



Santa All:

Grant a wish this holiday season!

Building an E-commerce Gift Recommender System based on User-Generated Wishlists



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Background and Inspiration

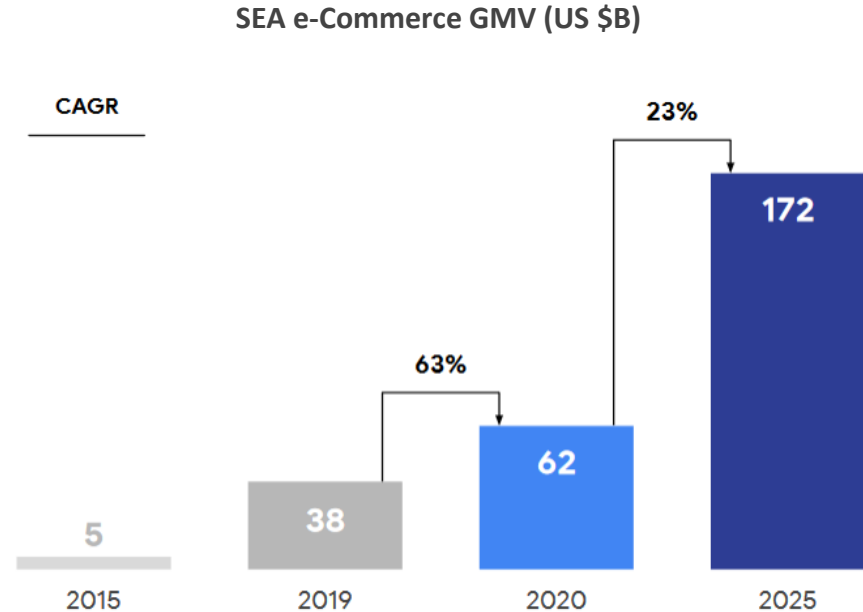
Christmas is coming and people are expected to flock to e-commerce sites to buy gifts instead of doing the usual offline store shopping this holiday season.

The project aims to ease gift-giving by providing users a more efficient way of finding appropriate gifts.



**Over a third of
2020's online
commerce was
generated by new
shoppers,**

of which 8 in 10 intend to
continue buying online
going forward.



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Our Feature: Wedding Registry-Like Wishlists



Create a wishlist

Make a public wishlist and fill it up with products you want to receive



Share with a friend

Share your wishlist link on social media or your favorite messenger



Get gifted!

Your friends can now see your wishlist and buy you gifts

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Recommender System

We want to help users build their wishlist and give their community appropriate gift recommendations.



```
defaultProps = {  
  'default',  
  deAvatars: false,  
  
  userDetailsCardOnHover = showOnHover(UserDetailsCard);  
  
  userLink = ({  
    ,  
    secondaryLink,  
    children,  
    includeAvatar,  
    name,  
    }, {  
      n className={styles.container})=>  
  
    <includeAvatar && {  
      </UserDetailsCardOnHover  
        user={user}  
        delay={CARD_HOVER_DELAY}  
        wrapperClassName={styles.avatarContainer}  
      }>  
        <Avatar user={user} />  
      </UserDetailsCardOnHover>  
    )  
  
    <div  
      className={classNames(  
        styles.LinkContainer,  
        inline && styles.inlineContainer  
      )}>  
      <UserDetailsCardOnHover user={user} delay={CARD_HOVER_DELAY}>  
        <Link  
          to={{ pathnames: buildUserUrl(user) }}  
          className={classNames(styles.name, {  
            [styles.alt]: type === 'alt',  
            [styles.centerName]: !secondaryLink,  
            [styles.inlinetLink]: inline,  
          })}}>  
          {children || user.name}  
        </Link>  
  
        {!secondaryLink  
          ? null  
          : <a  
              href={secondaryLink.href}  
              className={classNames(styles.name, {  
                [styles.alt]: type === 'alt',  
                [styles.secondaryLink]: secondaryLink,  
              })}>  
                {secondaryLink.label}  
            </a>  
          }  
      </UserDetailsCardOnHover>  
    </div>  
    <span>
```

[illegible]

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Tools



Python
Scraping, EDA,
feature engineering,
modeling

BeautifulSoup

spaCy



NetworkX
Network Analysis in Python



django

mongoDB

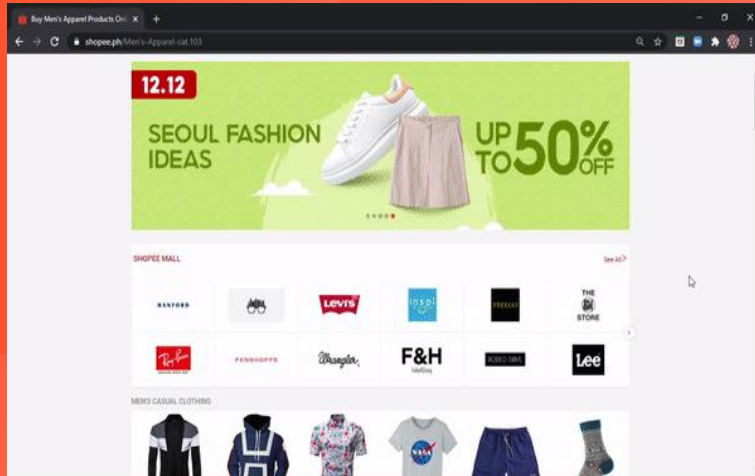
**Django +
mongoDB**
Backend web
framework and user
wishlist storage



**Streamlit +
Heroku**
Documentation and
demonstration

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Dataset



41,943 products from
21 different categories

Features

1. Product Name
2. Categories (3 levels)

Scoring

1. Highly Rated (T/F)
2. Top Selling (T/F)
3. High Interest (T/F)
4. Discounted (T/F)
5. Trusted Seller (T/F)

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Pipeline

1



Lemmatization

For word normalization and consistency

2



**Term Frequency–
Inverse Document
Frequency (TF-IDF)**

Term Importance and
Distance

3



Network Theory

Filtering categories to
recommend from

4



K Nearest Neighbors

Calculate product
relevance

5



Scoring System

Filter most performing
products

Demo

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Evaluation



Click-Through Rate

To measure the relevance of content being served by the recommender system.
(a.k.a. precision)



Avg Revenue per User

To measure the effectiveness of the recommender system at convincing customers buy more.



Revenue

We want our solution to improve overall revenue of the store.

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Recommendations



Hybrid Filtering

To better recommend complementary items rather than substitute items.



3rd Party Website

Implement as a third party site that aggregates products from all e-commerce platforms.



Review Sentiment Analysis

To get product improvement ideas or a better understanding of consumer feedback.

Thank you!