



Art Recommender

A Capstone Project By Corina Lentz

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Problem Statement

Build a recommender engine that can take in an artist's name and recommend similar artists based on the art tags the two artists share.

The Data

- The Metropolitan Museum of Art's Open Access Initiative dataset on GitHub
- Compiled and maintained by the Metropolitan Museum of Art
- Contains 475,897 rows and 54 columns
- Each row is one art piece
- The columns provide details about the artist and the piece of art

Background

The Metropolitan Museum of Art:

- Founded in 1870
- Located in New York City, New York
- Two sites: The Met Fifth Avenue and The Met Cloisters
- Robust Conservation and Scientific Research departments

Information found the Metropolitan Museum of Art website. [1][2]

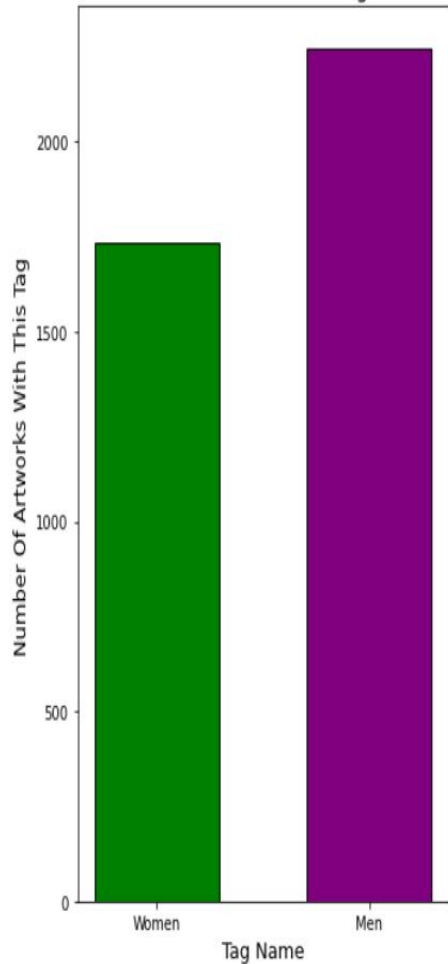
Cleaning & Pre-Processing

- Drop rows with null values in **Artist Display Name** or **Tags** columns
- Replace any other missing values with “Not provided”
- Narrow-down dataset based on **Department**.
- Filter-out any artwork that isn't a painting, drawing, or sculpture using the **Classification** column.
- Build a new dataframe that concatenates rows based on the **Artist Display Name** and also contains the **Tags** column.
- Create dummy columns for each tag and drop the **Tags** column.

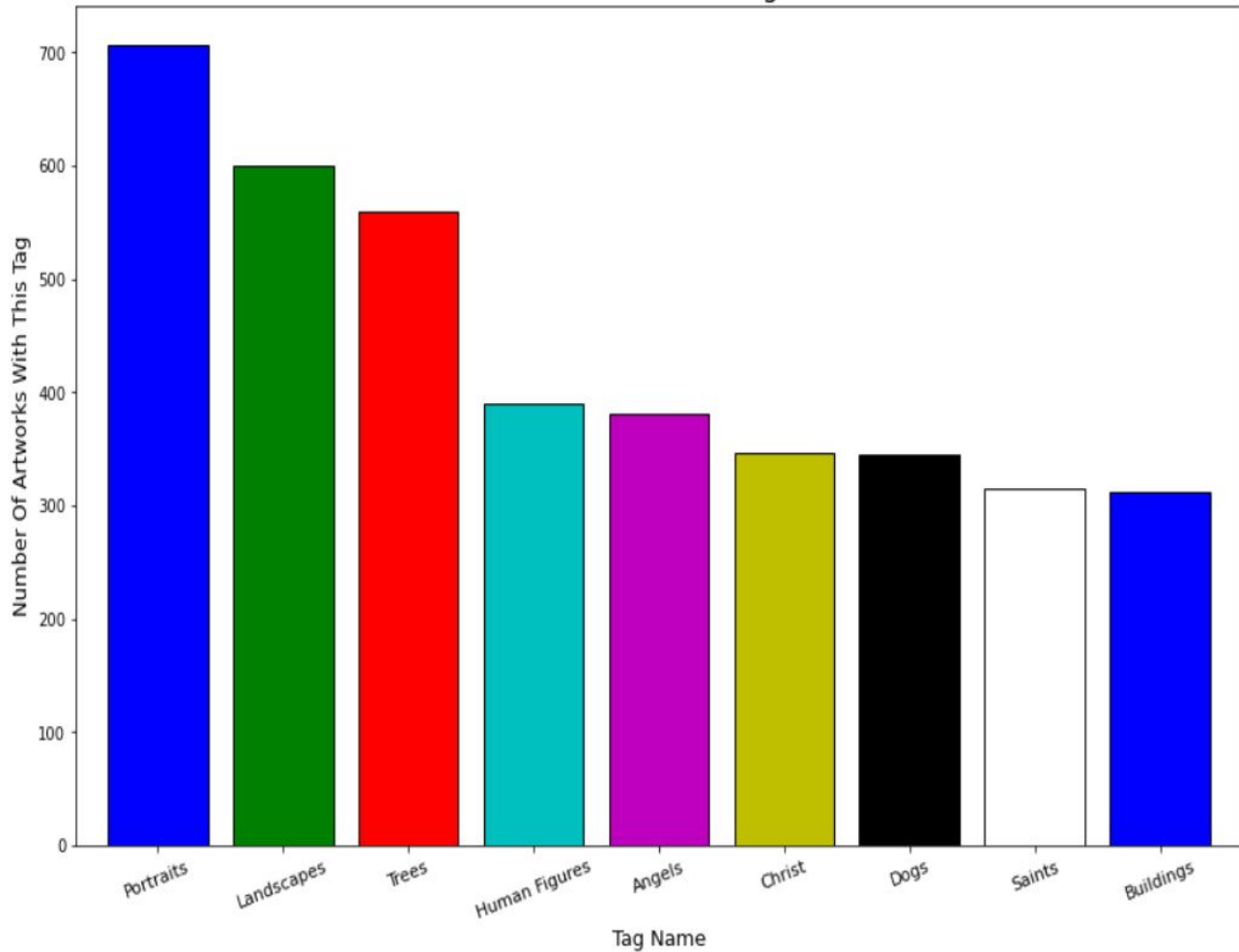


EDA

Two Most Common Tags



Other Common Tags



Modeling

Content-Based Recommender Engine

- Convert to sparse matrix
- Calculate cosine similarity
- Build recommender dataframe that uses the **Artist Display Name** as both the index and the column names



Results

James McNeill Whistler

Artist Display Name	
Alessandro Maganza	0.0
Jean François Léonor Mérimée	0.0
Adolphe-Léon Willette Ambroise Vollard	0.0
Carracci School Giacomo Cavedone	0.0
Anicet Charles Gabriel Lemonnier	0.0
Henri-Félix-Emmanuel Philippoteaux	0.0
Erhard Altdorfer	0.0
Henry William Bunbury	0.0
Perino del Vaga (Pietro Buonaccorsi) Prospero Fontana	0.0
Painter of the New York Hypnos	0.0
Name: James McNeill Whistler, dtype: float64	

Adélaïde Labille-Guiard

Artist Display Name	
Piero del Pollaiuolo (Piero di Jacopo Benci)	0.345346
Marie Denise Villers	0.345346
Martha Washington Eleanor Parke Custis	0.345346
Joseph Jean Bernard	0.345346
Vincent	0.345346
Master of the Castello Nativity	0.345346
Master H.A. or A.H.	0.345346
Frans Pourbus the Younger	0.345346
Giovanni di Francesco del Cervelliera	0.345346
Vincenzo Gemito	0.345346
Name: Adélaïde Labille-Guiard, dtype: float64	

Vincent van Gogh

Artist Display Name	
John Linnell	0.571429
Benjamin West	0.577423
Pierre Louis Dubourcq	0.601138
Constantin Alexandrovitch Westchiloff	0.601138
Ferdinand Georg Waldmüller	0.614242
Egbert van Drielst	0.614242
Joseph Nash	0.614242
Georges d'Espagnat	0.618119
Continental Painter	0.622036
Thomas Gainsborough George Frost	0.622036
Name: Vincent van Gogh, dtype: float64	

James McNeill Whistler



Arrangement in Flesh Colour and Black: Portrait of Theodore Duret

By: James McNeill Whistler [3]



A Justice of the Peace

By: Jean François Léonor Mérimée[4]



Figure of a Man, the Lawyer

By: Henry William Bunbury[5]

Adélaïde Labille-Guiard



Self-Portrait with Two Pupils. Marie Gabrielle Capet (1761–1818) and Marie Marquerite Carreaux de Rosemond (died 1788)
By: Adélaïde Labille-Guiard [6]



Portrait of a Woman

By: Piero del Pollaiuolo (Piero di Jacopo Benci)[7]



Marie Joséphine Charlotte du Val d'Ognes (1786–1868)

By: Marie Denise Villers[8]

Vincent van Gogh



Wheat Field with Cypresses
By: Vincent van Gogh [9]



View of Kensington Gardens, London
By: John Linnell[10]

Conclusion & Next Steps

- Successfully built a recommender engine that can take in an artist's name and recommend similar artists based on art tags that the artists share!
- Biggest next step will be adding art movements to the data. That should give us even more accurate results.
- Including additional artwork from other departments in the museum would also improve the recommender.
- Lastly, hosting the recommender on a site so that others can use it.

Resources

1. <https://www.metmuseum.org/about-the-met>
2. <https://www.metmuseum.org/about-the-met/conservation-and-scientific-research/projects>
3. <https://www.metmuseum.org/art/collection/search/392561?searchField=All&sortBy=Relevance&showOnly=openAccess&ft=James+McNeill+Whistler&offset=0&rpp=20&pos=11>
4. <https://www.metmuseum.org/art/collection/search/371357?searchField=All&sortBy=Relevance&showOnly=openAccess&ft=Jean+Fran%a7ois+L%a9onor+M%a9rim%a9e&offset=0&rpp=20&pos=1>
5. <https://www.metmuseum.org/art/collection/search/340946?searchField=All&sortBy=Relevance&showOnly=openAccess&ft=Henry+William+Bunbury&offset=0&rpp=20&pos=4>
6. <https://www.metmuseum.org/art/collection/search/436840?searchField=All&sortBy=Relevance&ao=on&showOnly=openAccess&ft=Ad%a9la%afde+Labille-Guiard&offset=0&rpp=20&pos=1>
7. [https://www.metmuseum.org/art/collection/search/437322?searchField=All&sortBy=Relevance&ao=on&showOnly=openAccess&ft=Piero+del+Pollaiuolo+\(Piero+di+Jacopo+Benci\)&offset=0&rpp=20&pos=1](https://www.metmuseum.org/art/collection/search/437322?searchField=All&sortBy=Relevance&ao=on&showOnly=openAccess&ft=Piero+del+Pollaiuolo+(Piero+di+Jacopo+Benci)&offset=0&rpp=20&pos=1)
8. <https://www.metmuseum.org/art/collection/search/437903?searchField=All&sortBy=Relevance&ao=on&showOnly=openAccess&ft=Marie+Denise+Villers&offset=0&rpp=20&pos=1>
9. <https://www.metmuseum.org/art/collection/search/436535?searchField=All&sortBy=Relevance&high=on&ao=on&showOnly=openAccess&ft=Vincent+van+Gogh&offset=0&rpp=20&pos=2>
10. <https://www.metmuseum.org/art/collection/search/340713?searchField=All&sortBy=Relevance&ao=on&showOnly=openAccess&ft=John+Linnell&offset=0&rpp=20&pos=2>



Questions?