HOME COMPLETER

PRODUCT IDEA PROPOSAL

(FOR DATASET 4)

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1 INTRODUCTION

What is our idea about?

“Furniture buyers usually have a lot of difficulties in choosing the right products to purchase, because it is not only about the quality of the amenities, it is also about fitting in their budget and the style of theirs other assets at home. For these reasons, we decided to build a virtual assistant that aims to give customers the best solution that would meet their need and create a wonderful shopping experience.”

- Development team -

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PROBLEM STATEMENT

That looks great on display, but turn out incompatible with your furnishings?

Common problems encounter when customers buy furnitures in traditional store:

- Frustrated, not knowing what to choose
- Salesperson cannot give precise and satisfied suggestion for customers
- Hard for salesperson to reach KPI (if there is)
- Only after brought home that one realized it doesn't fit their need/their home style at all

Common problems encounter when customers buy furnitures via website:

- Too many information to process leading to hard to find what ones need
- Hard to imagine whether the suitability of the furniture via image.
- Hard to control the budgeting (spending too much on those are not useful post purchase, etc).
- Waste lots of time scrolling.
- Companies cannot reach their full sale potential.

3 SOLUTION OVERVIEW

A virtual assistant that suggest products which suit your home best

What can "Home Completer" can do?

Example: Peter is looking for a table, which would be placed in the living room, that fits his sofa best. He has a budget of around $200.

In traditional settings, he would enter a store, followed by a staff that (maybe) would advise him on buying the expensive one rather than suggesting what he really enjoy. Or he would scroll on the web, with uncertainty about what to buy.

But now, with this idea, he can enter the chat with Home Completer Bot and send a picture of the sofa that he has at home. Home Completer will then analyze, using its database to generate suggestions of furnitures that he possibly wants to purchase. In one of the bot's suggestion, he now could find his piece of furnishing as he wishes to.

(For the dataset 4, the data is about furniture products so we generated this idea)

4 METHODOLOGIES

How does it work?

PROCESSES TO CREATE "HOME COMPLETER"

1. Creates a chatbot run on a website (which can be integrated into the company's website) using Python, Javascript and C++
2. Product filter & data (image, text) processing using python and openCV library. Data from the dataset provided
3. Design the UI for the website and chatbot, publish it for commercial uses

Create a chatbot

- Use python and Javascript to make a simple website as a platform to run the chatbot
- This chatbot can be integrated into other website by integrate the bot’s source code into the web source code

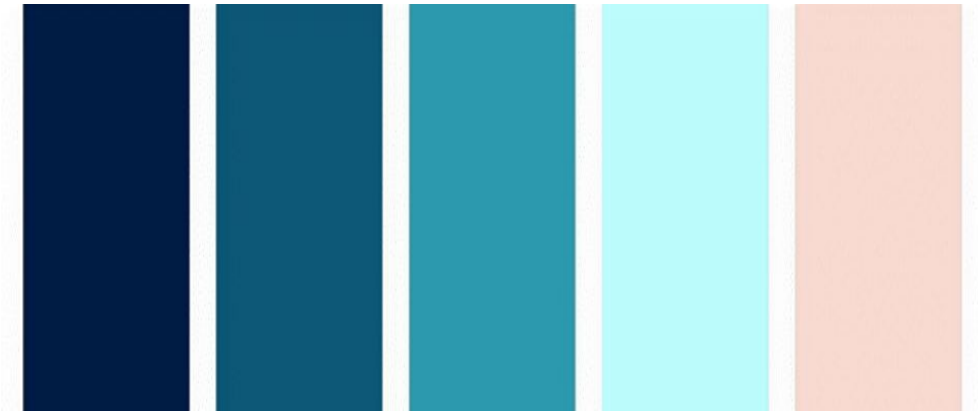
Product filter and data processing

- Use functions of openCV library to detect common object (in the image that customer send or from what they type)
- Base on the picture to calculate the ranging of color of objects and then, use defined color palettes and the calculated color ranged to output a color palette that best fit the room/furniture (from the image)
- Analyze the size and shape of the furniture
- Use function from openAI library to analyze the keyword of price, others need and search in database
- Search for product that fit the listed factors and suggest it to customer via chat

HOW DOES IT WORK ?

We prepare some color combinations

Example of a color combination->



Self defining a new structure is OBJECT

OBJECT will include two members:

+ “x” is the color code

+ “y” is the percentage of area that color x occupies in all photos of the room, calculated using the following formula:

y = (area occupied by color “x”) / (total area of all images provided)

We create an OBJECT array a[] for all the colors in the photos, then add to array a[] an element with color code x = -1 (not overlapping with any other color code), y =((*area prediction of the items you want to buy*) * *(numbers of photos)* / *(total area of all photos provided)*.

“n” is the length of array a[].

Sort array non-decreasing by parameter *“y”*.

“M” is the number of available color combinations.

With the *jth* color combination, we find the smallest value b[j](b[j] <= n) such that for every color code of color combination j, there exists at least i <= b[j] such that a[i].x equal to that color code. If that value b[j] cannot be found, then b[j] is **negative infinitive**. *(Note that color code -1 can be replaced with any color code, but can only be replaced once).*

Introduce to customers products that follow color combination v with value b[v] from small to large.

CORE FUNCTIONALITY

Primary features and functionalities

- Chat with customers and respond users' input question about the products of the store/company.
- Take input pictures from users and analyze, then generate result as keyword.
- Search in database to find products that fit the furniture in pictures that users sent before and respond these solution (as suggestions for buyers' shopping choices).

PERFORMANCE METRICS

Key performance metrics

- Quick processing speed
- Reasonable and credible, precise response
- Low maintenance budget
- Customers satisfaction post purchase

How can we know it?

- Document the number of purchasers after using the chatbot
- Measure the clicks on product after each chat session
- Document customer feedback

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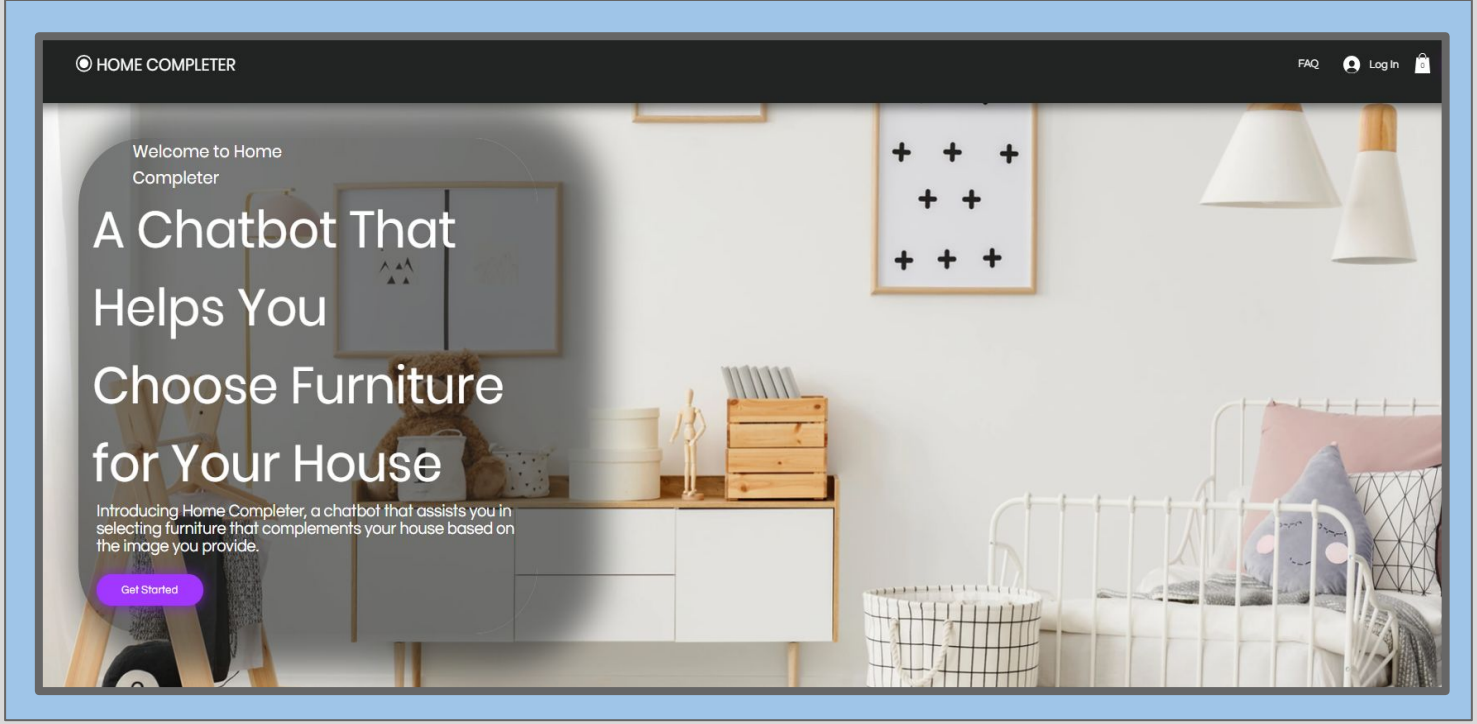
USER INTERFACE & INTERACTION



- "Home completer" website consists of 2 parts: main page and the chatbot
- Main page display the general info, the chatbot & team information
- After clicking "Get Started", users can begin to chat with bot and free to ask the bot about what they want to buy

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LIMITATIONS & FUTURE ENHANCEMENTS

Limitations of the MVP: (for now)

- Can only process image with simple background
- Work with small and simple dataset

- Bot response may sometimes be imprecise due to lack of data or problems encounter in data procession

Enhancements (in the future)

- Deal with more complex image and videos
- Provide real-time data for the bot (update of prices, promotion, form, etc)
- More precise analyzation of the input

9 CONCLUSION

In conclusion, this MVP can:

- Benefit customers with the power of AI when purchasing furniture (or other retail products), providing them with suitable solution for shopping
- Improve shopping experience because buyers satisfied with what they purchased at their budget
- Reduce cost of hiring too many store & online staff

THANK YOU FOR READING OUR PROPOSAL