Judy Marouf & Carole Happy | *Grace Hopper* AI Chatbot, Fall 2023

Google Cloud Dialogflow is an incredible tool that builds conversational interfaces and facilitates Natural Language Understanding (NLU), enabling chatbots to process, understand, and deliver coherent and contextually relevant responses. Our project utilizes this software to construct an AI chatbot that emulates the responses of a renowned, deceased figure in the fields of Science, Technology, Engineering, or Mathematics (STEM), with the goal of providing end users with the opportunity to engage in a simulated Q&A session with the historical person. Trained by the thorough dataset we created, our FAQ chatbot has been designed to generate responses mirroring the knowledge of our chosen individual in STEM, Grace Hopper.

Leveraging our intensive research, we trained the chatbot on a robust dataset comprising almost two hundred carefully curated questions and answers, covering a diverse and comprehensive range of interactions. The refinement process was enriched by the insights we gained from the feedback of over twenty beta testers who engaged with our demo chatbot. This testing phase was instrumental in identifying the strengths and weaknesses of our chatbot, enabling us to discern any missing areas in our dataset and fine-tune the model. With that being said, this project allowed us to recognize the importance of user-centered design and continuous improvement in the realm of conversational AI. Even with our current dataset, there will always be even more questions and answers we could feed the AI to expand the capabilities of our chatbot. Ultimately, this project not only showed us some of the incredible capabilities of conversational AI, but also served as a unique opportunity to gain technical and professional experience through research, collaboration, and beyond.

At the start of the project, we were slightly intimidated by the fact that we were using software that we had no prior knowledge or experience with. We decided it would be beneficial to test out the tool individually and see what confusions or errors we might come across before coming together and discussing our findings. When we met again, we helped each other fix errors that we encountered during the Dialogflow tutorial and explain to one another any tricky concepts. After completing the background learning milestone with the videos that were provided on this project's guide, we actually found ourselves eager to watch additional videos available on Dialogflow just out of pure curiosity and interest. By the end, we gained a new software proficiency to add to our toolbox and grew immensely proud of our ability to quickly learn and adapt. The development of our AI chatbot proved to be an exceptionally rewarding learning experience that not only honed our technical skills, but also deepened our understanding of the intricacies involved in crafting an effective conversational interface.

As two computer science majors, we approached the task of deciding which famous, deceased person in STEM we would like to move forward with based on the program of study we have in common. We also really wanted to research a woman in STEM, specifically, who transformed the field of technology. In doing so, we began looking for options of famous women that were most influential in computer science. After doing surface-level searches for each of our options, we found ourselves most intrigued by the story of Grace Hopper and decided to choose her as our famous figure for the chatbot. As we did more research about her along the way, we only grew more and more fascinated by the incredible United States Navy admiral, computer scientist, and mathematician that she was.