS

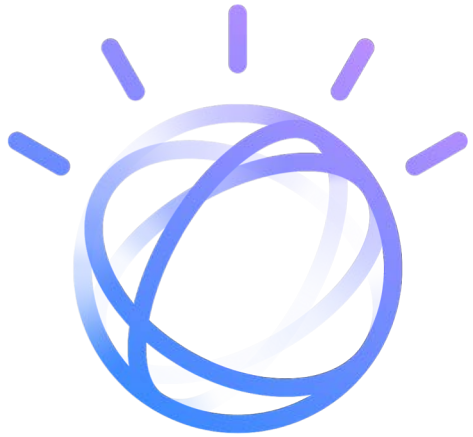
Message Generator

Technology Choices

PRODUCTS WE REVIEWED

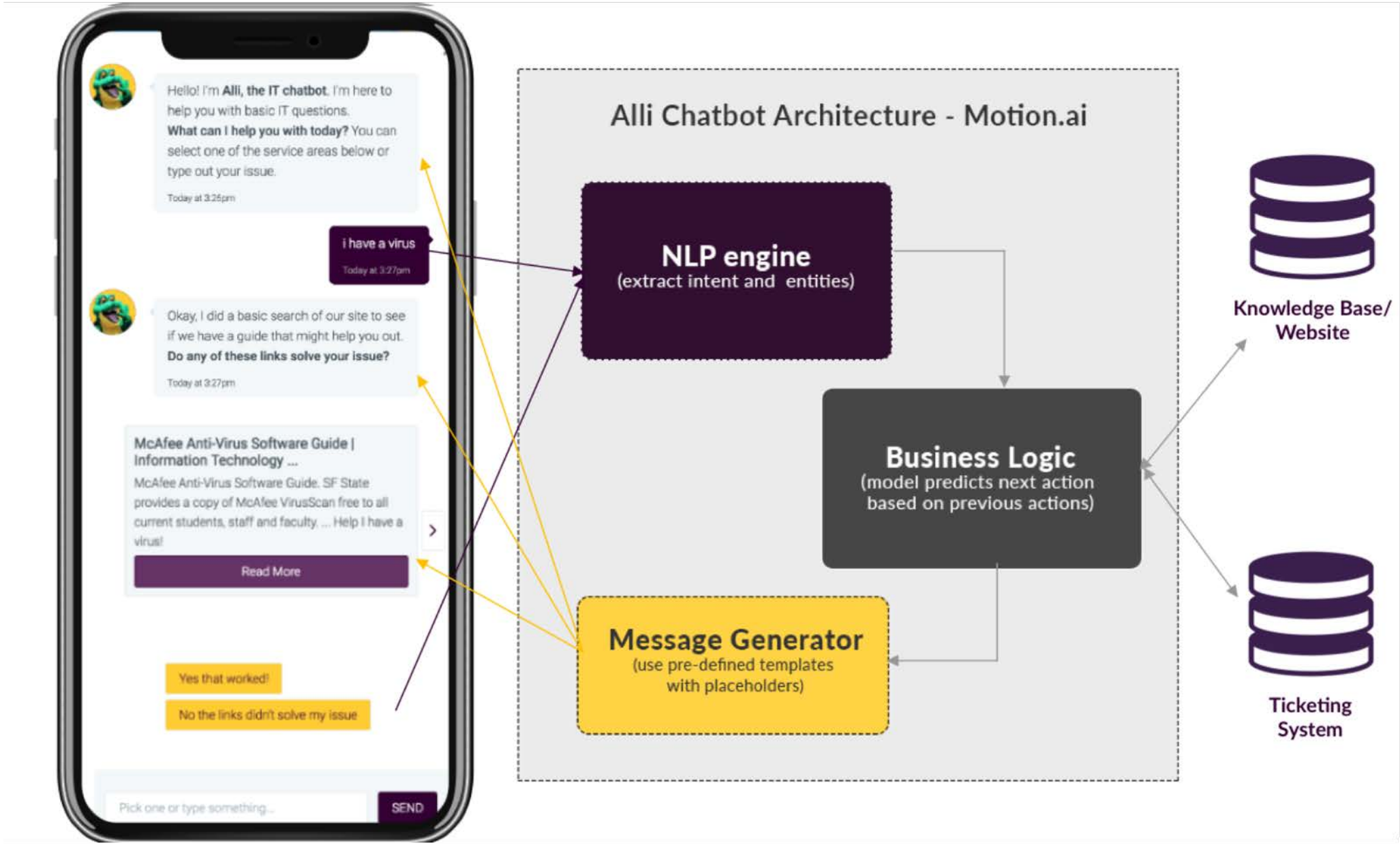

Alli Chatbot Architecture
NLP engine
(extract intent and entities)
Business Logic
(model predicts next action
based on previous actions)
Message Generator
(use pre-defined templates
with placeholders)
Knowledge Base/
Website
Ticketing
System

Evaluated Products



Pros and Cons

	Google DialogFlow	IBM Watson	Motion.AI
Reliable NLP Engine	✓	✓	✓
Cost Efficient	✓	✗	✓
Scalable	✓	✓	✓
Documentation	✓	✓	✓
Enterprise Support	✗	✓	✓
Good UI	✗	✗	✓
Integrations	✓	✓	✓
Minimal Custom Development	✗	✗	✓
Default Chat Client	✓	✓	✓


Hello! I'm Alli, the IT chatbot. I'm here to help you with basic IT questions.
What can I help you with today? You can select one of the service areas below or type out your issue.
Today at 3:26pm
i have a virus
Today at 3:27pm
Okay, I did a basic search of our site to see if we have a guide that might help you out.
Do any of these links solve your issue?
Today at 3:27pm
McAfee Anti-Virus Software Guide | Information Technology ...
McAfee Anti-Virus Software Guide. SF State provides a copy of McAfee VirusScan free to all current students, staff and faculty. ... Help I have a virus!
Read More
Yes that worked!
No the links didn't solve my issue
Pick one or type something...
SEND
Alli Chatbot Architecture - Motion.ai
NLP engine
(extract intent and entities)
Business Logic
(model predicts next action based on previous actions)
Message Generator
(use pre-defined templates with placeholders)
Knowledge Base/ Website
Ticketing System

UX Process

USER EXPERIENCE

What We Did

Define three main conversational pathways in Motion.ai (Password, Wi-Fi, Student Center)

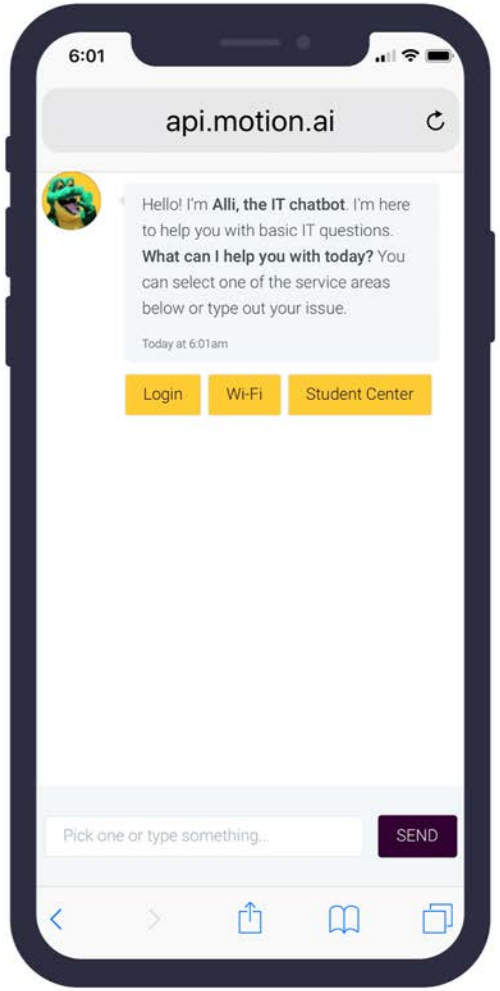
Used ITS guides as the fallback for undefined pathways

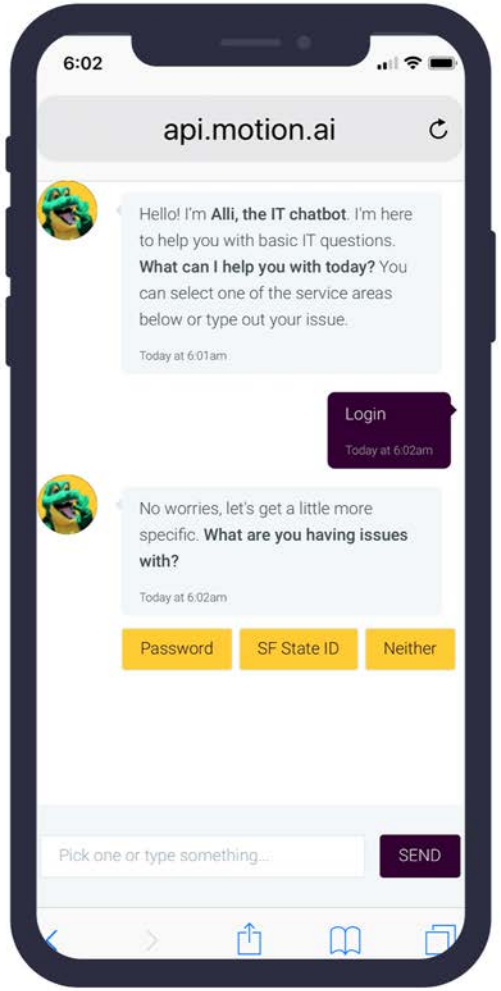
Conversational Design

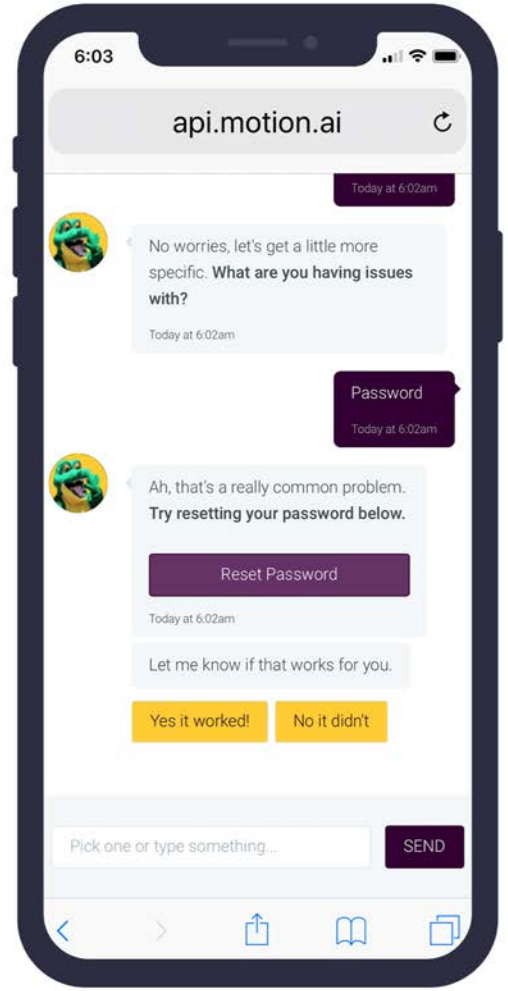
DESIGN PROCESS

What is Conversational Design?

Conversation design is about the **flow** of the conversation and its **underlying logic**.


6:01
api.motion.ai
Hello! I'm **Alli, the IT chatbot**. I'm here to help you with basic IT questions. **What can I help you with today?** You can select one of the service areas below or type out your issue.
Today at 6:01am
Login
Wi-Fi
Student Center
Pick one or type something...
SEND

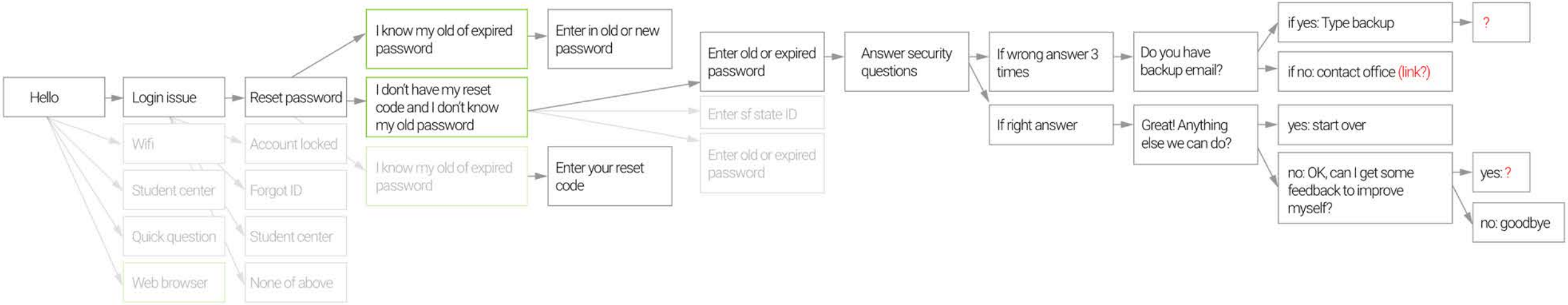

6:02
api.motion.ai
Hello! I'm **Alli, the IT chatbot**. I'm here to help you with basic IT questions. **What can I help you with today?** You can select one of the service areas below or type out your issue.
Today at 6:01am
Login
Today at 6:02am
No worries, let's get a little more specific. **What are you having issues with?**
Today at 6:02am
Password
SF State ID
Neither
Pick one or type something...
SEND


6:03
api.motion.ai
Today at 6:02am
No worries, let's get a little more specific. **What are you having issues with?**
Today at 6:02am
Password
Today at 6:02am
Ah, that's a really common problem. **Try resetting your password below.**
Reset Password
Today at 6:02am
Let me know if that works for you.
Yes it worked!
No it didn't
Pick one or type something...
SEND

Welcome

Dialog

Ending



Welcome **Dialog**

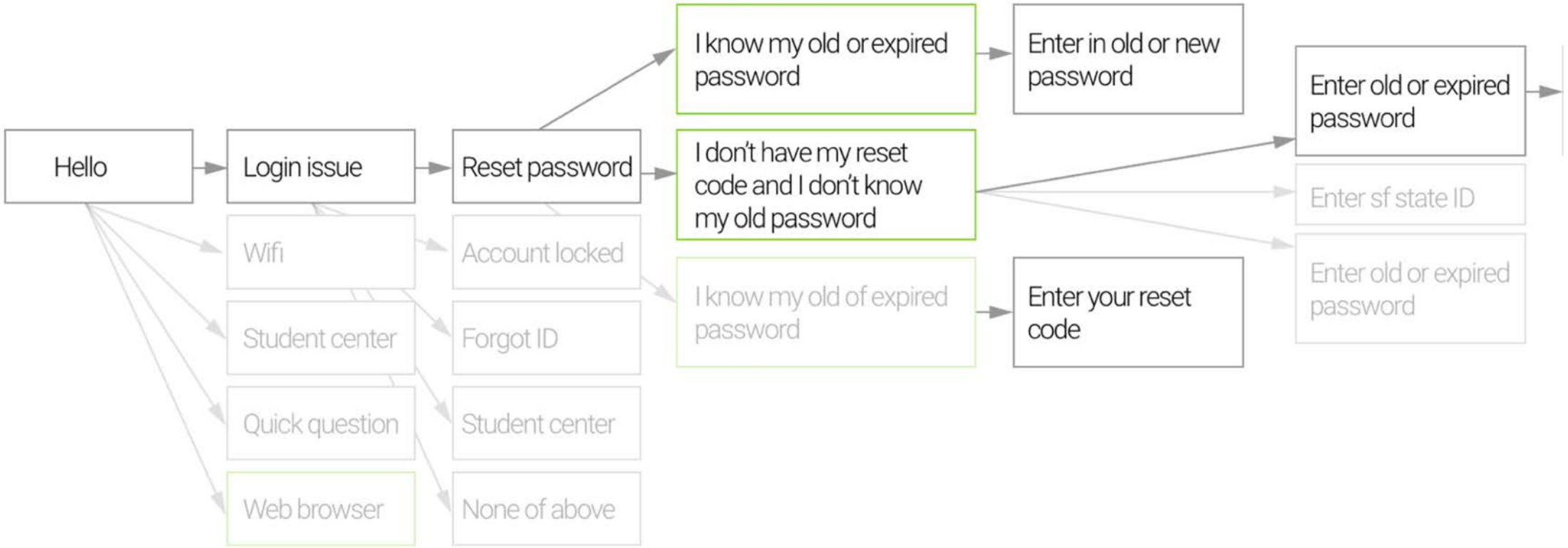


Photo by Franck V. n Unsplash

Rethinking Service

IT SERVICE CONTENT

Results

FROM THE FIRST WEEK

Measuring Goals

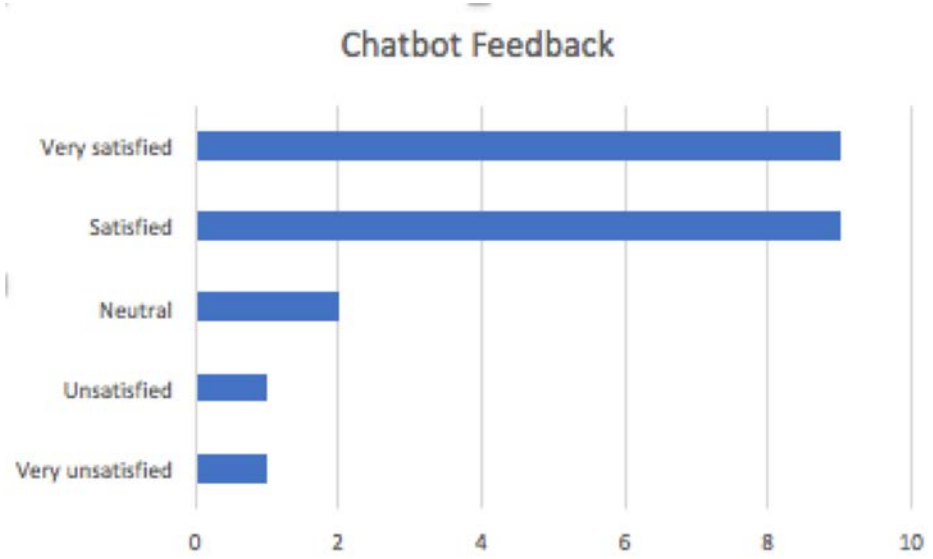
300 chat sessions in the first week

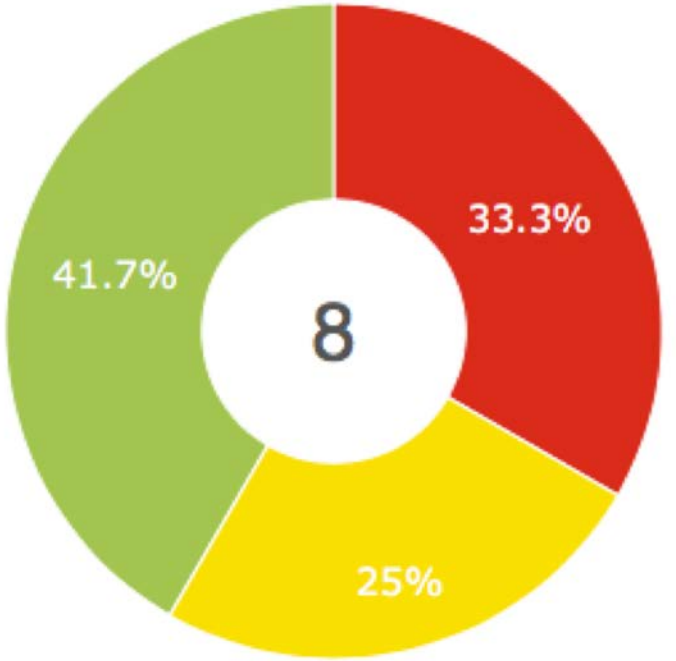
70% result in self-service
20% result in assistance (sending a ticket)
10% result in user abandonment

20 User feedback submissions

198

Chat sessions in first week





Net Promoter Score

N = 22

Weekend Results

7%

Had their issue resolved

24%

Ran into issue/Dead end

17%

Didn’t submit a ticket

64%

Didn’t return/ No further action

N= 29

What We Learned

Conversations are hard

Manage exceptions
- Small talk, Alexa, Siri

Maneuvering buyouts and changes
- Motion.AI > HubSpot, API.AI > DialogFlow

Keep talking to users

Have students on the project

Future

NEXT STEPS

If you're serious about photography, this book is a must-read. Consider it a necessary guide to making it.
DOUG MENUEZ
DEMETRIUS FORDHAM

@dribble LS5 / Stefan Grimm

Q & A

WHAT DO YOU WANT TO DISCUSS?

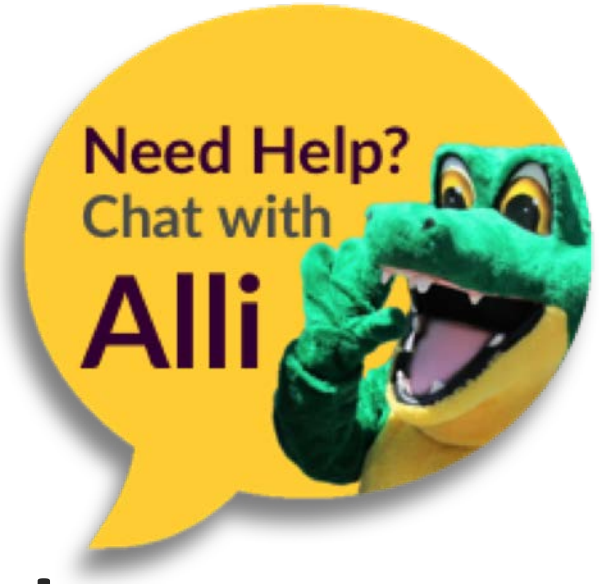
Take Away

Great Level 0 support

- 24 x 7 availability
- Multiple simultaneous sessions

Great potential

- Integrate with student systems and other IT systems
- Personal assistant



Thank you

VISIT ITS.SFSU.EDU TO CHECK OUT ALLI