MIDS Applicant Advisor Chatbot - an Exercise in NLP and Conversational AI

Steve Dille, Kevin Kory, Nicole Yoon, Joanna Yu

W210 Capstone, Spring 2021

Berkeley
UNIVERSITY OF CALIFORNIA

Introduction

Problem Statement

Bridging applicant/admissions information gap:

- Explosion of data science master programs and bootcamps leaves applicants seeking education confused
- Difficult and time consuming to research options and find credible facts, advice and insights to make the right educational choice

MIDS chatbot vision:

- Combine the best of reading website/admissions materials, talking to current/past students, researching independent reviews into an easy to use NLP chat service for applicants to MIDS

Narrowing the Problem Definition

Generalized self-service admissions and applicant communication:

- This same problem exists at UC Berkeley for all department admissions communication with applicants
- The same applicant communication problem exists at all universities
- Multiple go-to-market strategies possible - independent subscription applicant research portal or university chatbot service

All paths start with achieving one particular milestone:

- Proof of concept of chatbot service that delights applicants
- Necessary for university adoption or applicant adoption

Target User for Proof of Concept

Initial target user:

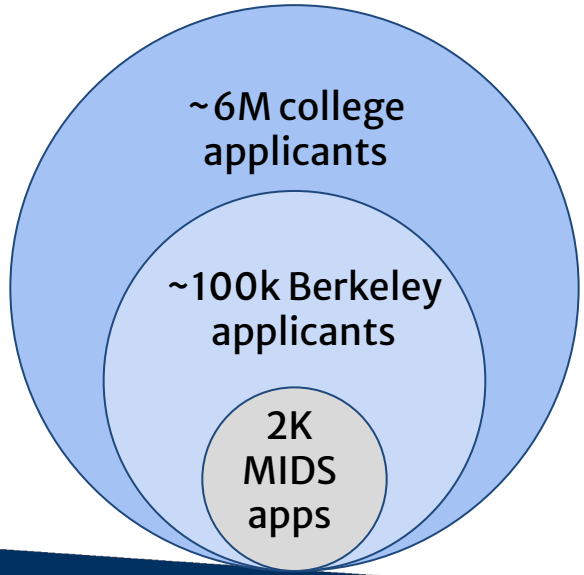
- Applicants to MIDS

Value proposition:

- Answers to the most common **applicant questions** researched from admissions staff and other applicants in an easy to use UI
- **Answers** with facts incorporated into our Corpus from admissions pages and other content links combined with **advice** from actual MIDS students

Market Opportunity

Number of Annual Users



Average cost of attendance:

- Private school: $50K
- Public school in-state: $25K

Potential Impact

Revenue generating

- Increase application completion rates
- Increase conversion
- Brand differentiation

Primary focus

Cost savings

- Improve efficiency of administration

MVP

MVP Features

User	Action	Feature Functionality
Admin	Manage content	Able to expand/remove data sources used for content repository
	Follow up with User	User contact information captured and accessible
	Review and assess User activity & feedback	User interaction log, metadata and feedback is captured and accessible for analysis and future iteration
Prospective Student/ Applicant	Ask question	Able to enter question/select from “frequently asked” questions
	Live contact	Able to request follow up from Admin
	Provide Feedback	Able to provide user feedback via survey in chatbot UI

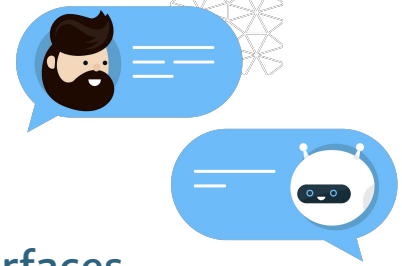
Technical Approach

Challenges

- NLU is a hard problem
- Metric – no universal standard
- Ease of use – repository maintenance
- Questions can prompt for an subjective answer –

  "Is MIDS worth pursuing?"

What makes a good chatbot?

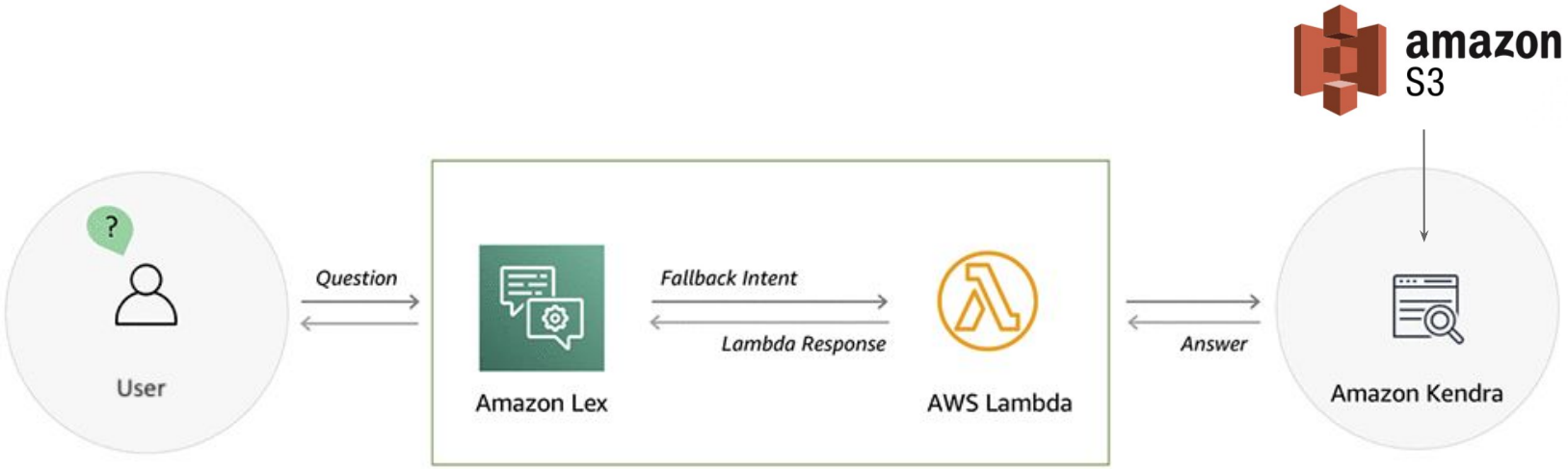


- Conversational maturity, up-to-date answers
- **Amazon Lex** – AI service for building conversational interfaces into any application using voice and text
- Advantage of AI as a Service (AIaaS) – incurs lower cost, leverages Amazon Alexa NLP, and allows integration with other Amazon tools

Expanding the Capabilities of Lex

- **Amazon Kendra** – an intelligent search service powered by machine learning
- **AWS Lambda** – a serverless compute service that allows event integration maintenance
- Lex/Lambda/Kendra integration significantly improves technical feasibility

Pipeline/System Integration



Team Operating Model

Names	Roles and Responsibilities
Steve Dille	Product Manager, Coder/developer, Testing
Kevin Kory	Coder/developer, Testing, lead on user testing
Joanna Yu	Lead NLP coder/developer, Testing
Nicole Yoon	Project Manager, Coder/developer, Testing

Workback plan & Milestones: Capstone Planning, Spring 2021

- 30 min weekly check-in
- 1.5 hr weekly working session
- Ad-hoc standup meetings as needed

Thank you