BJIT Ltd

Weekly Report

Fashion Recommender System

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Project Goal

The goal of this project is to develop a **Fashion Recommender System** that recommends fashion items that are similar to given or selected one. This system will function calculating image similarity ranking.
A customer may upload an image of a fashion item or the image might be selected from an image database, then the recommender system will calculate the similarity ranking and predict some similar fashion items based on similarity ranking.
The image dataset will have metadata for the images. This metadata includes the information of gender, age category(men/women/girls/boys), item category, season, year etc of a certain fashion item. We will include these metadata of a fashion item image to filter age, gender, season etc based fashion that are complex(Not possible) to get from image alone. It will help us to avoid age and gender related major issues(mistakes) to make the system more accurate.
We will use(train) ImageNet based Keras pre-trained models(ResNet, Xception, Inception, NASNetLarge) to extract features of fashion items.
Here we will apply cosine similarity on extracted features to get image similarity ranking and will use a triplet of images to get image similarity. There will be the given image, the positive(most similar) image and the negative(most dissimilar) image, from these three images our model will find the most similar images for recommendation.
We may also use NLP to get the current Fashion trends from Social media like twitter and apply them for more accurate, specific, trendy and personalized recommendations. We may deploy humans(Stylists) to do it.

Goal of This Week

1. Prepare proper and sufficient dataset to train pre-trained keras models to get optimum accuracy.
2. Completion of API development.
3. Training with new good quality dataset and optimize model size and iference time.
4. Analyze model performances and data to decide/ redefine the business goal.

Accomplishments

- Explored different models and transfer learning on them, recorded their performance on our dataset.
    - Model exploration-v2

- Developed a precision calculating algorithm for the models.
- Used pretrained models for feature extraction and compared their precision with the above mentioned algorithm.
    - Model Comparison

Task-Time Table

Engineer	Task	Duration(hrs)	Total(hrs)
Shohag Mia	Implemented APIs and UIs. Completed a fully functional system for apparel recommendation.	40	40
Muttakin	Refactoring code	8	40
	Optimization of space and time complexity of model and inference time	32	
Safa	Developed an algorithm for calculating precision of the model	24	40
	Ran the precision algorithm on various models for feature extraction	16	

Plans for Next Week

1. Completion of demo version of the project integrating AI Model, DB and Angular app.
2. Completion of final model comparison and selection.
3. Completion of model optimization and code refactoring.
4. Training with new good quality dataset on selected and optimized model.
5. Analyze model performances and data to decide/ redefine the business goal.

Project Status

Green

Note -

- Green means project is on schedule and there are no major issues
- Yellow means the project is somewhat delayed and/or there may be some major risks at the current point
- Red means the project is seriously at risk of being delayed and/or there are some major risks affecting the project

Project Timeline(Business & Data understanding)

Query

None

Key Issues, Risks or Concerns

Item	Action/Resolution	Responsible	Completion Date
GPU requirement	Needs GPU to explore potential models	Javed Hasan	