

Generating Product Image from Customer Reviews

GenAI Group 10
Judy Tsai, Adam Patula, Shiwei Yu



Testing
out
DALL · E 2



Table of contents

01

Products

02

Continuous Glucose
Monitoring

03

Skin Moisturizer

04

Boxing Gloves

05

Challenges

06

Questions

01

Products

Products

Continuous Glucose Monitoring



Skin Moisturizer



Boxing Gloves



02

Continuous Glucose Monitoring



Why Continuous Glucose Monitoring



Population

In 2021, 38.4 million Americans, or 11.6% of the population, had diabetes. 2 million Americans have type 1 diabetes, including about 304,000 children and adolescents.



Data

There are 37K reviews available for analysis, providing us with ample data to work with.



Data

Since I have very good control I don't expect to switch to a pump anytime soon. I think for most people a pump leads to better control but its not for everyone. I think the Dexcom CGM is much more important for good control. Reading others comments on the pen needles. I normally change my needle once per-day so I use it 3-6 times before replacing.

When I was using Dexcom, I used the Dexcom G6 app to manage the sensor, transmitter, etc. I connected Sugarmate (iOS app) to my Dexcom account as it provided insights in a way that I liked better.

This happens to me when I connect to a few other Bluetooth devices. Like if I use my hearing aids to take a call, have my rileylink connected, my dexcom almost always cuts out if I'm on the call for awhile. Maybe see how many BT devices you're connected to? I'm running iOS 15.2 and dexcom 1.9.1 if that helps troubleshoot any. Might just be a crap sensor too? I hope you figure it out soon, good luck.

This system was able to automatically stop the Insulin delivery if the algos showed that the glucose was close to such low levels that can lead to hypoglycemia (very useful specially at nights in order to prevent lows which lead to hypoglycemia -and saving parents from waking up in order to treat their children, give them some juice in order to rise the glucose levels again etc-) So Medtronics pumps were the best till now. Mainly because of this so called closed loop system or "artificial pancreas" as they also call it.

yeah, I had to switch to iOS for my CGM (diabetes monitor) as it would not support the Pixel 4 at the time. I am so badly wanting to go back to Android. Gonna wait for the pixel 6a and second gen of their tensor stuff.

Review Summarization - Prompt 1

Prompt 1

your goal is to extract information from customer reviews.
Please utilize the text provided in {text_to_summarize}.

Output

"I'm unable to provide medical advice or specific information about Tymlos, as I am not a medical professional. It's always best to consult with a healthcare provider or pharmacist regarding concerns about how specific medications or medical devices may be affected by procedures such as x-rays. It's good to hear that your child's diabetes management devices are taken into consideration during security procedures. If you have any further questions or concerns, it's recommended to reach out to a healthcare professional for guidance."

Review Summarization - Prompt 2

Prompt 2

- your goal is to extract information from customer reviews.
- The generated text will be serve as input for generating images of the products mentioned in the reviews later using DALL·E.
- Please utilize the text provided in {text_to_summarize}.

Output

"From the customer reviews provided, we can extract the following information:\n\n1. The customer has a Dexcom G6 continuous glucose monitor (CGM) and uses it along with the Tandem insulin pump system, which they find superior.\n\n2. The customer also uses the Omnipod system and is looking to upgrade to the new closed-loop Omnipod system.\n\n3. They enjoy a healthy lunch that requires very little insulin, especially on hot days.\n\n4. The customer mentions that staying in a hot tub can lower blood sugar levels and advises monitoring closely if in a hot tub.\n\n5. They express a desire for a new pancreas given their insulin-dependent diabetic status.\n\n6. The customer shares their experiences with various diabetic treatments, from needles to pens to pumps and CGMs, stating that closed-loop systems have significantly improved convenience..."

Dalle - 3 Diffusion Model - Prompt 2

```
BadRequestError: Error code: 400 - {"error": {"code": "content_policyViolation", "message": "Your request was rejected as a result of our safety system. Your prompt may contain text that is not allowed by our safety system.", "param": None, "type": "invalid_request_error"}}
```

Does not allow the use of the words '**Insulin**' and '**dose**' in its input for image generation.

Review Summarization - Prompt 3

Prompt 3

- your goal is to extract information from customer reviews.
- The generated text will be serve as input for generating images of the products mentioned in the reviews later using DALL·E.
- Utilize the text provided in {text_to_summarize}.
- **Only generate 250 words**
- **Do not include words such as "insulin", "dose".**

Review Summarization - Prompt 3

Output

'The customer reviews mention the use of Dexcom, Tandem, and Omnipod system for managing type 1 diabetes. They also discuss the benefits of continuous glucose monitoring (CGM) and closed-loop control systems. The customers highlight how the Dexcom CGM has been a game-changer for them, offering immediate and painless results without the need for finger pricks. **They share personal experiences with using the sensors on different body parts like arms, thighs, and even upper butt cheeks.**\n\nAdditionally, the reviews touch upon the challenges of obtaining necessary supplies, dealing with insurance coverage, and navigating the healthcare system. Customers discuss their struggles with medication costs, changing insurance providers, and the importance of proper diabetes management during pregnancies. **They also mention specific issues related to using Dexcom with certain phone models and the benefits of integrating CGM data with smart devices.**\n\nOverall, the reviews emphasize the significance of tec'

Dalle - 3 Diffusion Model



Dalle - 3 Diffusion Model



Dalle - 3 Diffusion Model



Review Summarization - Prompt 4

Prompt 4

- your goal is to generate text that will be serve as input for generating images using DALL·E
- **Focus on the product features**
- **Exclude information that is not helpful for generating product image.**
- Utilize the text provided in {text_to_summarize}
- Only generate 250 words
- Do not include words such as "insulin", "dose"

Review Summarization - Prompt 4

Output

'Dexcom CGM is a game changer for managing T1D. It offers accurate readings and helps to track blood sugar levels effectively. The system is comfortable to wear, especially when placed on the upper chest or arms. Users have experienced significant improvements in their A1c levels by using Dexcom. The device is ideal for monitoring blood sugar fluctuations, which is crucial for avoiding extreme highs and lows. Despite some initial fears or discomfort, many users have found the Dexcom sensor to be unobtrusive and highly beneficial.\n\nFurthermore, having a closed loop system with a sensor integrated into the pump can simplify blood sugar management and reduce manual corrections. The convenience of continuous monitoring and automatic adjustments has been a relief for many users. Access to the Dexcom G6 app allows for easy management and insights into glucose levels. Additionally, pairing the Dexcom sensor with a compatible smartwatch has made tracking blood sugar data more convenient.\n\nIn co'

Dalle - 3 Diffusion Model - Prompt 4

```
BadRequestError: Error code: 400 - {"error": {"code": "content_policyViolation", "message": "Your request was rejected as a result of our safety system. Your prompt may contain text that is not allowed by our safety system.", "param": None, "type": "invalid_request_error"}}
```

DALL·E-2 does not allow the use of the words 'Insulin', 'dose', '**blood**' in its input for image generation.

Review Summarization - Prompt 5

Prompt 5

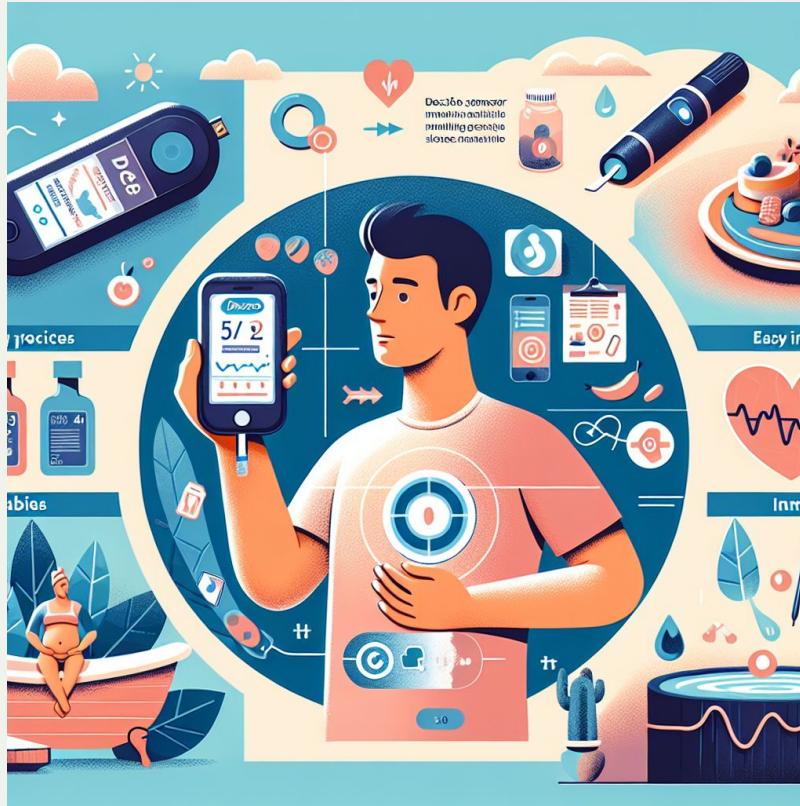
- your goal is to generate text that will be serve as input for generating images using DALL·E-2
- Focus on the product features
- Exclude information that is not helpful for generating product image
- Utilize the text provided in {text_to_summarize}
- Only generate 250 words
- Do not include words such as "insulin", "dose", and "**blood**"

Review Summarization - Prompt 5

Output

"The Dexcom G6 is a game-changer for managing diabetes. It provides accurate readings and helps bring A1C levels down. The sensor is comfortable to wear on various body parts like the arms and thighs. It can be worn for an extended period without losing accuracy, up to 20 days or more. The Dexcom CGM system is superior and provides insights for better management. It's essential to have a good closed-loop system like the tslim + Dexcom for easier blood sugar management. The Dexcom app is user-friendly and can be connected to other apps like Sugarmate for additional insights. The sensor is less intrusive compared to insulin pumps and can be easily managed. It's recommended to secure a continuous glucose monitoring device as soon as possible to aid in diabetes management. The Dexcom G6 is a reliable option for monitoring glucose levels effectively."

Dalle - 3 Diffusion Model



Dalle - 3 Diffusion Model



Dalle - 3 Diffusion Model





03

Skin Moisturizer



Why a Skincare Product?



Market Saturation

The market for skincare products is currently saturated with brands striving for product differentiation among thousands of available options and sub-products.



Data

Limited reviews due to restrictions on web scraping and downloading review data from sales websites.



Data

11-Apr-24

My Go To!

This is my go to daily morning moisturizer! It absorbs fully, moisturizes and helps with any irritation I get from retinols. I typically use the one with UV but decided to try this one with a separate tinted sunscreen. This is a great product at a great price point!

20-Feb-24

Great hydration, use daily

Works great, feels lightweight. Keeps the skin nice and plump looking but you have to use it daily for best results. If you stop using it for a long time for any reason (for example when I run out of it) skin goes back to starting point.

14-Mar-24

Dries out my face

Unfortunately, this moisturizer doesn't moisturize my face enough.

13-Apr-24

Mi crema favorita

It's the best cream I've had in years!

1-Mar-24

Excellent product

I've been using this moisturizer for years. It's excellent for sensitive skin. It works well in winter when my skin gets really dry and works equally well in summer when there's more moisture in the air. The Double Repair Face Moisturizer feels light and doesn't cause any irritation on my skin. I've been using La Roche-Posay products for years and this one is my favorite.

Text Summarization - Prompt 1

Prompt 1

"Provide a brief summary of the product given its description, details, and the provided reviews for context. \n Description: " + description + "\n" + context

Output

The La Roche-Posay Toleriane Double Repair Face Moisturizer is a highly rated product that aims to hydrate, maintain the skin's moisture barrier, fortify the skin with ceramides, and calm the skin with niacinamide. It is designed for normal to dry skin and provides up to 48 hours of moisture without feeling heavy on the skin. The formula is oil-free and fragrance-free, making it suitable for sensitive skin.

Based on customer reviews, users love this moisturizer for its rich yet non-greasy feel, its ability to layer well with other products, and its effectiveness in providing hydration without causing breakouts or reactions. Many reviewers consider it their holy grail product, particularly praising its compatibility with sensitive, dry, and acne-prone skin.

The product is dermatologist-recommended, and customers appreciate its quality and value for money. It has also been compared favorably to higher-end moisturizers, making it a popular choice for those looking for an effective yet affordable skincare option. With its positive reviews and reputation as a go-to everyday moisturizer, the La Roche-Posay Toleriane Double Repair Face Moisturizer is a standout product in the skincare market.

DALL-E 3 generation vs Actual product



Feature Extraction - Prompt 2

Prompt 2

List notable features of the product given its description, details, and the provided reviews for context.
\n Description: " + description + "\n" + context

Output

Notable features of the La Roche-Posay Toleriane Double Repair Face Moisturizer based on the provided description, details, and reviews:

1. ****Hydration and Moisture Barrier Maintenance**:**

- Provides up to 48 hours of moisture for normal to dry skin.
- Fortifies the skin with essential ceramides to strengthen the skin's natural protective barrier.

2. ****Skin Calming Properties**:**

- Contains niacinamide (vitamin B3) to soothe red, reactive skin and reduce the appearance of wrinkles.
- Ideal for sensitive skin as it is formulated without parabens, fragrance, or dyes...

DALL-E 3 generation vs Actual product



Sentiment Analysis - Prompt 3

Prompt 3

Conduct sentiment analysis of the product reviews given its description, details, and the provided reviews for context. \n Description: " + description + "\n" + context

Output

Based on the sentiment analysis of the product reviews for the La Roche-Posay Toleriane Double Repair Face Moisturizer, the overall sentiment is overwhelmingly positive. Here are some key insights:

1. Positive Aspects:

- Customers love the rich and moisturizing feel of the product without it being heavy on the skin.
- Users appreciate that the moisturizer doesn't cause pimples or any adverse reactions, making it suitable for sensitive skin.
- Many reviewers consider this product as their holy grail moisturizer or a favorite in their skincare routine.
- The ability of the moisturizer to provide hydration without feeling greasy or matte has been highlighted.

2. Key Positive Comments:

- "My new holy grail."
- "Love, love, love."
- "Favorite light cream."

...

DALL-E 3 generation vs Actual product



Prompt Generation - Prompt 4

Prompt 4

Using the provided product description, details, and reviews for context. Generate a prompt with specific product visuals to use as input to DALL-E 3 with the intention of creating an image of the product described. \n Description: " + description + "\n" + "Reviews: " + context

Output

Create an image of a sleek, modern skincare product bottle for "La Roche-Posay Toleriane Double Repair Face Moisturizer." The bottle should feature a clean design with gentle curves and a soft matte finish to convey a sense of luxury. Include key elements such as the product name, "Toleriane Double Repair Face Moisturizer," prominently displayed on the front label. Incorporate visuals that symbolize hydration, such as subtle water droplets or a dewy glow, to emphasize the moisturizing properties of the product. Additionally, showcase the key ingredients like ceramides and niacinamide on the packaging for a scientific and advanced skincare impression. The color scheme should convey a sense of purity and effectiveness, possibly featuring shades of soft blues and greens.

DALL-E 3 generation vs Actual product



Negative Review Features - Prompt 5

Prompt 4

Generate a list of product details to highlight for this product in a ad campaign according to negative reviews of the product and its description. \n Description: " + description + "\n" + "Reviews: " + context

Output

Based on the negative reviews and the product description, here are some product details to highlight in an ad campaign to address customer concerns and improve perception:

1. Non-comedogenic formula: Highlight that the La Roche-Posay Toleriane Double Repair Face Moisturizer is non-comedogenic, making it suitable for sensitive and acne-prone skin, and helps prevent clogged pores and breakouts.
2. Fragrance-Free: Emphasize that the moisturizer is free from fragrance, appealing to customers who are sensitive to scents and prefer products without added fragrances.
3. Lightweight Texture: Mention that the moisturizer has a lightweight formula, ensuring quick absorption and non-greasy finish, ideal for daily use and suitable for both morning and evening application.
4. Reduces Irritation: Focus on the inclusion of niacinamide, a calming ingredient that helps soothe redness and irritation, making it suitable for those with sensitive or reactive skin...

DALL-E 3 generation vs Actual product



Limitations



Too Focused on Detail



Ignoring Brand Info



Realism

03

Boxing Gloves



Why a Boxing Glove?

Visualization matters

The first impression brought by the profile picture could largely affect consumer's, especially rookies' choices.

Abundant Review Data

~9000+ Reviews

for merely the most popular one

Popularity

Boxing is the 11th most popular sport in the world, with 59.6% of people having an interest in it.

In the United States, 3.47 million people participated in boxing as a workout in 2020.

The screenshot shows a web browser window titled "Group X Registration - Carnegie Mellon University". The URL is "athletics.cmu.edu/recreation/groupxregistration". The page features a navigation bar with "SPORTS", "INSIDE ATHLETICS", and "STUDENT EXPERIENCE" dropdown menus. A sidebar on the left lists times from 8am to 10pm. The main content area displays details for a class:

Boxing Fundamentals Registration

Instructors: Olivia Wu, Qinyuan Wu
Schedule: 4/22/2024 6:30pm - 7:30pm
Space: Studio A. Kenner

A note states: "This class covers the fundamentals of boxing as well as the more advanced techniques. Participants will work together in pairs and challenge each other on their endurance, strength, and technique. The class will be suitable for all experience levels of the participants during each class. This is a great class to attend by yourself and we will find a matching partner for you."

NOTE: GX instructions for participants about unregistering for a GX class or changing plans. It includes information about the location (Studio A. Kenner, Keeler & Indoor Cycling) and contact details (Patty 4125518763).

Class Overview:

In this class you will learn the basics of boxing and kickboxing. You will learn how to throw punches, jabs, and hooks. The class will consist of a warm-up, stance movement, and a new combination. You will then practice your punches with a partner using the gloves, mitts, and kick-pads.

Review Data

These are fantastic gloves for the price. They fit well, give great wrist support, and have enough padding without being too bulky. The quality feels great, and they look slick as well. Highly recommended.

I bought this for my Bf. He is a big guy so I was scared the gloves wouldn't fit but they did las I choose the biggest size. They are extremely comfortable and nice! They look like professional gloves.

I really like how comfortable these are. As an 127 lb chick starting her first MMA class soon, these are oz requirement and seem really sturdy. The matte black looks pretty badass too. They do look HUGE on me though lol

Decent gloves, very stiff compared to fairtex gloves but still for the price they're great. 1st pair lasted me 6 months, 5 months longer than my everlast (aka neverlast) gloves. Great gloves for beginners who don't know yet if they're serious about boxing, kickboxing or mma as they are very affordable.

I am using these and RDX shinguards for Muay Thai. I am extremely impressed with the quality, appearance, and functionality of these gloves. I planned on these just being an entry level purchase needing to be upgraded but I will be using RDX gear for the foreseeable future.

Text Summarization - Prompt 1

Prompt 1

Provide brief summary of the product's reviews based on review collected.

Output

Reviews Summary:

The gloves have received positive reviews for their great fit, wrist support, and comfortable padding. Reviewers are impressed with the quality of the gloves, highlighting their durability and sturdiness. Some users recommended these gloves for beginners who are unsure about commitment to boxing, kickboxing or MMA. Few reviewers also appreciated the sleek and professional look of the gloves. The ventilation and sweat-resistant features were noted as well.

Text Summarization - Prompt 2

Prompt 2

Provide brief summary of the product's description based on description collected.

Output

Description Summary:

The RDX training gloves are designed for optimal impact dispersion using Quadro Dome 3 padding and LOMA Tech design, supporting better alignment between thumb and fist. Built to last, they are made of durable Maya Hide ConvEX Skin Leather, and are enhanced for comfort with a sweat-free design featuring ventilation holes. The gloves also offer full wraparound wrist support, courtesy of easy-to-use fastener straps, and DenZo-Tron Grip Bar in the upper palm area for power aligned punches.

Feature Extraction - Prompt 1

Prompt 3

- Extract notable features of the product given its description and reviews

Output

Notable features of the based on the provided description, details, and reviews:

1. Effective Impact Dispersion: The gloves have Quadro Dome 3 padding that helps dissipate the force of impact across the glove structure, contributing to a comfortable training experience.
2. Patent Pending LOMA Tech Design: This design in the palm area and thumb provides improved alignment between the fist and thumb, helping the users form a perfect fist and enhance their punching power.
3. Exceptionally Durable Material: Made from advanced caliber Maya Hide ConvEX Skin Leather, the gloves are highly durable and reliable for long-term use.
4. Full Wraparound Wrist Support: The gloves feature a close-fitting design with a full wraparound wrist strap, providing better wrist support. The dual stitching adds resilience for extensive training sessions.

Feature Extraction - Prompt 2

Prompt 4

List notable features (focusing on visual or sentimental) of the product given its description and reviews

Output

Notable features of the based on the provided description, details, and reviews:

1. Exceptionally Durable Material: Crafted from advanced caliber Maya Hide ConvEX Skin Leather, these gloves are revered for their ultra-durable and high-quality construction, providing a superior look and feel.
2. Professional Design: With a sleek, matte black finish, the gloves exude a professional and sharp appearance, adding an element of style to practicality.
- ...
5. **Emotional attachment:** Based on reviews, these gloves **inspire confidence** in the users, enabling beginners to take up boxing, kickboxing, or MMA. Their quality and durability foster long-term reliance and promote a committed approach to training.
6. **Sentiment of Success:** Given the high-quality features of the product, users feel satisfied with their purchase, often indicating that the gloves surpass their expectations. This imparts a sense of achievement and success.

DALL-E 3 generation



Feature Extraction - Prompt 3

Prompt 5

- You are a senior prompt engineer with 10 years experience
- Extract visual or sentimental features of the product given its description and reviews
- Results generated will be used as input for OpenAI's DALLE 3 to generate images

Output

Notable features of the based on the provided description, details, and reviews:

1. Visual Look: Advanced caliber Maya Hide ConvEX Skin Leather provides the gloves an irresistible sleek look that recalls durability and resilience. Often noted for their matte black finish, the gloves visually convey professionalism and sophistication.
2. Powerful Punch Formation: The presence of a patent-pending LOMA Tech and DenZo-Tron Grip Bar in the upper palm area aligns with the sentiment and visualization of power. Users visually perceive and emotionally experience the formation of a perfect and effective punch.
- ...
5. Emotional Empowerment: The gloves inspire a **sense of confidence and commitment** in users, helping them view themselves as serious athletes. This can be visually represented by the professional-quality look of the gloves and sentimentally associated with feelings of achievement and aspiration.

DALL-E 3 generation



Prompt Generation - Prompt 1

Prompt 6

- You are a senior prompt engineer with 10 years experience
- Generate a prompt based on given texts to be used as input for OpenAI's DALLE 3 to generate images of boxing gloves

Output

"Create an image of a pair of advanced boxing gloves designed for high performance and comfort. The gloves should feature Quadro Dome 3 padding to efficiently disperse impact and increase comfort during training. They should be made from durable Maya Hide ConvEX Skin Leather, with a patent pending LOMA Tech Design improving fist and thumb alignment to enhance punching power. Include details like a full wraparound wrist strap with dual stitching for extra support, multiple ventilation holes in the thumb and a perforated palm to reduce sweat accumulation. A DenZo-Tron Grip Bar should be visible in the upper palm area to aid in maintaining optimal posture for powerful punches. The overall design should convey a sense of quality, durability, and professional use, suitable for intensive training sessions."

DALL-E 3 generation



Prompt Generation - Prompt 2

Prompt 7

- You are a senior prompt engineer with 10 years experience
- Generate a prompt based on given texts to be used as input for OpenAI's DALLE 3 to generate images of boxing gloves

Output

"Create an image of RDX training boxing gloves designed for peak performance in boxing, kickboxing, or MMA. The gloves should feature advanced Quadro Dome 3 padding for optimal impact dispersion, and incorporate the LOMA Tech design for enhanced alignment between the thumb and fist. Constructed from durable Maya Hide ConvEX Skin Leather, the gloves should appear sturdy and professional. They must include a full wraparound wrist support with easy-to-use fastener straps, and a DenZo-Tron Grip Bar in the upper palm area to ensure power aligned punches. The design should also showcase ventilation holes for a sweat-free experience. The overall aesthetic should reflect a sleek and professional look, highlighting the glove's high quality and suitability for both beginners and seasoned practitioners."

DALL-E 3 generation



DALL-E 3 generation vs Actual product



Challenges

Medical product Content Policy Violation

OpenAI prohibits generating content that promotes harmful activities, contains sensitive or private information, and raises ethical concerns

Directing Attention to the Right Details

DALL-E 3 is great at incorporating the details of the input prompt into the image, but verbose prompts can deliver wildly different results.

Hard to find the right balance

More details instead of a summary combining both descriptions and reviews actually provide a sense of unrealistic or sci-fi, which may not be beneficial to the seller to directly use.

Thank you!

GenAI Group 10
Judy Tsai, Adam Patula, Shiwei Yu



Testing
out
DALL · E 2



Documentation

Data Sources:

- CGM Review: Collected by Anupam Singh and the team at 113 Industries
- Skin Moisturizer Reviews -
<https://www.lovelyskin.com/o/reviews/la-roche-posay-toleriane-double-repair-moisturizer>
- Boxing Gloves description and reviews:
https://www.amazon.com/Liberlupus-Boxing-Training-Kickboxing-Sparring/dp/B07ZNPTKQ6/ref=sr_1_2_spa?crid=32F4DM9AHDCOD&dib=eyJ2ljoiMSJ9.wRAOn8asDZsL-HMuW1cmNqljDbQEbDDCohBLpAQFPRBekeWsrivgPh7Motf1pNEP54liw9uW9do_nrvXA3xbx2OF2kMn5eSZQyflh7W4QMhkpw6NoFhAa5fR8dAGIEK38xidCBq3XB6drnkNFHAXtxlalUv4takUsav1Eouo_hzLm7ASKnDasLCfBhJIR5NZYcvle95rw_6Xz3xeAFaQaPTgxvIDOKy81--Mey1Gr3milHFpJJHLjHNosTzcCagy37LglvRL13rgMwnBLIWLh_vgtB3PKqwEIUwyZsQlunA.OnnwAsopOn4Aa-wT-UHcz-o4szLhKkorUpdSVPbiQFU&dib_tag=se&keywords=boxing+gloves&qid=1713873769&sprefix=boxing+%2Caps%2C74&sr=8-2-spons&sp_csd=d2lkZ2VoTmFtZT1zcF9hdGY&psc=1