Example 4: Arts & Humanities

1. Team:

This is a joint project between the Vanderbilt University Theatre Department and Computer Science (CS) Department. The Theatre professor seeks to engage a CS postdoc to develop an interactive AI chatbot aimed at enhancing audience engagement and boosting ticket sales. The team plans to join the Ideator program at the Wond'ry for entrepreneurial and customer discovery support.

2. Technology

The product is a text-based chatbot that will interact with customers by informing them about the show, answering questions, and enabling ticket sales.

The chatbot platform will be accessible on the Theatre department's website. The technology stack for the chatbot development will utilize Python due to its robust libraries for Natural Language Processing (NLP) and machine learning, and the team will use the Microsoft bot framework tools (SDK). The team can pull from Hugging Face, a transformer library, known for its speed and accuracy. For web development, the team will most likely choose Django, a high-level Python web framework that is well-suited for building web applications quickly and efficiently. Finally, we will shop for the best deal on cloud-hosting services, which could either be AWS or Azure, since both offer credits to researchers.

The Theatre professor will be responsible for providing the theatre content for the chatbot, including the main theme of the show; the backgrounds of the producer, director, designers, technicians, and performers; as well as pricing, dates and showtimes. The CS postdoc will then upload the content into the chatbot to help build out the model.

3. Predicted Outcome

The main outcome is the creation of a prototype chatbot for the Theatre department. This can yield several additional and valuable outcomes:

- Proof of Concept: demonstrating that the theatre chatbot is technically feasible and can be implemented effectively to the intended use cases.

- User Feedback: by deploying a prototype to a limited audience, the team can gather valuable feedback.

- Feature Prioritization: user feedback obtained from the prototype can help prioritize which features or capabilities are most important to users.

- Pain Point Testing: the prototype allows us to identify usability issues and pain points in the chatbot's interactions flow. This helps in refining the user experience.

- Stakeholder Engagement: the prototype can be a powerful tool for engaging theatre management, investors, and potential sponsors.

The prototype will be a simplified version of the final chatbot, which will be iterated upon for future applications. The primary purpose is to validate the concept, gather feedback, and inform the development of the production-ready chatbot.

4. Commercial Targets:

The beachhead market is Live Theatre productions in the United States. According to Statista, in 2022, this was an $8.4 billion (about $26 per person in the US) market. Customers in this category include Broadway playhouses, Vegas shows, and non-profit regional and community theatres. The top companies in the industry include Live Nation Entertainment, StubHub, Eventbrite, and Ticketmaster.

According to Statista, revenue in the Music Events market is projected to reach US $13.86 billion (about $43 per person in the US) in 2023. This could be pursued as a follow-on market.

Future iterations of the product could also be tailored for the Movie Theatre ticketing industry. This is a massive market, which generated $63.2 billion (about $190 per person in the US) in 2022, according to Global Market Insights. Top companies include AMC Theatres, Paramount Pictures, 20th Century Studios, Regal Cinema, and Cinemark. This could be pursued as a second follow-on market.

5. Scope of Work

The scope of work will help set clear expectations, define project goals, and ensure that all stakeholders understand their roles and responsibilities.

Description of Roles:

- The Theatre professor will provide written content about the test show, including the main theme, plot, summary, characters, and showtime details.
- The Theatre professor will actively use and provide feedback for the CS postdoc during the construction of the app.
- The Theatre professor will engage a select group of student users to help provide feedback for development of the chatbot.
- The Theatre professor will be the main contact for the ticketing agency and will manage that relationship.
- The CS postdoc will upload the content provided by the Theatre professor to help build the chatbot.
- The CS postdoc will create and oversee the technology stack for the project.
- The CS postdoc will handle all research and communications with the cloud provider.
- The CS postdoc and the Theatre professor will both work with the Vanderbilt University IT department to ensure security compliance.
- The CS postdoc and the Theatre professor will both attend the Ideator program at the Wond'ry.

Technical Requirements:

- This Phase 1 iteration of the chatbot will be text based only, and will not include voice to text, although this feature could be developed in the future for Phase 2.

- The chatbot will be web based and available on the Theatre department's box office website.

Functional Requirements:

- The chatbot's core functionalities include booking tickets, offering show information, answering FAQs, and storing user feedback.
- Provide use cases or user stories to illustrate how users will interact with the chatbot.

Integration Requirements:

- The chatbot will be built in compliance with Vanderbilt University's IT department to protect user data and ensure data privacy regulations.
- The chatbot will integrate with the Theatre department's ticketing service and payment provider.

Risk Management:

- The chatbot will be very targeted, measured and restricted in its content and training, including having "bumpers" to prevent inappropriate speech or content.

6. Deliverables

The deliverable is a prototype of an interactive, web-based, text chatbot for the Vanderbilt Theatre department that can be used to help promote future productions.

The chatbot will provide the user with timely, friendly, and helpful information about the production. The chatbot will be hosted in the cloud and available on a non-public website for testing purposes.

Key stakeholders including the Theatre and Computer Science departments, their Deans, and Faculty will be invited to a final showcase and demonstration of the chatbot after completion of the Ideator program.

Once the chatbot fulfills the goals of the project, the Theatre department will pursue utilizing the chatbot for future productions as desired.

7. Schedule

3-6 months

8. Budget:

This is a time-intensive project, so the bulk of the budget will be spent on salaries to build the chatbot. Many of the programs that we are using are free (e.g., Django, Hugging Face).

- CS postdoc Salary and Benefits: $7,000. This allocation will cover the salary, benefits, and stipend for a postdoc researcher who will work on the project for approximately 200 hours (5 weeks) over the project period.

- Cloud Storage: $1,000. VU has existing free cloud storage credits with AWS and Azure. This category will include the expected extra storage costs associated with the project.

- Box Office Interface: $500. This allocation will cover the subscription and testing fees associated with the Theatre department's existing box office management system.

Total Budget $8,500