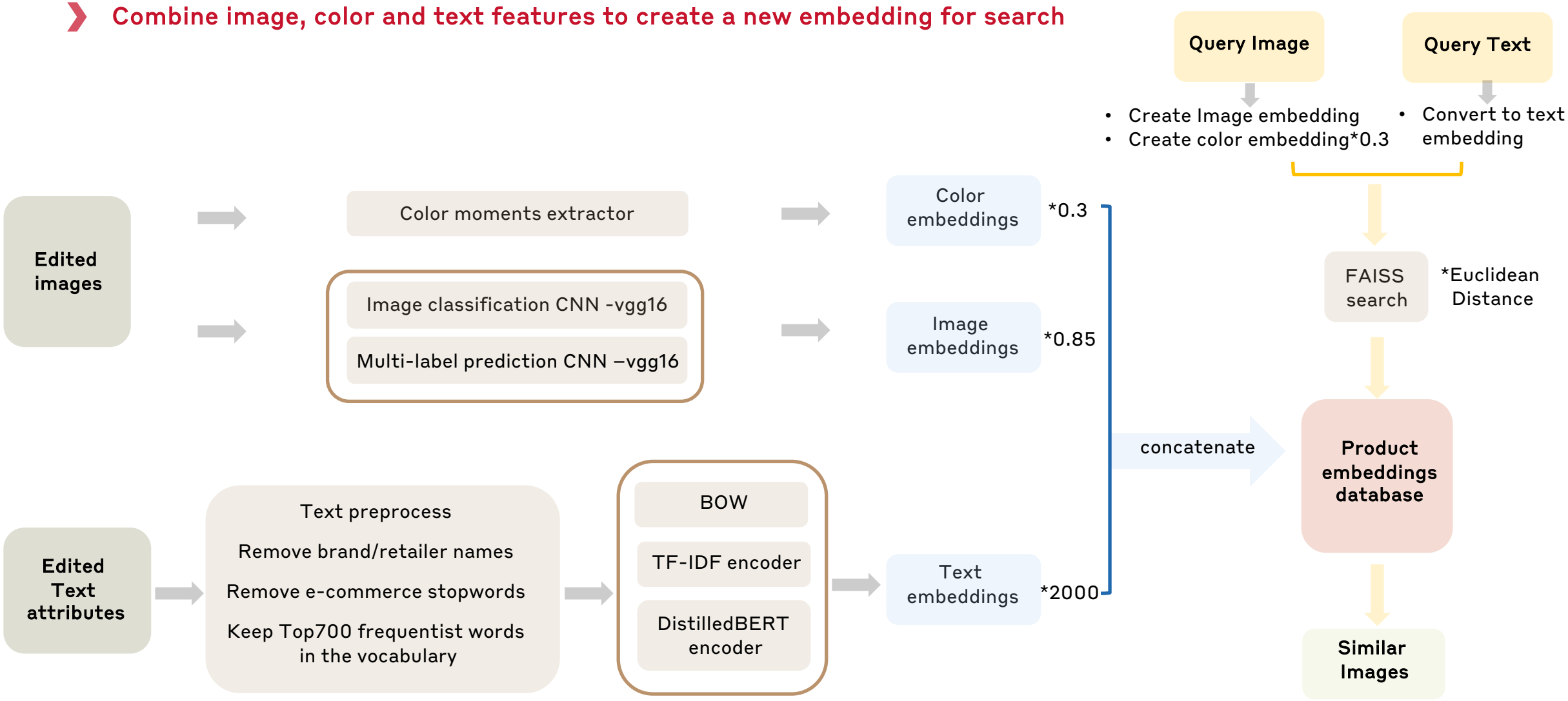
BURBERRY

LONDON ENGLAND

1. IMAGE RETRIEVAL USING MUTI-MODAL EMBEDDINGS

Combine image, color and text features to create a new embedding for search



2. NEW DATASET

Current product database contains 10,000 non-Burberry products

1. Use 'cs_group', ' gender', cs_subcategory' to filter out all women's bag data.
2. Limit the source of web-crawled data to be the official websites of competitors.
3. Limit the market region to be the United States to exclude duplicate products.
4. Exclude the data with empty values in product 'name' and 'image_urls'.
5. Aggregate 'season' to extract the data of products released since 2018.
6. Extract the first image in 'image_urls' as the first image usually is the brand's official product image with plain background, the same type as the query image.
7. Partition data by 'product_hash' to exclude duplicate listings that were crawled multiple times, and only select the record with longest 'description' in duplicate data.
8. Partition data by 'name' and 'colour' to further reduce potential duplicate listings, and only select the record with longest 'description' in duplicate data.
9. Select 9 attributes that contains useful information for modelling only.

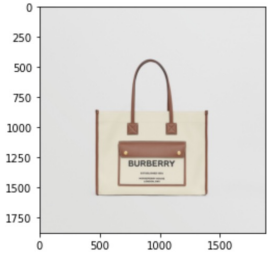
→ Old dataset contains all the official websites plus 3 third party retailers

*Correct Items in TOP10 results are highlighted in green

2. RESULTS DEMONSTRATION

❯ The version of product database contains 10,000 non-Burberry products from various retailers

Query Image



- **Text only -Top700 frequentist**

- **Image only**

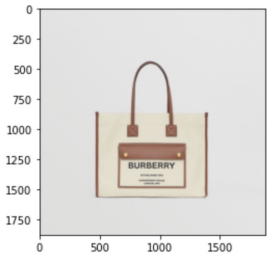
- Image and Top700 vocab

- Image, Top700 vocab and color feature

2. RESULTS DEMONSTRATION

› The version of product database contains 10,000 non-Burberry products from brands' official websites

Query Image

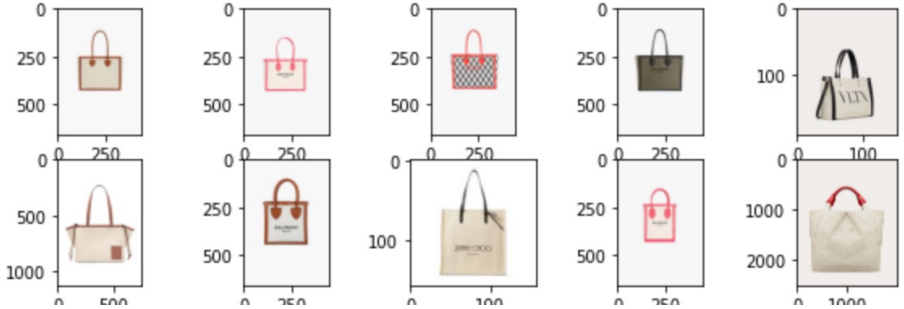


- **Text only -Top700 frequentist**

- **Image only**

- Image and Top700 vocab

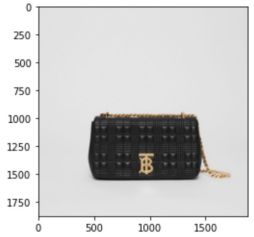
- Image, Top700 vocab and color feature



2. RESULTS DEMONSTRATION

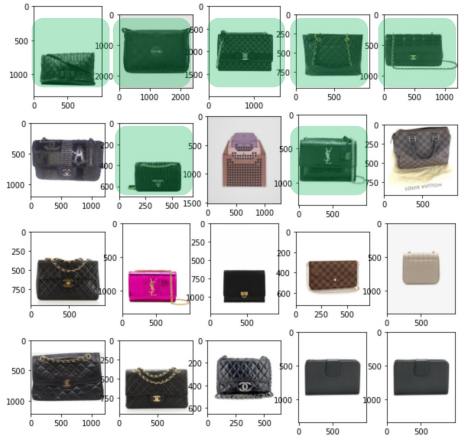
The version of product database contains 10,000 non-Burberry products from various retailers

Query Image

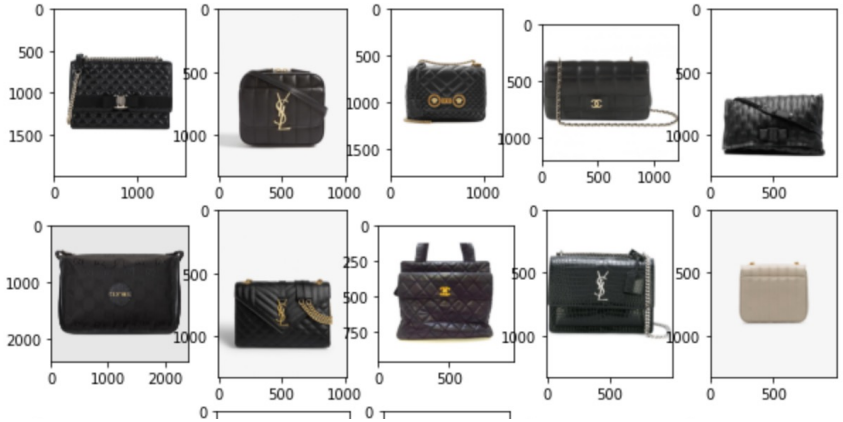


- **Text only -Top700 frequentist**

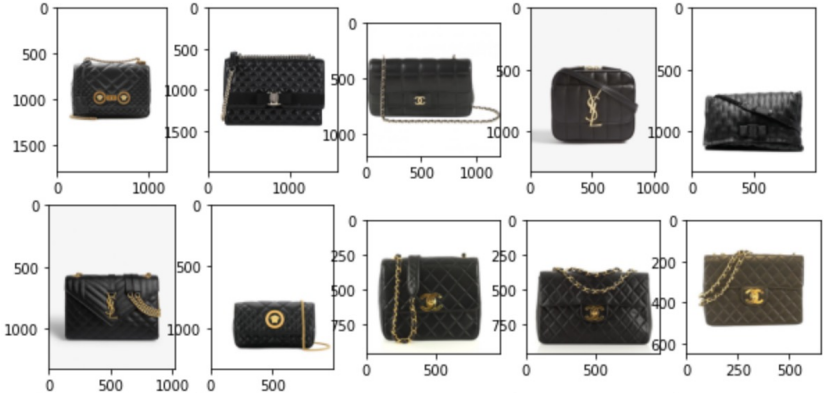
- **Image only**



- Image and Top700 vocab



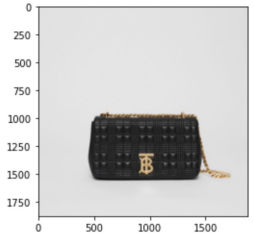
- Image, Top700 vocab and color feature



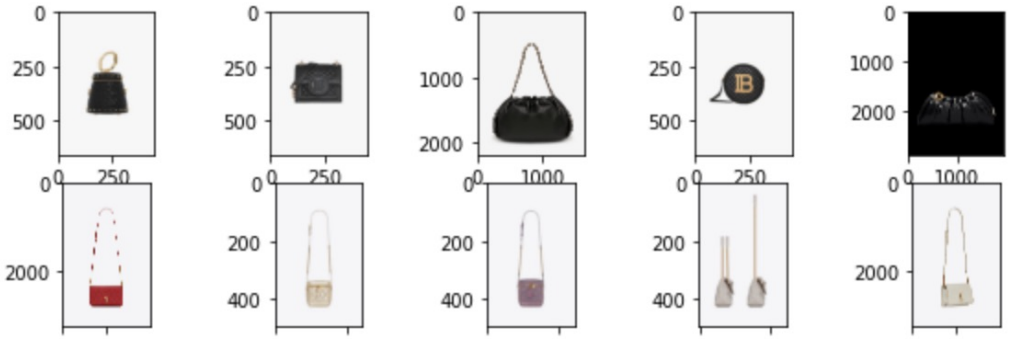
2. RESULTS DEMONSTRATION

- The version of product database contains 10,000 non-Burberry products from brands' official websites

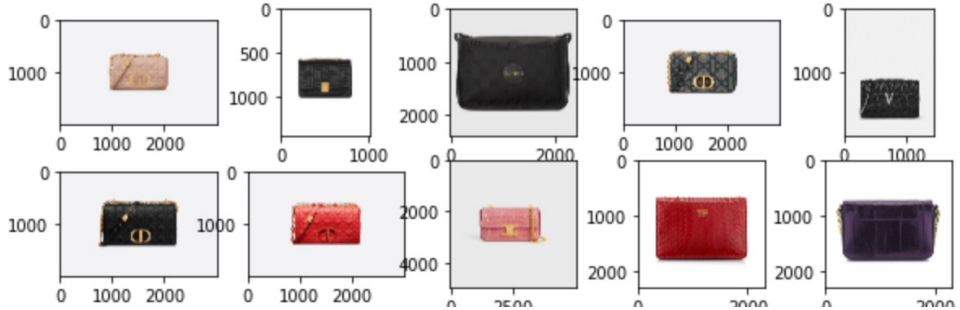
Query Image



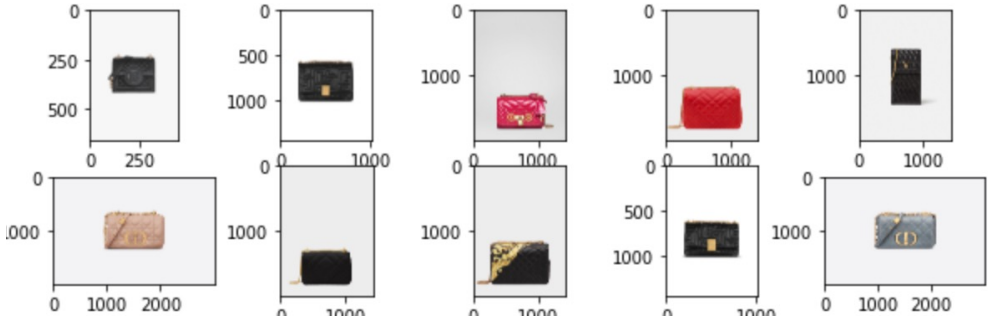
- Text only -Top700 frequentist



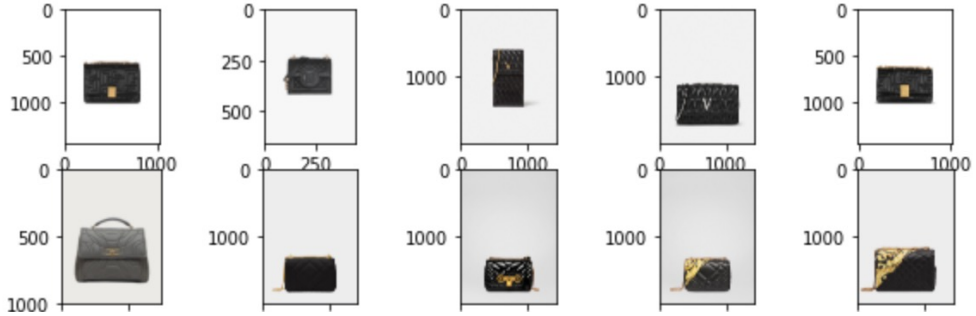
- Image only



- Image and Top700 vocab



- Image, Top700 vocab and color feature



3. INSIGHTS ON DEMO RESULTS

❯ Updated and built a new prediction model

- Retrieval performance of multi-modal model is better than all uni-modal models
- Retrieval results is better when the description of the query text is concise, details may become extra noise
- Multi-modal model is sensitive to the how much information does query text hold
- TF-IDF works better than complex language model like BERT as descriptions tend to be straightforward and little inferring needs to be done
- New dataset is better in diversity, less duplicates in the data. But contains too many product side image or detailed image in data. To continue with this dataset, we need to method for identifying the main image.
- Old dataset is better in text data quality, less null values in the data. The first image is usually front shot. But the inferred season may be less accurate as it was generated based on crawled date.

3. DATASETS COMPARISON

❯ Pros and cons of the updated dataset and the old dataset

Old Dataset (contains third party)

1. Average length of description is 170
2. The first image is usually front shot
3. But the inferred season may be less accurate as it was generated based on first seen date.

New Dataset

1. Average length of description is 90
2. The first image is not always front shot, contains too many product side image or detailed image in data
3. Same product is crawled multiple times, and with unique product hash.
4. contains human model in the first images, or with non-white background.
5. Inferred season is more accurate

4. NEXT STEP

❯ Find metrics

- Need to find a metric to compare the performance of models –TopK accuracy/Precision

- The problem we study may need be converted to a matching problem. In previous fashion image retrieval studies. The first image is of each product record is considered as the query image, and the rest are considered as target images.

5. PROJECT TIMELINE

Project period: 03/05/2022 - 08/08/2022 (15 weeks in total)

Month 1 (03/05/2022 - 03/06/2022) - Research

~~**Week 1 Until 16th May** – Researching, paper reading and building datasets~~
~~**Week 3 16th May** - Start drafting the model~~
~~**Week 5 3rd June** - Finish first prototype using small, sampled data~~

Month 2 (03/06/2022 - 08/07/2022) - Implémentation

~~**Week 6 6th - June** - Test model on bigger dataset and a variety of architecture~~
~~**Week 9 27th June** - Thesis draft 6000-word submission date (for university review)~~
Week 11 11th July - Finalize Code

Month 3 (08/07/2022 - 08/08/2022) - Thesis Completion

Week 12-15 Thesis Writing

After Month 3
- Company report