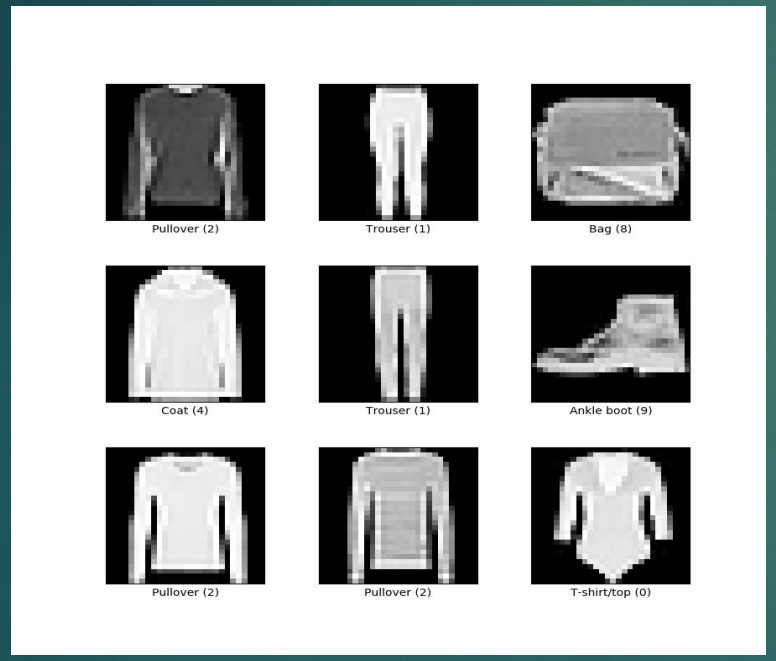
c-GANalyzer



Github: https://github.com/AnujJhunjhunwala/c-GANalyzer

Team Members:

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- Emre Beray Boztepe
- Valery Tarasenko

Objective

- Create 10 classical GAN models to train 10 different classes of Fashion-MNIST dataset.
- Create a c-GAN model using the Fashion-MNIST dataset.
- Compare the results of both the models.
- Create a c-GAN model using CelebA dataset. Evaluate the results using FID Scores.

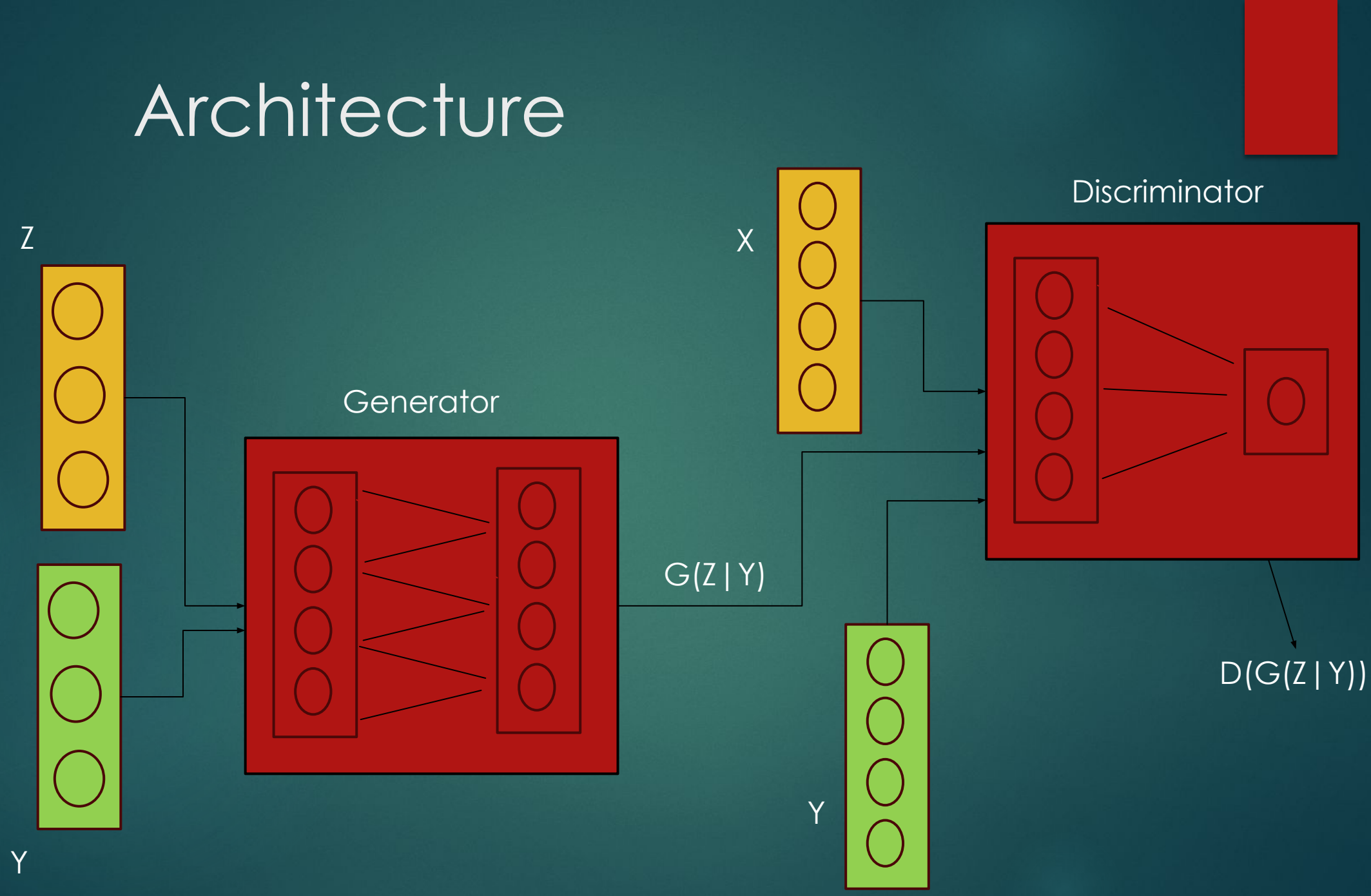
Why is it interesting ?

- We learn about a new architecture apart from what we saw in labs.
- Can we actually achieve good results?

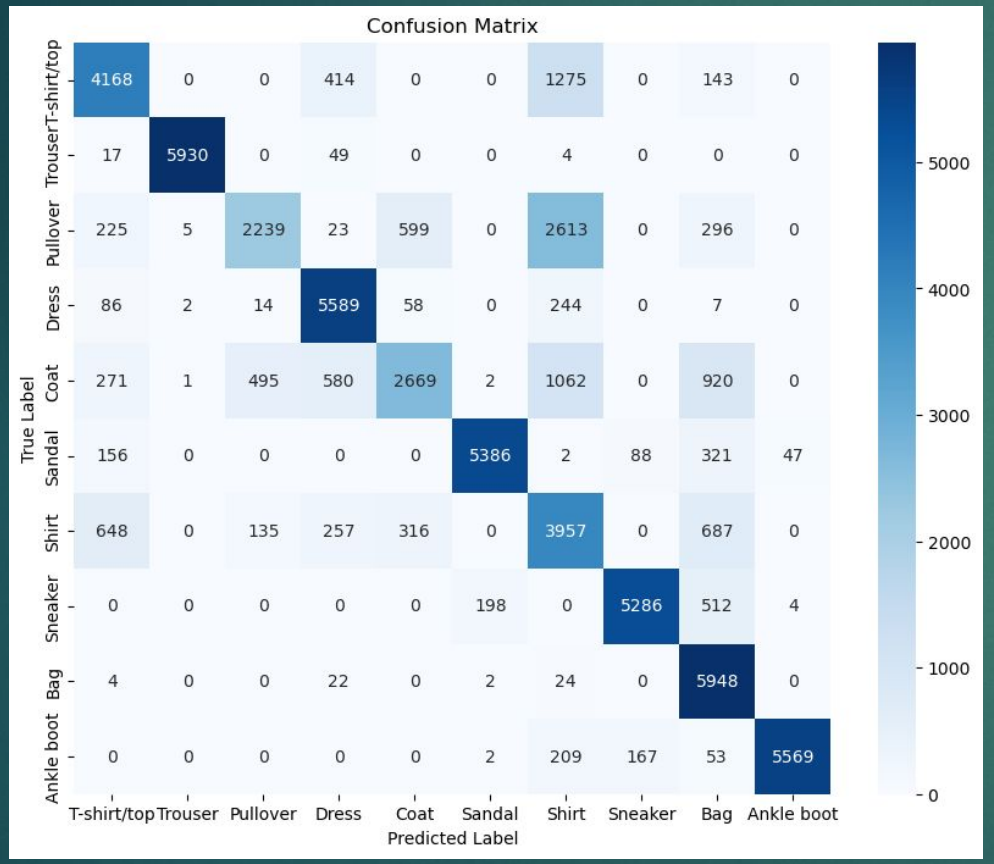
Where do we get the data from ?

- We will use the well known Fashion MNIST and celebA dataset
- Link: https://www.kaggle.com/datasets/zalando-research/fashionmnist
- The data consists of 70k images of fashion products
- Link: https://www.kaggle.com/datasets/jessicali9530/celeba-dataset
- The data consists of more than 200k images of celebrities with 40 different features.

Architecture

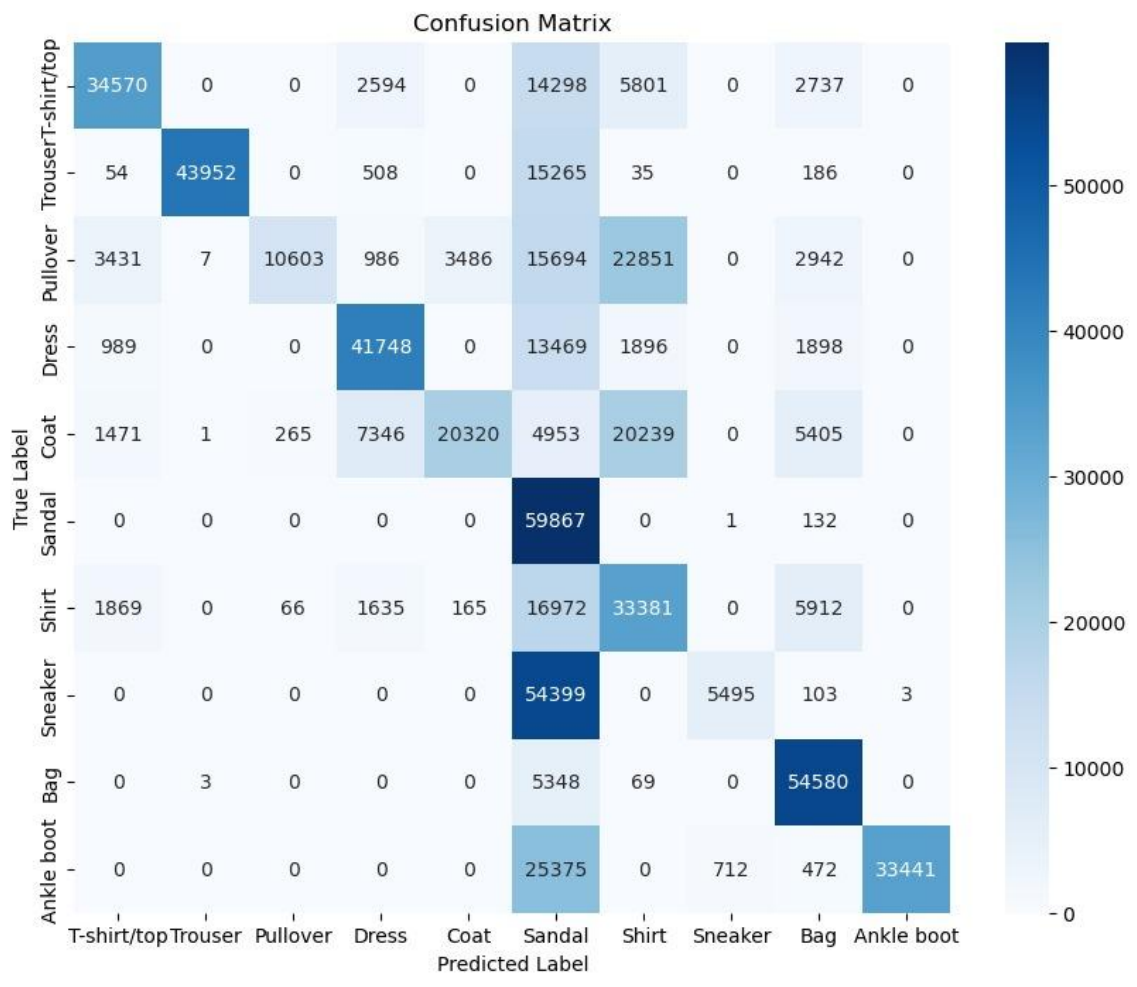


Results for 10 different GANs



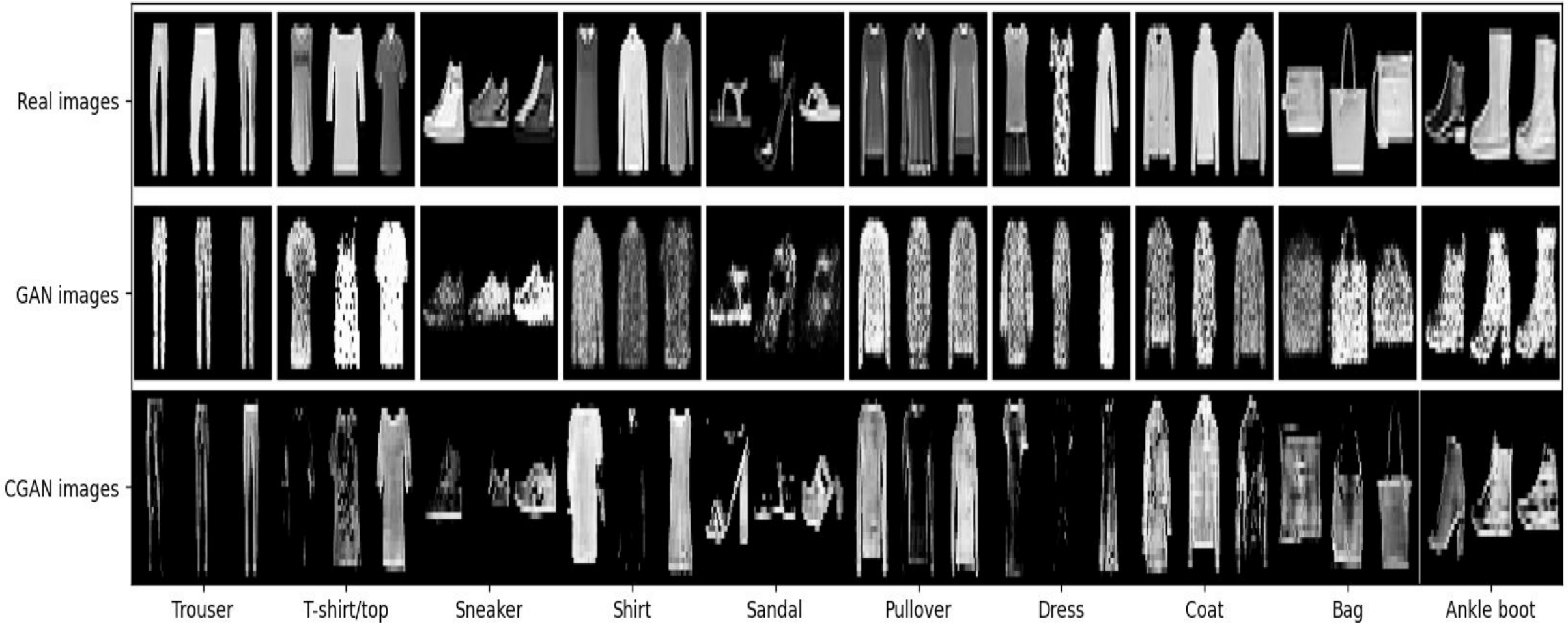

```
Classification Summary:
Class-wise Accuracy:
T-shirt/top: 69.47%
Trouser: 98.83%
Pullover: 37.32%
Dress: 93.15%
Coat: 44.48%
Sandal: 89.77%
Shirt: 65.95%
Sneaker: 88.10%
Bag: 99.13%
Ankle boot: 92.82%
```

Results for different c-GAN

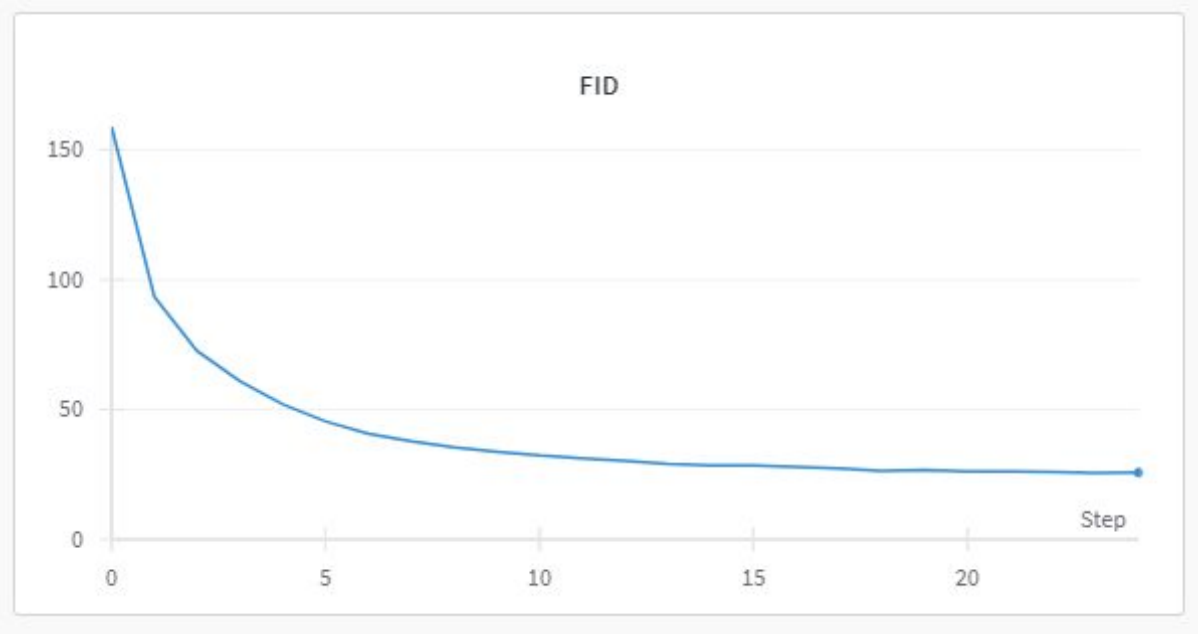


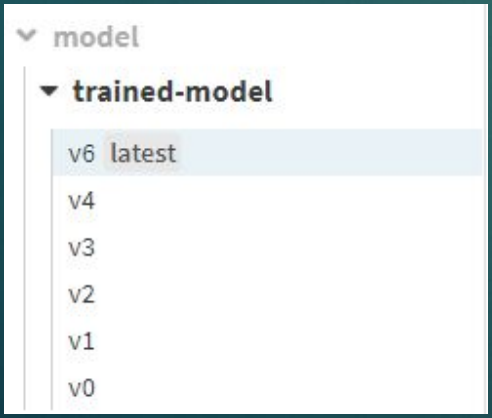

```
Classification Summary:
Class-wise Accuracy:
T-shirt/top: 57.62%
Trouser: 73.25%
Pullover: 17.67%
Dress: 69.58%
Coat: 33.87%
Sandal: 99.78%
Shirt: 55.63%
Sneaker: 9.16%
Bag: 90.97%
Ankle boot: 55.73%
```

Comparison


Real images
GAN images
CGAN images
Trouser
T-shirt/top
Sneaker
Shirt
Sandal
Pullover
Dress
Coat
Bag
Ankle boot

Results for c-GAN on celeb-A






```
sample_attrs = get_attr_tensor(['Arched_Eyebrows',
 'Attractive',
 'Brown_Hair',
 'Heavy_Makeup',
 'High_Cheekbones',
 'Mouth_Slightly_Open',
 'No_Beard',
 'Pointy_Nose',
 'Smiling',
 'Straight_Hair',
 'Wearing_Earrings',
 'Wearing_Lipstick',
 'Young'])
```

✓ 0.0s