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

- Fine-tune of demo version of the project integrating AI Model, DB and Angular app.
- Completion of final model comparison and selection.
- Recheck and fine tune of model optimization and code refactoring.
- Training with new good quality dataset on selected and optimized model.
- Completion of Angular app for UI end.
- 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](#)

- Used pretrained models for feature extraction and compared their precision with the precision calculating algorithm.
  - [Model Comparison](#)

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Task-Time Table

Engineer	Task	Duration(hrs)	Total(hrs)
Shohag Mia	Worked in APIs and UI. Successfully minimized the time complexity of recommendation APIs. Started reporting on the final model for product classification.	32	32
Muttakin	Refactoring code	8	32
	Optimization of space and time complexity of model and inference time	24	
Safa	Ran the precision algorithm on Muttakin San's recommender	32	32

Plans for Next Week

- Finalizing and checking integration of AI Model, DB and Angular app.
- Final design of DB according to last optimization of kodel
- Recheck and fine tune of model optimization and code refactoring.
- Completion of Angular app for UI end.
- Complete the final version of the project.

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

	Task Name	Subtasks	1ˢᵗ week	2ⁿᵈ week	3ʳᵈ week	4ᵗʰ week	5ᵗʰ week	6ᵗʰ week	7ᵗʰ week	8ᵗʰ week	9ᵗʰ week	10ᵗʰ week	11ᵗʰ week
01	Business understanding	Determining business objectives											
		Assessing situation											
		Determining project goals											
		Producing project plan											
02	Preprocess data	Collecting initial data											
		Describing data											
		Exploring data											
		Verifying data											
03	Model Exploration	Model Search											
		Study and comparison of models											
		Preliminary model selection based on accuracy											
		Training the selected models for feature extraction											
04	Deployment	Exploring and developing API and UI											

Query

Key Issues, Risks or Concerns

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