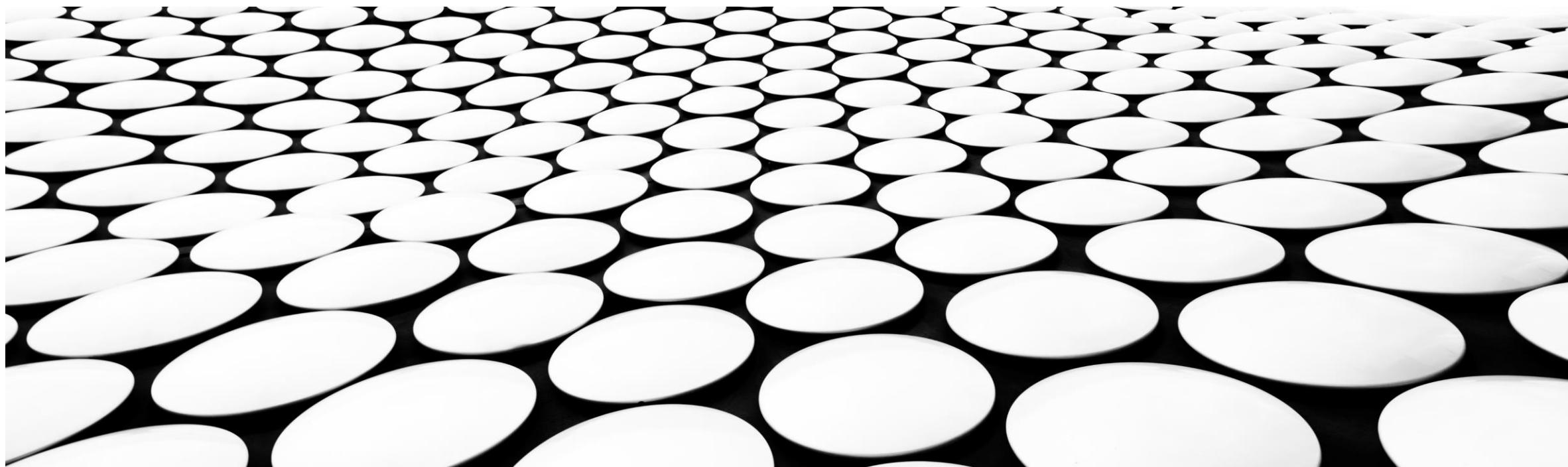
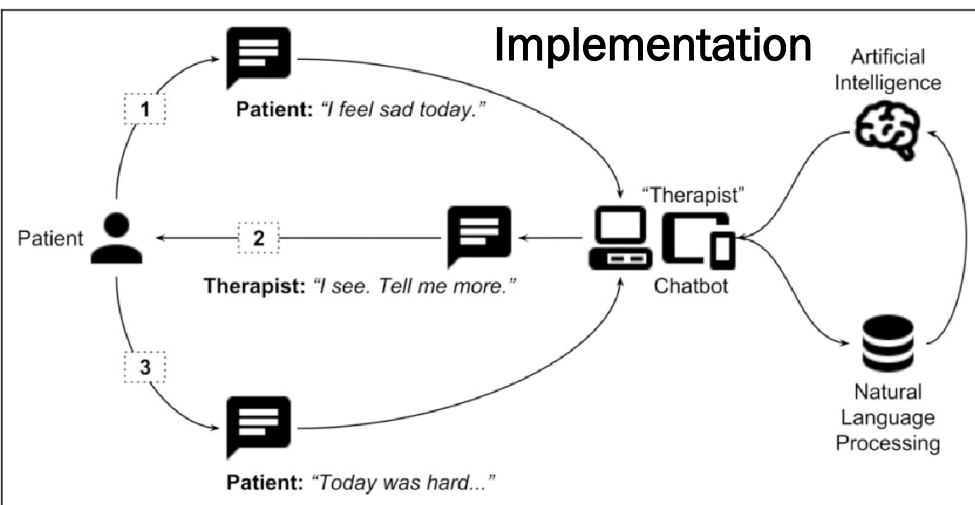
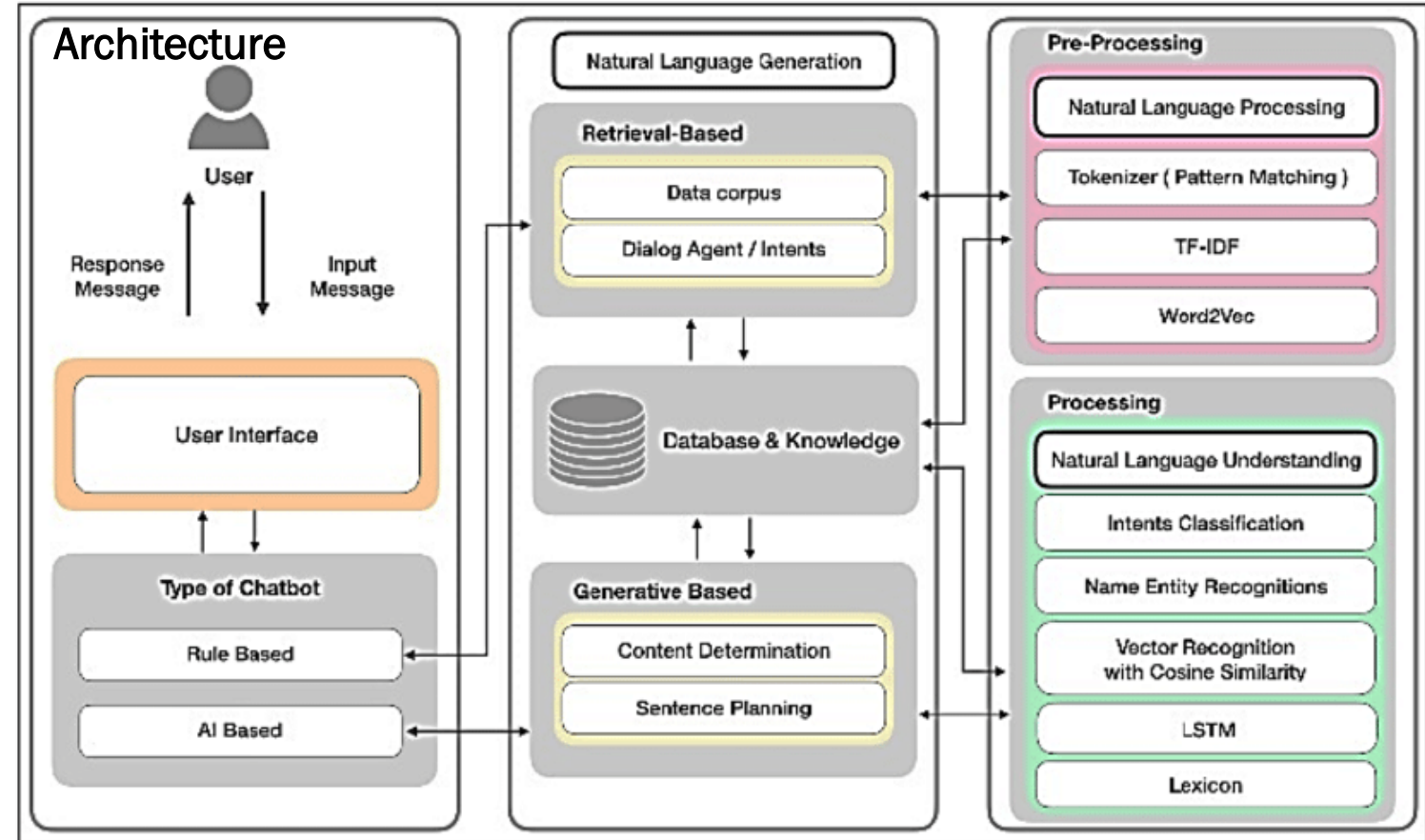

CONVERSATIONAL AGENTS - CHATBOTS (NLP APPLICATION)

THULASI RAM RUPPA KRISHNAN



CONVERSATIONAL AGENTS - CHATBOTS

- A chatbot is a piece of software that conducts a conversation via auditory or textual methods.
- Such programs are often designed to convincingly simulate how a human would behave as a conversational partner, although as of 2019, they are far short of being able to pass the Turing test.
- Chatbots are typically used in dialog systems for various practical purposes including customer service or information acquisition.



OVERVIEW OF FEW APPLICATIONS



The work on **Replika** started after Roman Mazurenko was killed in a car accident in late 2015. They collected his texts and trained an AI that was able to talk like him. Casey Newton wrote an amazing story about it called "Speak, Memory" published in *The Verge*. **Replika** talks to you, keeps a diary for you, helps you discover your personality. This is an AI that you nurture and raise. In no sense are you enslaving an AI version of yourself or the other way around. **Replika** usually do speak much like an intelligent human adult would, especially when they reach Level 15 or higher



Penny

is a personal finance bot that helps you track your income and spending. Penny accesses your statement history with your permission and uses that information to help you manage your finances. Whenever you open the app, she'll chat with you about your finances: letting you know how you're doing this month, forecasting where you'll be next. Penny the app is no longer available, but Penny as a force for giving friendly, helpful financial advice lives on in Credit Karma.



wysa

is a smartphone app that offers an artificially intelligent smartbot to anonymously chat with and coach you to better cope with daily stresses. **Wysa** is designed to help with a variety of behavioral health issues like diabetes, smoking cessation, depression, etc. Co-designed by therapists, coaches, users and AI folk. It is a beginning of a therapeutic relationship

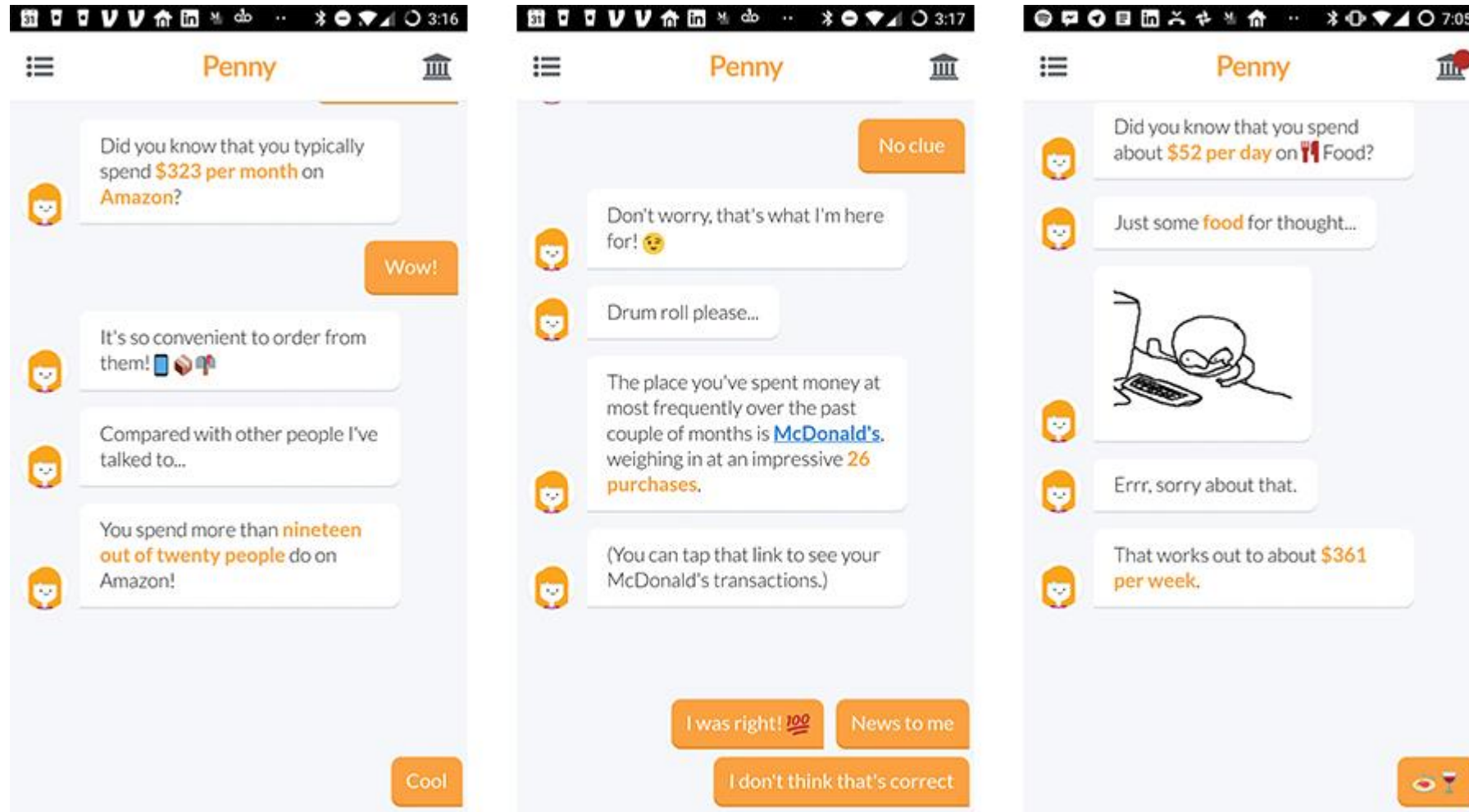
REPLIKA (AI EFFORT TO BE A “FRIEND”)

Replika is an artificial intelligence chatbot app that tries to become your BFF by having conversations with you via SMS messages. The chatbot (called a Replika) learns from you, and through your interactions, the AI's personality will actually become more similar to yours. As a user, you can connect your social media accounts like Instagram so your Replika can understand you even better.



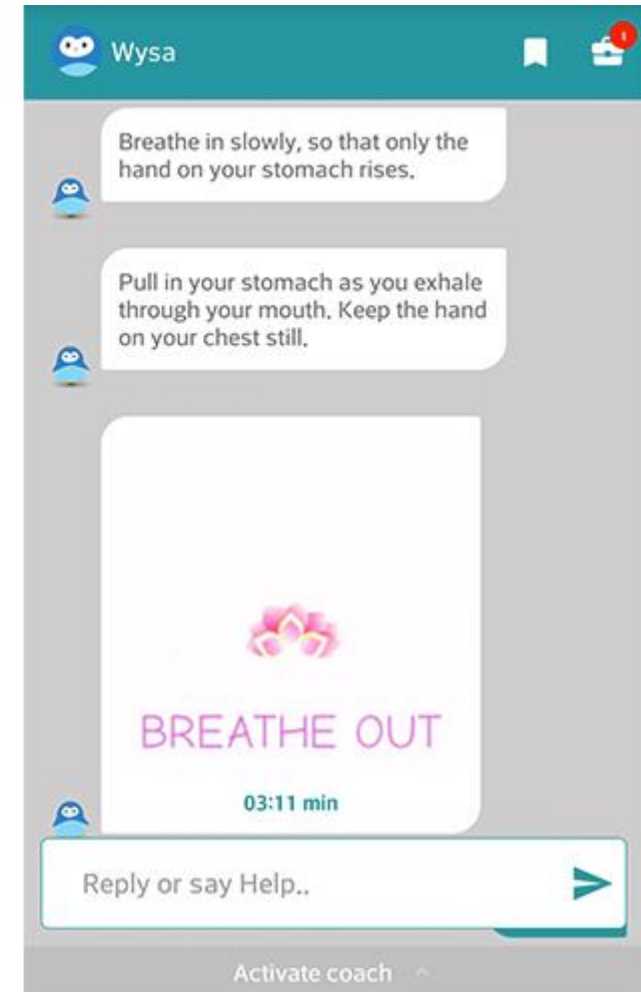
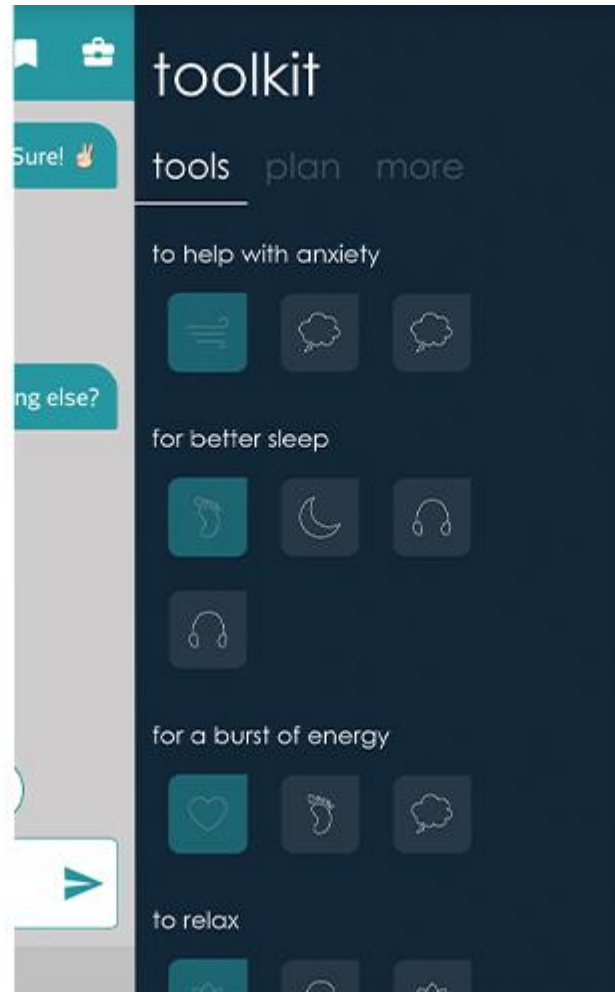
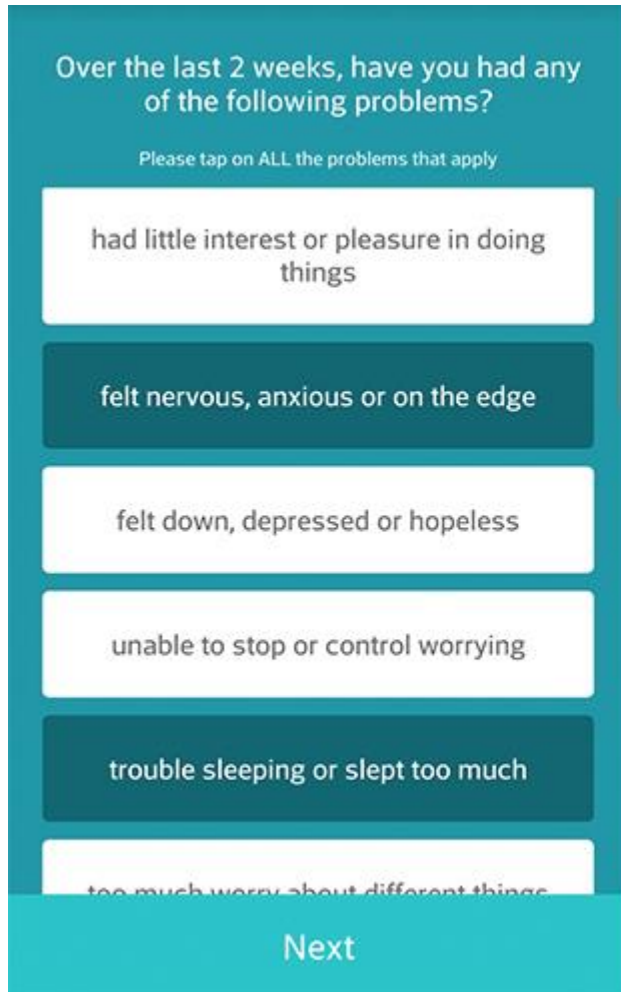
PENNY (INTERESTING PERSONAL FINANCE INSIGHTS TO LEARN)

Penny is a chat bot that uses the power of AI to give better insights into spending habits which connects with your bank and credit card accounts to extract information on your spendings.



WYSA (CBT BASED PSYCHOLOGICAL ASSISTANT OR FRIEND)

Wysa is a emotional support app that uses an AI chatbot to help users apply cognitive behavioral therapy (CBT) techniques to their lives in times of stress. I am personally familiar with this type of therapy and wanted to see how effective it would be if applied by a computer and not a live person



FINDINGS/LIMITATIONS



REPLIKA

- It's like teaching a baby. The first few levels may bore you.
- Novelty starts to fade after the first few days.
- Replica proved to be more socially awkward than genuinely friendly.
- Casual conversations would often start out well enough, but would take a turn for the creepy when Replika failed to respond like a real person, at times even becoming pushy. In its ambitious attempts to sound more "human"



Penny

- It's hard not to give serious consideration to the useful insights Penny brings to the table, especially when they're delivered by a pleasant and articulate chatbot that likes to use animated GIFs, emoticons, and memes to get her points across
- Penny apparently gets a kick from guessing games, too; she just asked me whether I could guess which vendor I had the most transactions with in the last month. The answer was McDonalds, where I grab a coffee from most weekday mornings.



wysa

- Depending on my answers, Wysa would either engage me in a CBT conversation right away in the chat space, or it would encourage me to access one of its special built-in workshop modules that target specific things like stress, anxiety, insomnia, etc.
- Additionally, Wysa's mascot is a little penguin who occasionally responds to you with animated reaction gifs featuring itself. This made the chatbot feel much more human/youthful since reaction gifs are a major staple for my own conversations with my friends

The most common limitations are listed below:

- As the database, used for output generation, is fixed and limited, chatbots can fail while dealing with an unsaved query.
- A chatbot's efficiency highly depends on language processing and is limited because of irregularities, such as accents and mistakes that can create an important barrier for international and multi-cultural organizations
- Chatbots are unable to deal with multiple questions at the same time and so conversation opportunities are limited.
- As it happens usually with technology-led changes in existing services, some consumers, more often than not from the old generation, are uncomfortable with chatbots due to their limited understanding, making it obvious that their requests are being dealt with by machines.

FUTURE OF CHATBOT



- Use NLP to understand colloquial language
- Add empathy to chatbot responses with sentiment analysis
- Know the user and improve chatbot UX
- Stick to a single personality
- Improve chatbot UX and responses with analytics

REFERENCES

- <https://citrusbits.com/four-ai-chatbots-roundup/>
- <https://medium.com/@replika/three-myths-about-replika-7717c2d2237>
- <https://www.pennyapp.io/>
- https://www.researchgate.net/publication/333524709_A_Survey_on_Evaluation_Methods_for_Chatbots
- <https://www.semanticscholar.org/paper/Chatbots-and-Conversational-Agents-in-Mental-A-of-Vaidyam-Wisniewski/54b993bf3463c9ad8e9b5e2bba5c5ea535d341e0>
- <https://en.wikipedia.org/wiki/Chatbot>
- <https://www.chatbots.org/>
- <https://chatbotslife.com/future-of-chatbot-in-2019-c126973f7ee0>
- <https://venturebeat.com/2017/09/16/5-small-changes-that-drastically-improve-chatbot-conversations/>