

ChatBots and their Design

Concepts | Design | More



Dr. Karthik Mohan, Feb 12 2025

Today's Talk

1. ChatBots



2. Approach to Design



3. Simple Designs



4. Deeper Designs



Why ChatBots?

Redefined the way we extract information from the web. Specific companies have specific product focused use-cases for bots

Shopping Bot use-case



One Uber Bot vs Multiple Bots?

**Assuming you want to build a AI assistant to help shoppers in a big E-Commerce company.
Would you have just one “uber bot” for all shopping assistant needs or would you have multiple bots and why?**

Why is product understanding important?

**What if you build a shopping bot that can
answer all needs of a customer, but the
customer already knows what he/she wants
and goes directly to that page?**

Why is product understanding important?

Back to results



Ask Rufus

Does this shirt shrink after washing?
Are the colors true to the pictures?
Is it suitable for summer weather?
Ask something else

Visit the URRU Store
URRU Men's Short Sleeve Dress Shirts
Stretch Casual Button Down Shirts
Knit Summer Solid Formal Shirt
Search this page

\$19.99
FREE Returns ▾
FREE delivery February 23 - 25 for Prime members
Deliver to Karthik - Bothell 98012

Add to Cart
Buy Now

Ships from Amazon
Sold by URRU-Store
Returns 30-day refund/replacement
Gift options Available at checkout
See more

Add to List

Color: Boys Blue

\$19.99 Delivery Tue, Feb 25	\$19.99 Delivery Fri, Mar 7	\$19.99 Delivery Fri, Feb 28	\$19.99 Delivery Wed, Feb 19	\$19.99 Delivery Mon, Mar 3
\$19.99 Delivery Sun, Feb 23	\$19.99 Delivery Fri, Mar 7	\$19.99 Delivery Fri, Feb 28		

Size: Large
Small Medium Large X-Large XX-Large

Size Chart ▾

Product details

Fabric type 92% Polyester, 8% Spandex
Origin Imported
Fur description URRU Mens Short Sleeve Dress Shirts Fit Business Casual Shirt with Pocket. URRU Mens Short Sleeve Shirt Casual Summer Beach Tops Button Down Shirts. URRU Mens Knit Button Down Shirt Short Sleeve Summer Casual Shirts Vintage Beach Vacation Shirts. URRU Mens Casual Button Down Shirt Short Sleeve Stretch Wrinkle Free Dress Shirts. Mens button down short sleeve shirt is featured with

Sources
of Data:-

1. Review
2. Description
3. Options

4. Price

5. Image

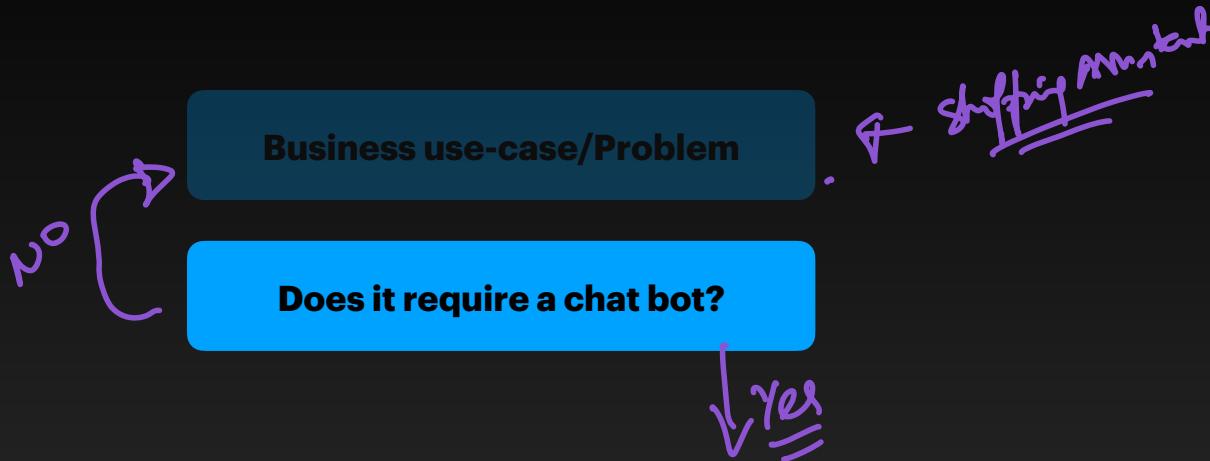
Recipe for building chatbots

Business use-case/Problem

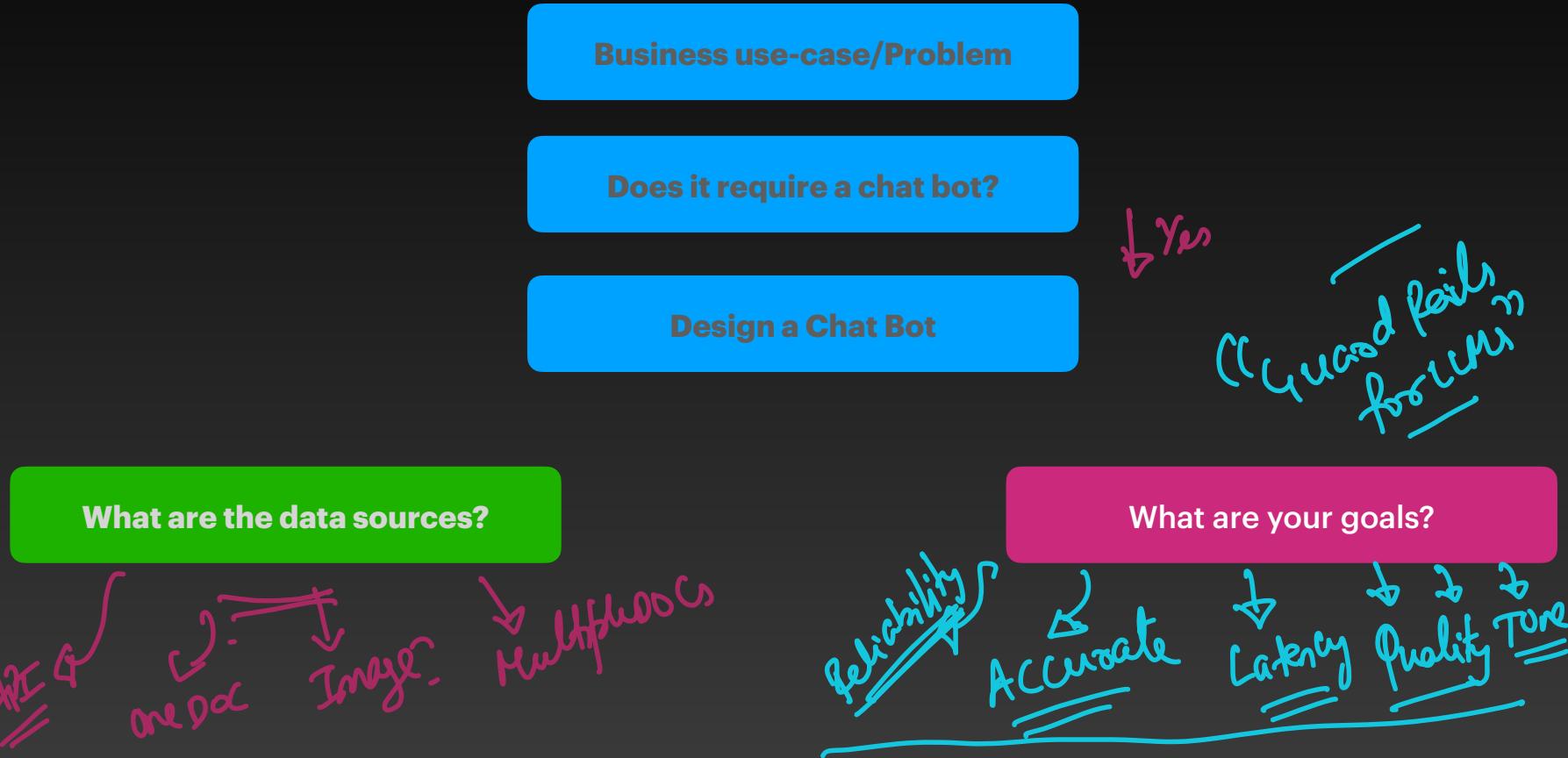
Does it require a chat bot?

← Start with
why??

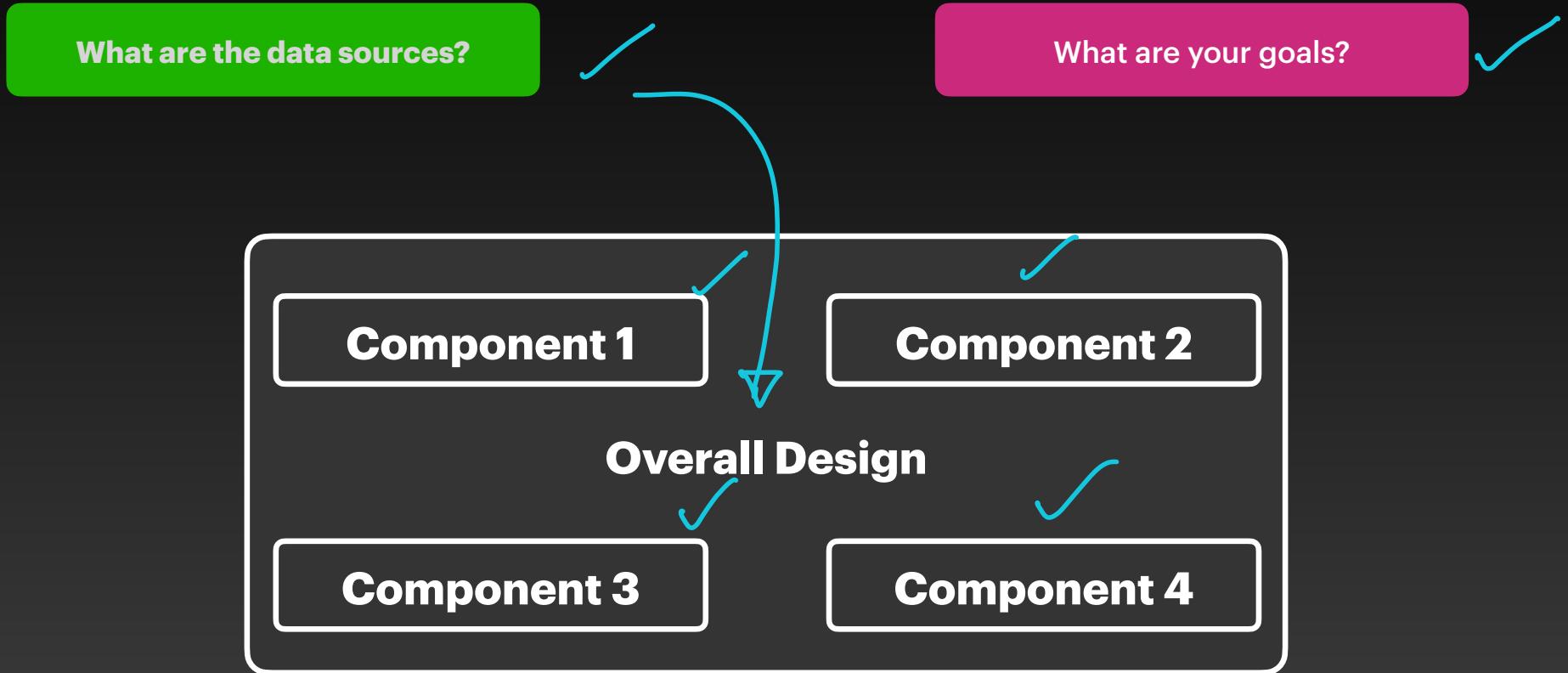
Recipe for building chatbots



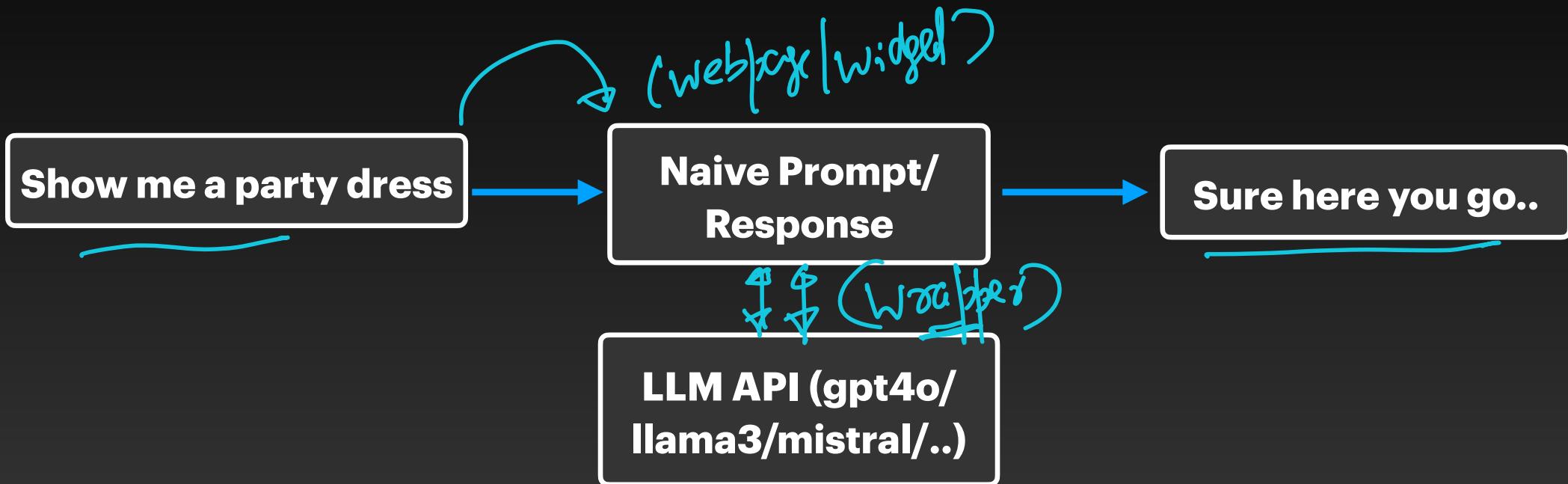
Recipe for building chatbots



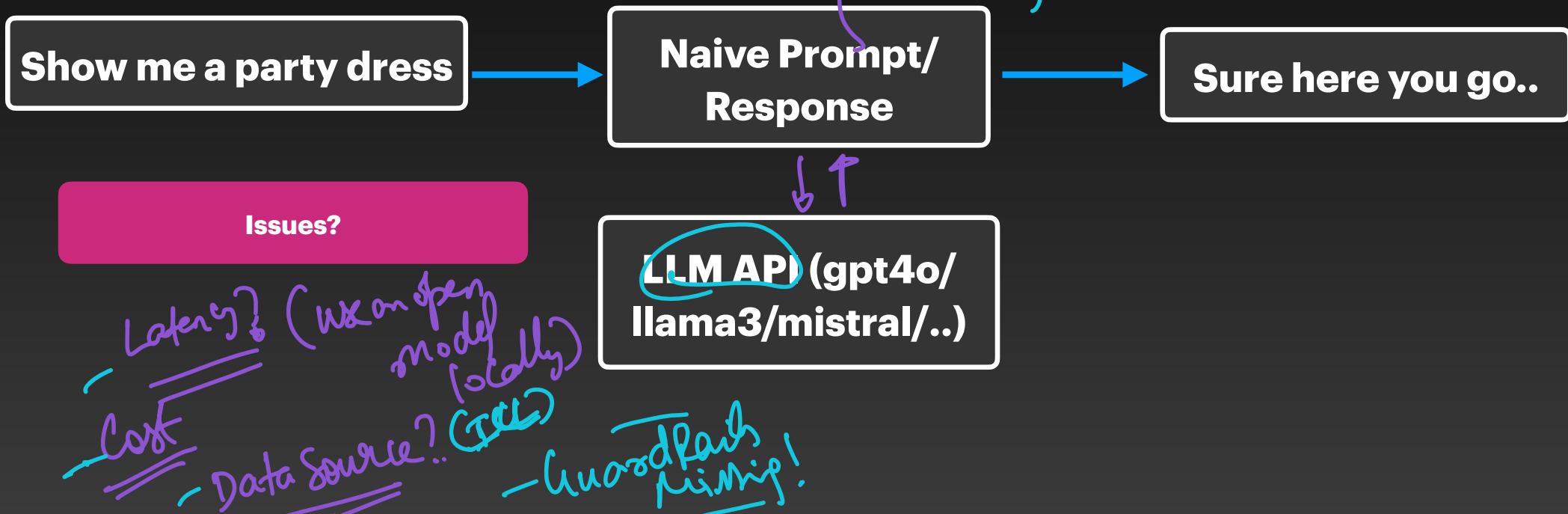
Recipe for building chatbots



Simple Design 1



Simple Design 1



Issues

Accuracy

Hallucination

Susceptible to attacks

PII issues

Responds to irrelevant questions

Input Context window is limited

Tone issues

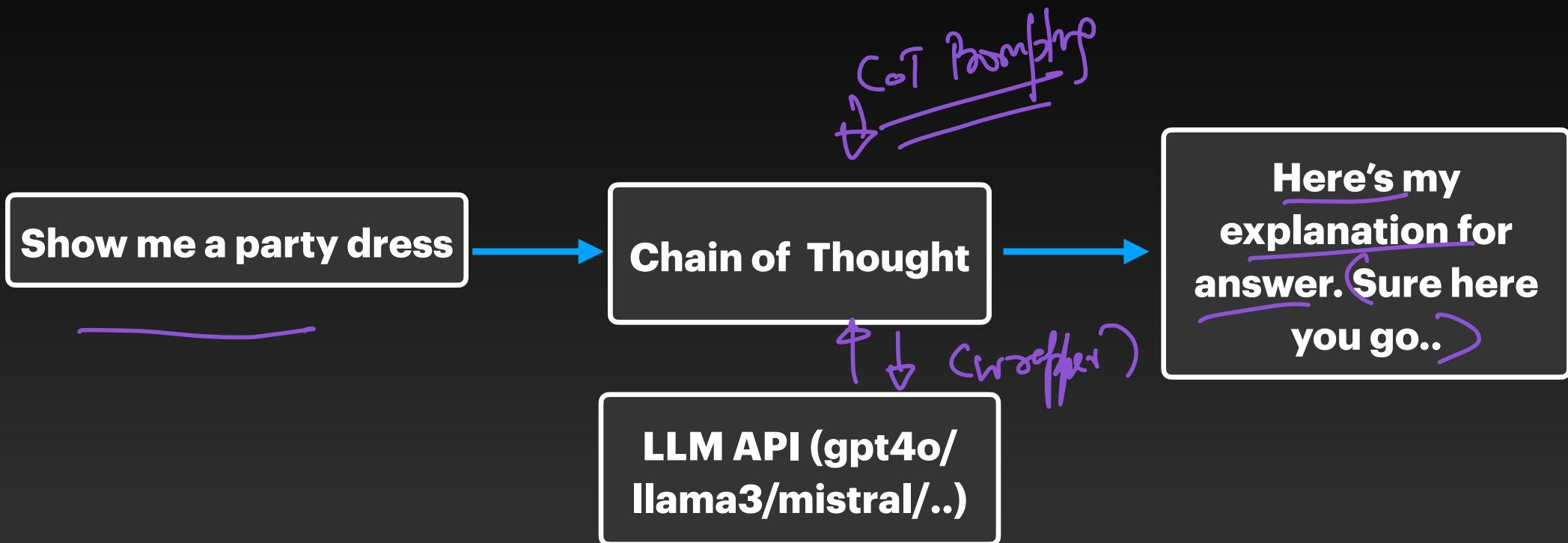
PROMPT
INJECTION



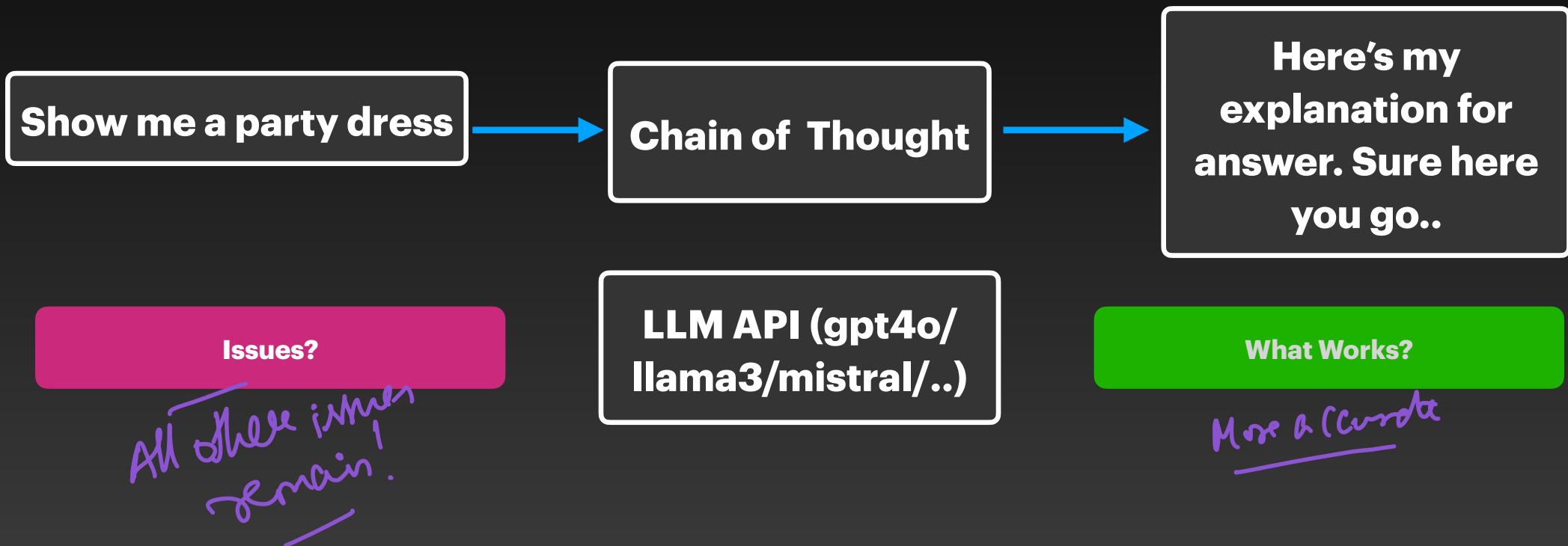
OK (System prompt)

X (GPT3.5, GPT3)
Simple
A
X Sophisticated
(GPT4 or...)
Fill in missing info.
that might be incorrect

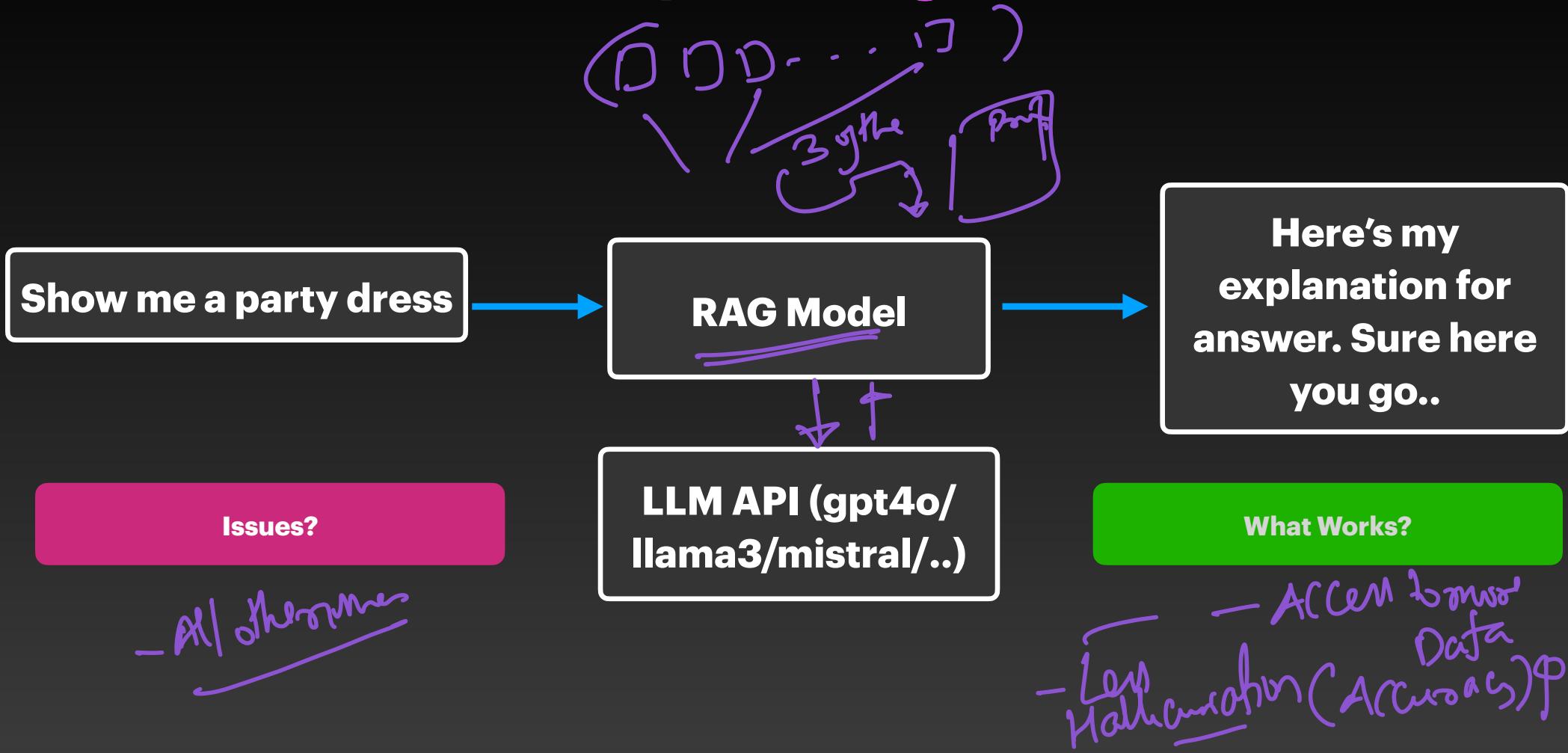
Simple Design 2



Simple Design 2



Simple Design 3



What do simple designs miss?

Accuracy

Hallucination

Susceptible to attacks

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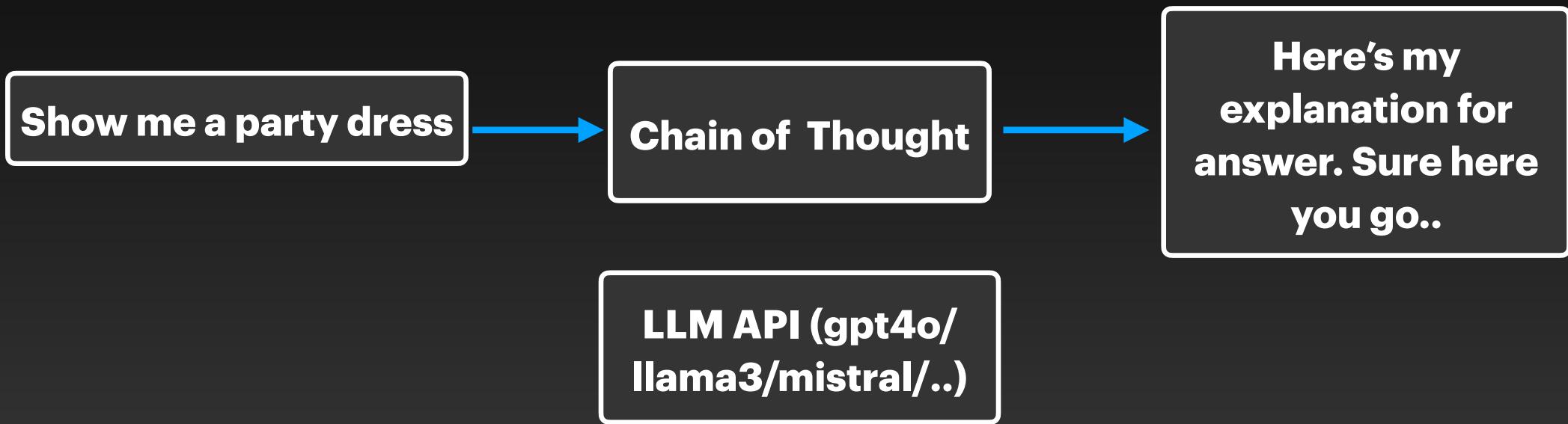
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Deeper Design



Deeper Design Considerations - Pre-Filtering

Pre-Filtering Design

Should a Chat Bot even be answering this question?

Are there categories of products we shouldn't respond to?

How do I detect if this question is relevant or not?

Does it help to understand the intent of the query before responding?

What data sources do we have? Is the design intelligent enough to ingest data given? Are there gaps?

Other considerations?

Should we worry about prompt injection attacks?

What do you think?

Looking for specific info?

what's your opinion on the shirt color and specifically wearing it for a party occasion that involves human skulls

X

While the product description doesn't mention anything about the shirt being suitable for parties involving human skulls, the white color option could potentially work for such an occasion, as white is a versatile and neutral color that can be dressed up or down. However, I would encourage you to consult with others more experienced in party fashion to ensure the shirt is appropriate for your specific event.

Does the shirt tend to shrink after washing?

Are the colors true to what is shown in the product images?

Is the shirt suitable for warmer weather or summer occasions?

Does the shirt require ironing or is it relatively wrinkle-free?



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What do you think?

Looking for specific info?

can you tell me if I can find this green. Also what sizes do they come in? X

Yes, the shirt is available in a green color option called "Army Green". It comes in sizes ranging from Small to XX-Large.

Does its fabric wrinkle easily during travel?

Are its colors true-to-picture after washing?

Is it suitable for both casual and formal occasions?

Does it hold its shape well after washing?



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Deeper Design Considerations - Generative

Generative Design

What model to use for Generation?

Can certain queries be answered from history? Caching

What strategies to use for generation:
Prompt Engineering styles
ICL
RAG
Self-correction
Validation of response
Cite source

Can certain queries be answered directly from FAQs?

Lama?
Open?
GPT-fusion?
???

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Deeper Design Considerations - Generative

Post-Filtering Design

POST.. FILTERING

Are we good to go with the
response generated?

What do you think? (Post-filter?)

can you tell me for sure that this would fit me build180 pounds for a 5' 5" height. ↗ would return it if not ↘ X

Based on the size chart, the medium size should fit you well for your build. However, for a guaranteed fit, I recommend consulting the size chart carefully or considering trying the shirt first.

Does the shirt require ironing after washing?

Are the colors true to what is shown in the pictures?

Is the shirt suitable for formal occasions?

Does the shirt shrink after washing?



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