Produsket

"TRANSFORMASI GAMBAR PRODUK DARI SKETSA DENGAN CEPAT"

Maulidia Nadhifa
Universitas Airlangga

Muhammad Arsyad
Universitas Sebelas Maret

Pinka Ananda
Universitas Lampung

Sultan Fahrezy
Universitas Indonesia

Abel Silalahi
Universitas Jenderal Achmad Yani

Anandhita Ganang
Universitas Indonesia

Sari Mita Dewi
Universitas Insan Pembangunan Indonesia

FACILITATOR

Ni Luh Nitya Ayu Laksmi

SUPERVISOR

Nicholas Dominic

OVERVIEW

01. Latar Belakang

02. Value to Business

03. Dataset

04. Metode (Model)

05 Modifikasi

06 Cakupan Kasus

07. Hasil & Tingkat Akurasi

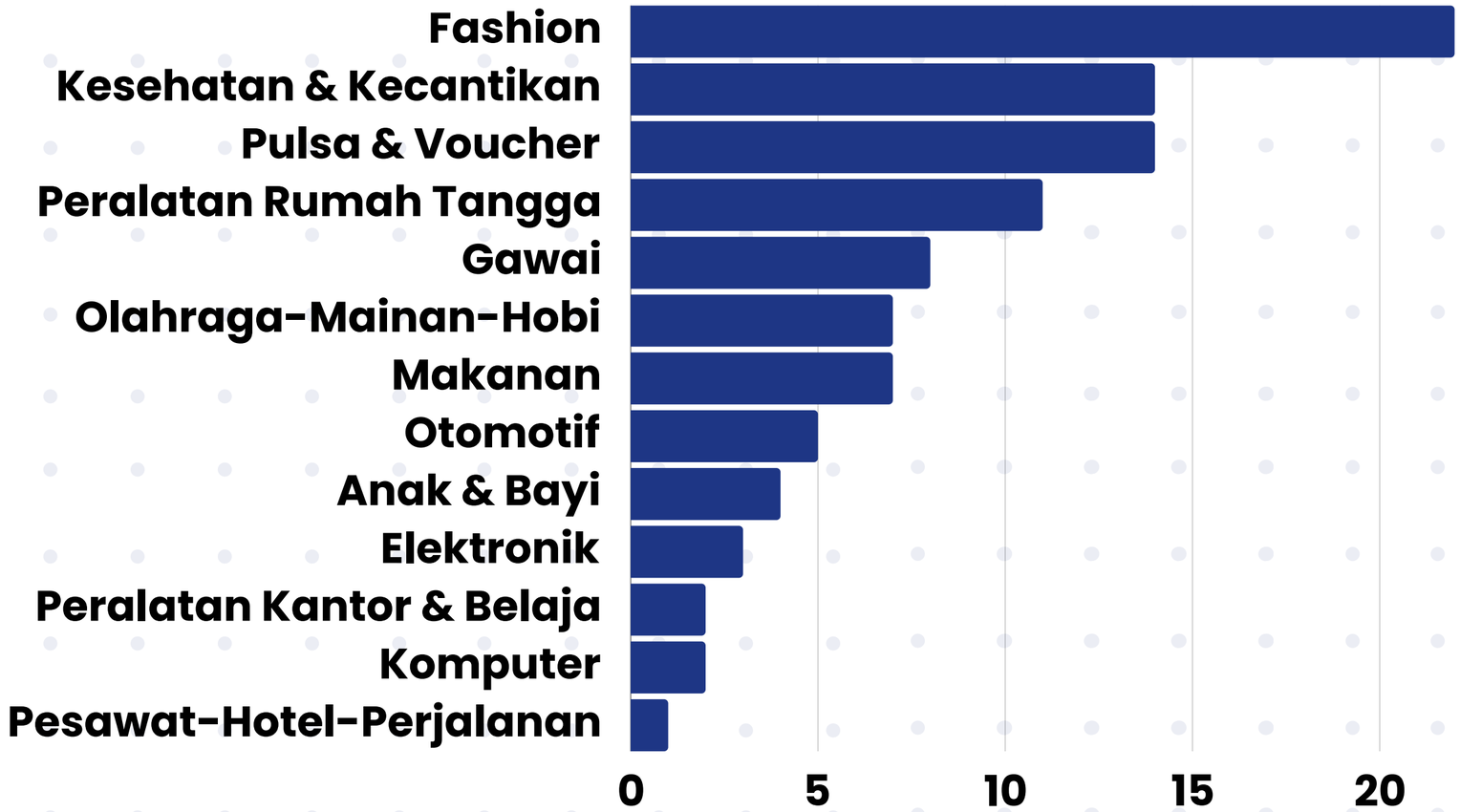
08. Hasil Deployment

09. Demo kode & Test Image

LATAR BELAKANG

Latar Belakang

Proporsi Jumlah Transaksi Produk di E-Commerce



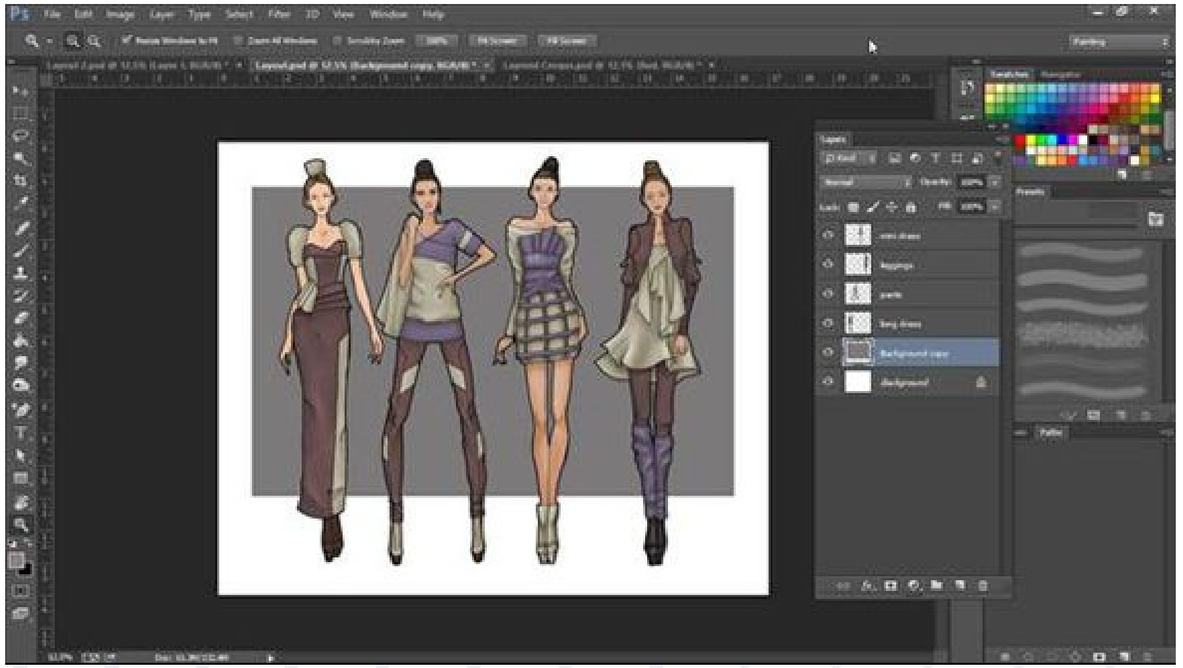
Source:
Lembaga : Katadata Insight Center (KIC)
Tanggal rilis : 9 Juni 2021

Produk fashion masih menjadi primadona dengan jumlah transaksi mencapai 22%

Transformasi Sketsa

Proses yang lama dan tidak efisien dalam mendesain produk secara manual.

Peningkatan permintaan pasar mendorong kemajuan teknologi desain



VALUE TO BUSINESS

Value To Business

Problem statement

- Desain produk manual dengan waktu cukup lama
- Keterlambatan respon terhadap permintaan pasar
- Biaya operasional yang mahal

Mission Statement

- Mempercepat proses desain
- Menciptakan produk yang lebih personal
- Eksperimen warna dan bahan tanpa prototipe fisik

Value To Business

Stakeholder Customer Segment

- Designer
- Perusahaan fashion
- Enthusiast fashion

Revenue Streams

- Penghasilan dari adsense
- Biaya langganan untuk menggunakan website
- Menyewakan API pada perusahaan


15
4
Delicada, mas poderosa
Preparada para um visual equilibrado? Vamos usar cores claras para dar um pouco de delicadeza a um look de linhas retas mais rígidas.
12
Acessorize-se
As estrelas de hoje serão as cores de uma peça estampada. Vamos repeti-las nas cores dos acessórios criando um look cheio de harmonia.
25
Good vibes
A aposta de hoje é em um visual monocromático em tons muito parecidos, sem cortes na silhueta, para um ar bem refinado.
16
Os opostos se atraem
O look de hoje pode ser todo escuro, mas aí você coloca um acessório claro. Ou o look claro com um ponto de cor escuro que também dá certo!
3
Conectada
A ideia de hoje é conectar formas! Juntar a estampa de poás, com brinco arredondado e bolsa com bolinhas, por exemplo!
8
27
Brilhante
Hoje vamos trazer uma peça com brilho para nos acompanhar durante todo o dia! Se não for muito seu estilo vale trazer o brilho para um acessório menorzinho!
20
Versatilidade
Selecione uma peça que você use no trabalho e incorpore no look do fim de semana. Ou escolha algo que você use mais nos momentos de lazer e varie juntando ao look de trabalho (vale um acessório, lenço, sapato desde que funcione em seu dress code!).
24
De ponta a ponta
Que tal conectarmos a cor dos sapatos aos nossos acessórios? O look pode ser super neutro, mas esse truque deixa tudo mais interessante, experimente!
26
Monocromáticos
Essa harmonia de cores da mesma família fica ainda mais incrível quando misturamos diferentes texturas e materiais! Vamos praticar?!
9
Clareou
Nosso look do dia será em tons neutros claros misturados a coloridos também claros! Sofisticado, hein?!

DATASET

Dataset

Dataset bersumber dari kaggle dengan jumlah data 9554

Train : 6691



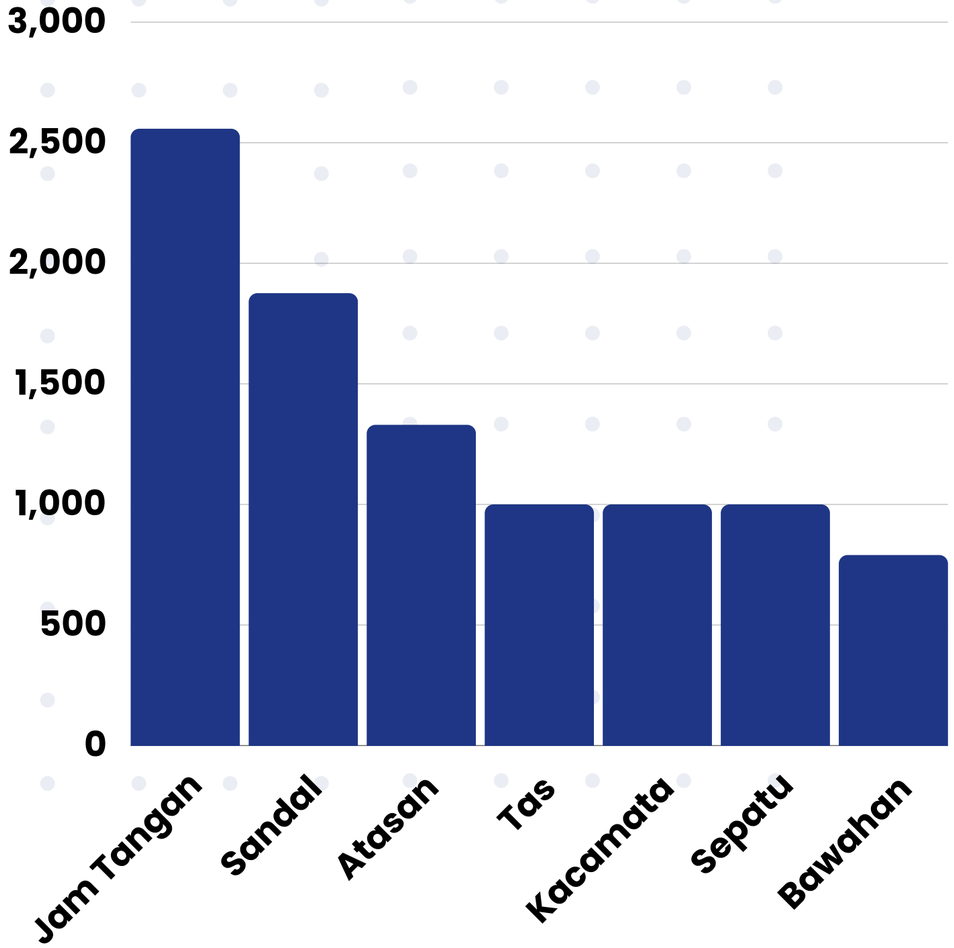


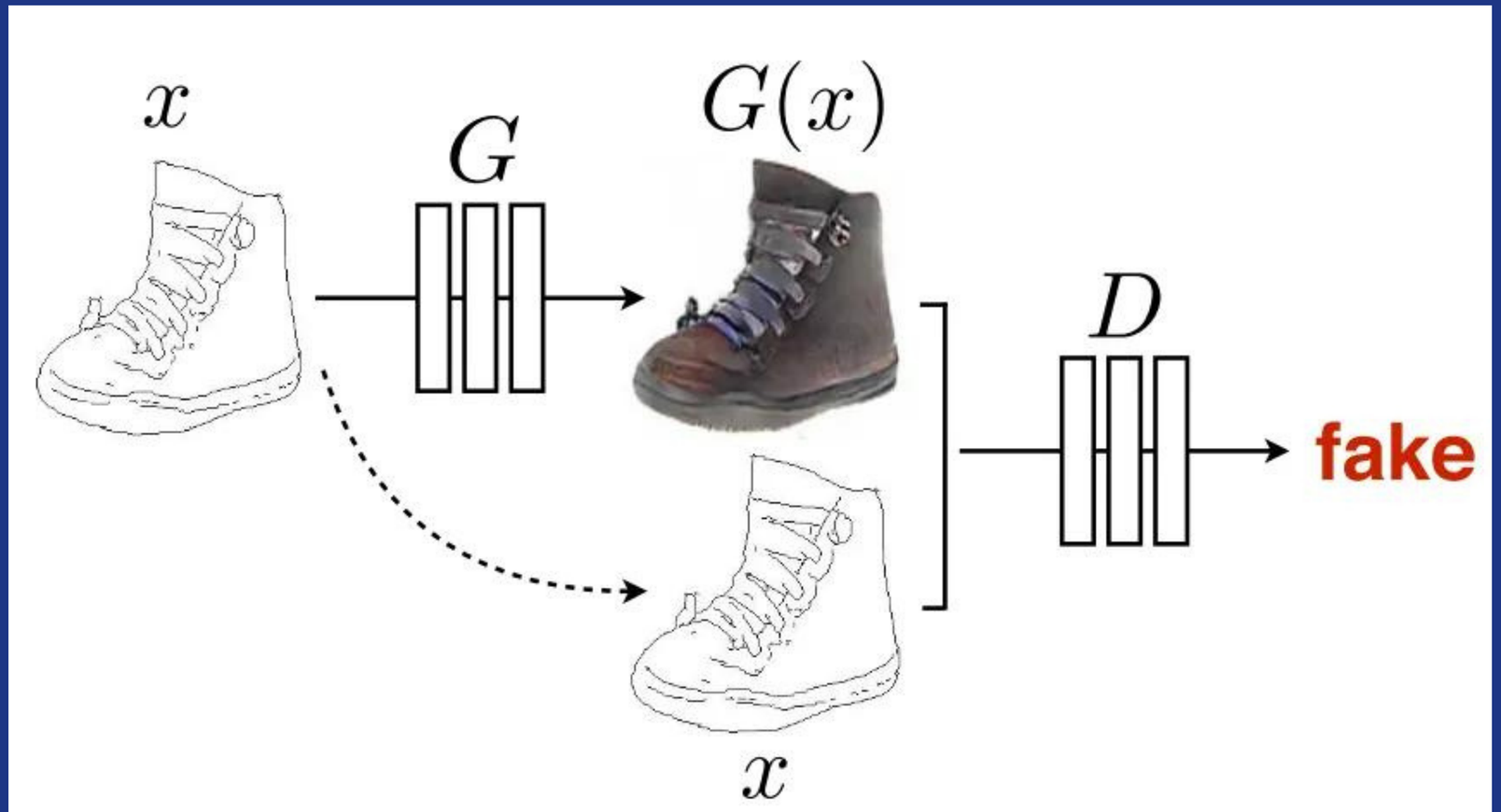
Test : 1906




Valid : 957





METODE (MODEL)

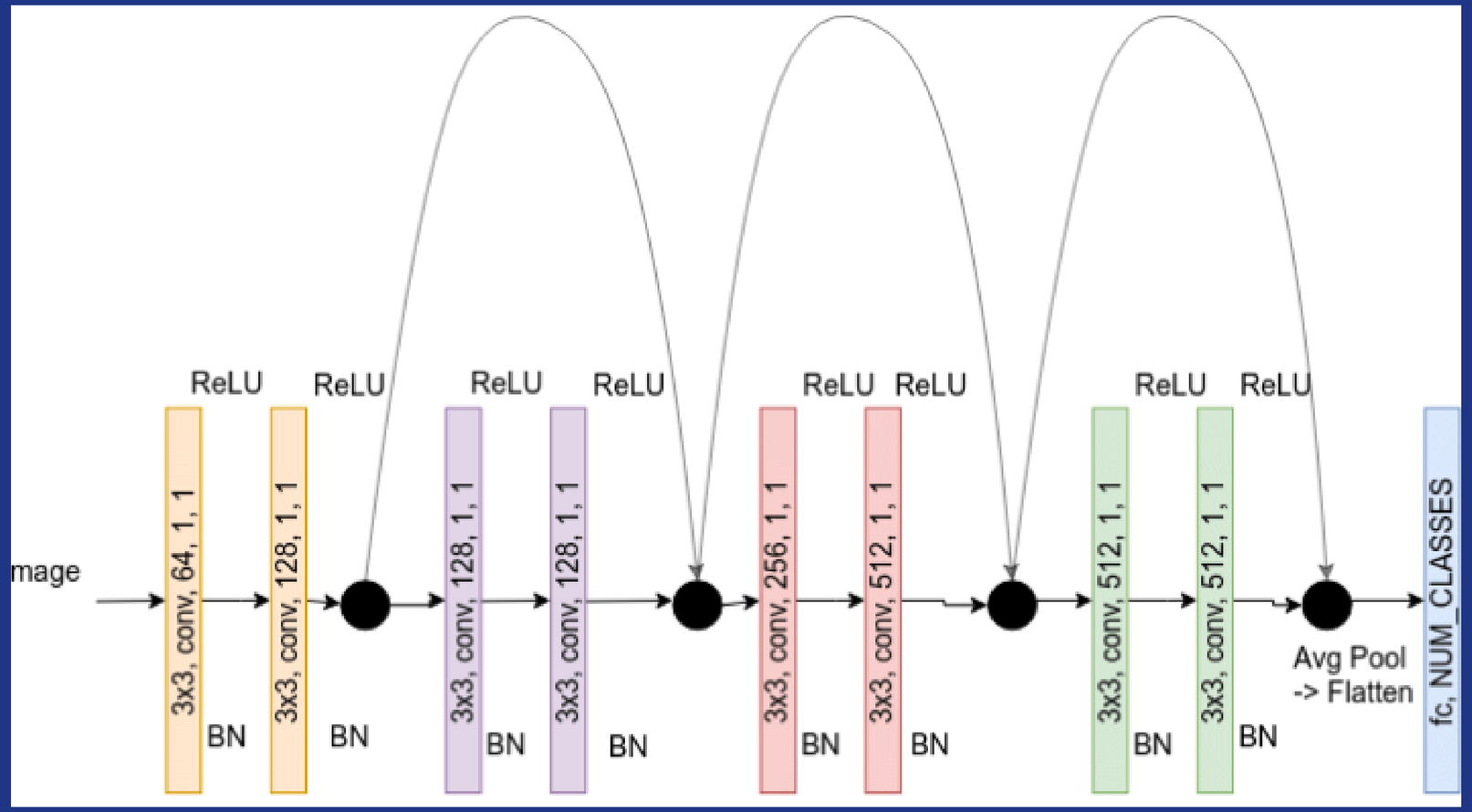
Pix2Pix

LITERATUR REVIEW

Model pix2pix mempelajari cara mengonversi gambar bertipe “A” menjadi gambar bertipe “B”, atau sebaliknya. Sebagai contoh, dimana A adalah gambar hitam putih dan B adalah versi warna RGB dari A.

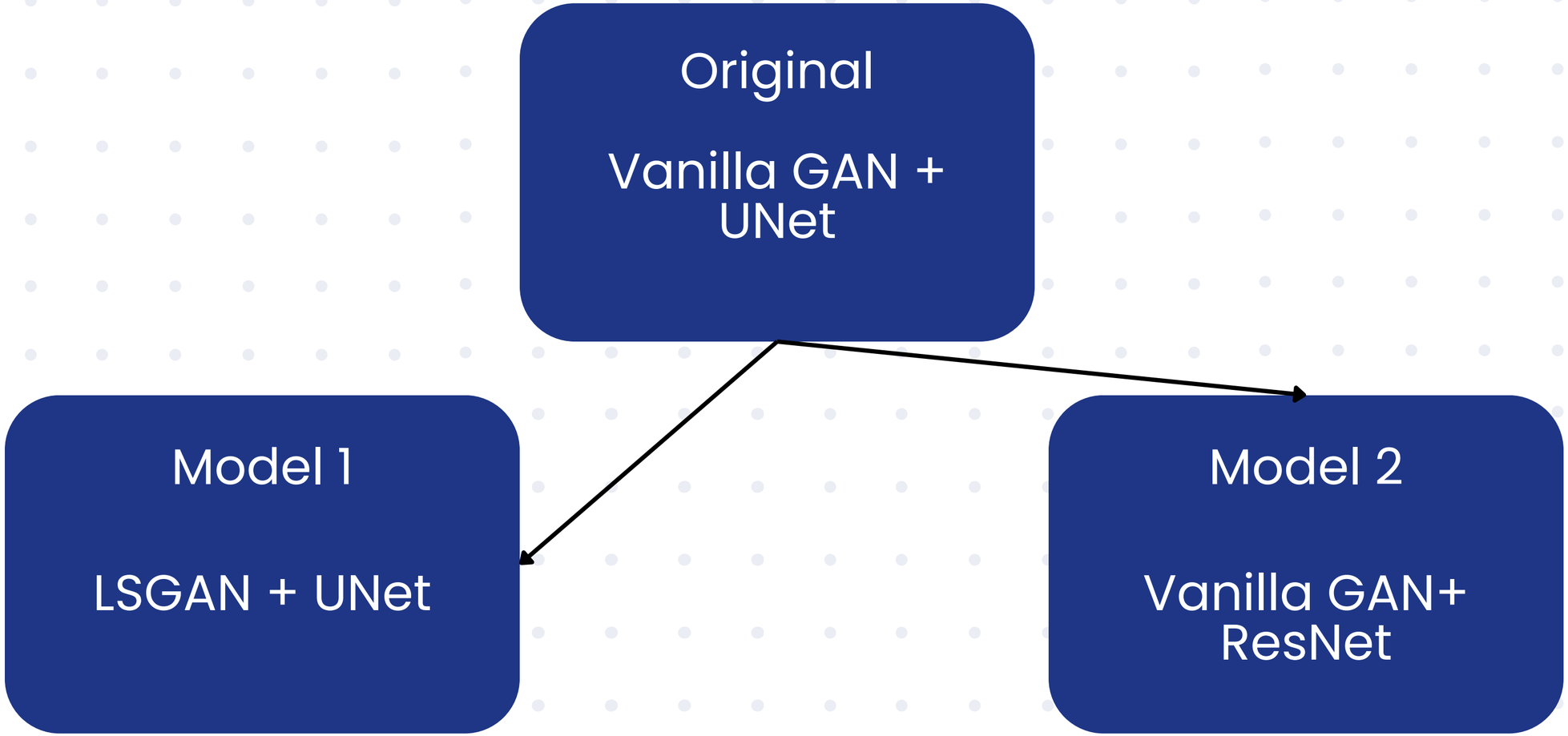
MENGAPA???

- Model relatif sederhana
- Hasil gambar berkualitas tinggi


mage
3x3, conv, 64, 1, 1
BN
ReLU
3x3, conv, 128, 1, 1
BN
ReLU
3x3, conv, 128, 1, 1
BN
ReLU
3x3, conv, 128, 1, 1
BN
ReLU
3x3, conv, 256, 1, 1
BN
ReLU
3x3, conv, 512, 1, 1
BN
ReLU
3x3, conv, 512, 1, 1
BN
ReLU
3x3, conv, 512, 1, 1
BN
ReLU
Avg Pool
-> Flatten
fc, NUM_CLASSES

MODIFIKASI

Modifikasi


Original
Vanilla GAN + UNet
Model 1
LSGAN + UNet
Model 2
Vanilla GAN+ ResNet

Modifikasi
Model 1

```
super(GANLoss, self).__init__()
self.register_buffer('real_label', torch.tensor(target_real_label))
self.register_buffer('fake_label', torch.tensor(target_fake_label))
self.gan_mode = gan_mode
if gan_mode == 'lsgan':
    self.loss = nn.MSELoss()
elif gan_mode == 'vanilla':
    self.loss = nn.BCEWithLogitsLoss()
elif gan_mode in ['wgangp']:
    self.loss = None
else:
    raise NotImplementedError('gan mode %s not implemented' % gan_mode
```

Before

Dari Model Arsitektur Vanilla Gan Dengan U-net Menjadi LS gan dengan U-net

```
super(GANLoss, self).__init__()
self.register_buffer('real_label', torch.tensor(target_real_label))
self.register_buffer('fake_label', torch.tensor(target_fake_label))
self.gan_mode = gan_mode
if gan_mode == 'lsgan':
    self.loss = nn.MSELoss()
elif gan_mode == 'vanilla':
    self.loss = nn.BCEWithLogitsLoss()
elif gan_mode in ['wgangp']:
    self.loss = None
else:
    raise NotImplementedError('gan mode %s not implemented' % gan_mode)
```

After

Modifikasi
Model 2

```python
class GeneratorUNet(nn.Module):
  def __init__(self, in_channels=3, out_channels=3):
    super(GeneratorUNet, self).__init__()

    self.down1 = UNetDown(in_channels, 64, normalize=False)
    self.down2 = UNetDown(64, 128)
    self.down3 = UNetDown(128, 256)
    self.down4 = UNetDown(256, 512, dropout=0.5)
    self.down5 = UNetDown(512, 512, dropout=0.5)
    self.down6 = UNetDown(512, 512, dropout=0.5)
    self.down7 = UNetDown(512, 512, dropout=0.5)
    self.down8 = UNetDown(512, 512, normalize=False, dropout=0.5)
```

Before

Dari Model Arsitektur Vanilla Gan Menggunakan U-net Menjadi Vanilla Gan dengan Resnet

```python
class GeneratorResNet(nn.Module):
    def __init__(self, in_channels, out_channels, num_residual_blocks=9):
        super(GeneratorResNet, self).__init__()

        # Initial convolutional layer
        self.initial = nn.Sequential(
            nn.Conv2d(in_channels, 64, kernel_size=7, stride=1, padding=3),
            nn.InstanceNorm2d(64),
            nn.ReLU(inplace=True),
        )
```

After

CAKUPAN KASUS

Cakupan Kasus ?

1. Image to image Translation untuk produk fashion
2. E-commerce
3. Desain produk otomatis

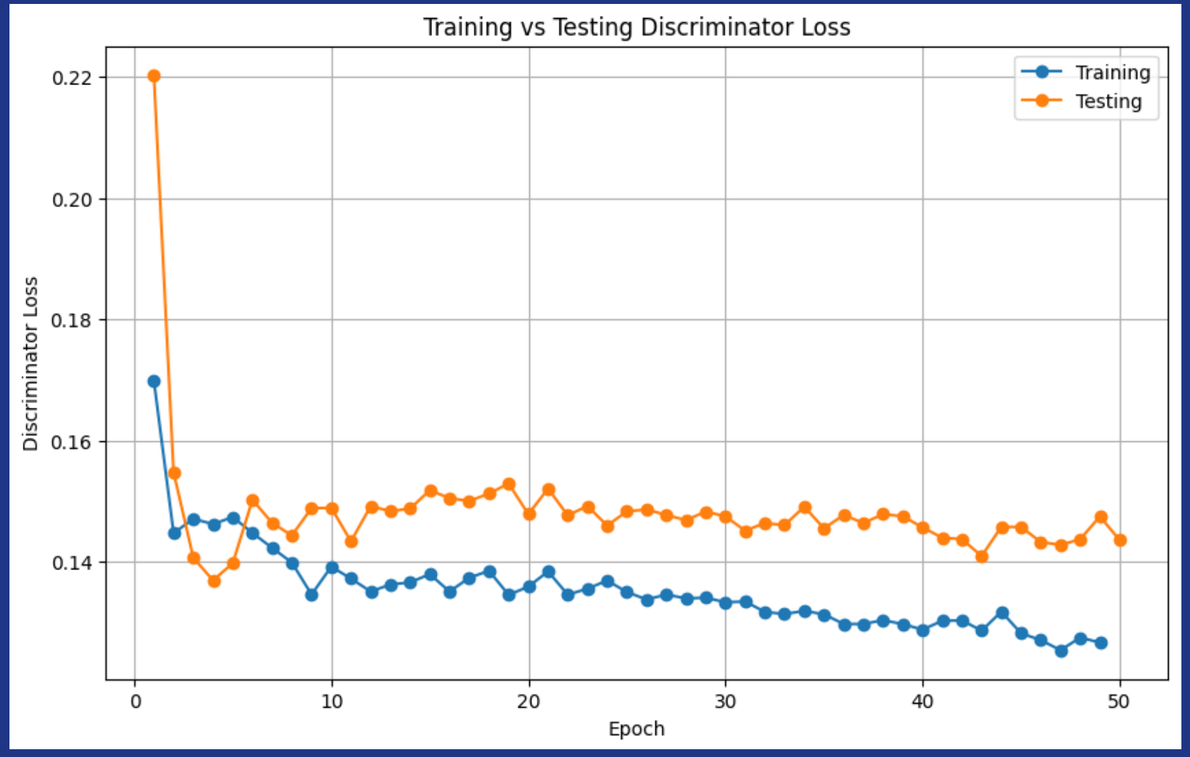
HASIL DAN TINGKAT AKURASI

Hasil & Tingkat Akurasi

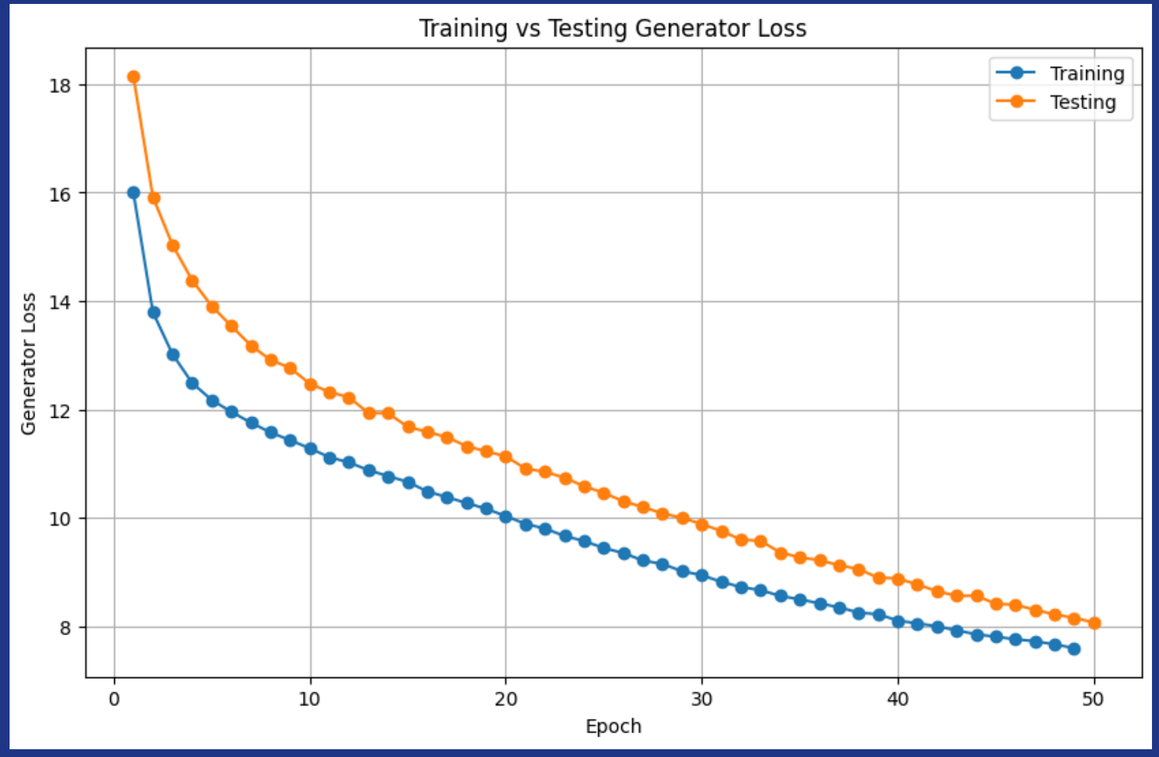
MODEL	EPOCH	LEARNING RATE	BATCH SIZE	INCEPTION SCORE	AVERAGE PSNR
Original	50	0,0002	36	0,657	13,03 DB
Is gan/u-net	50	0,0002	36	0,789	17,21 DB
vanilla gan/resnet	50	0,0002	36	1,307	34,0 DB

Visualisasi Loss Model 2

DISCRIMINATOR LOSS



GENERATOR LOSS



Visualisasi Inference

Ground Truth

Sketch

Visualisasi Inference

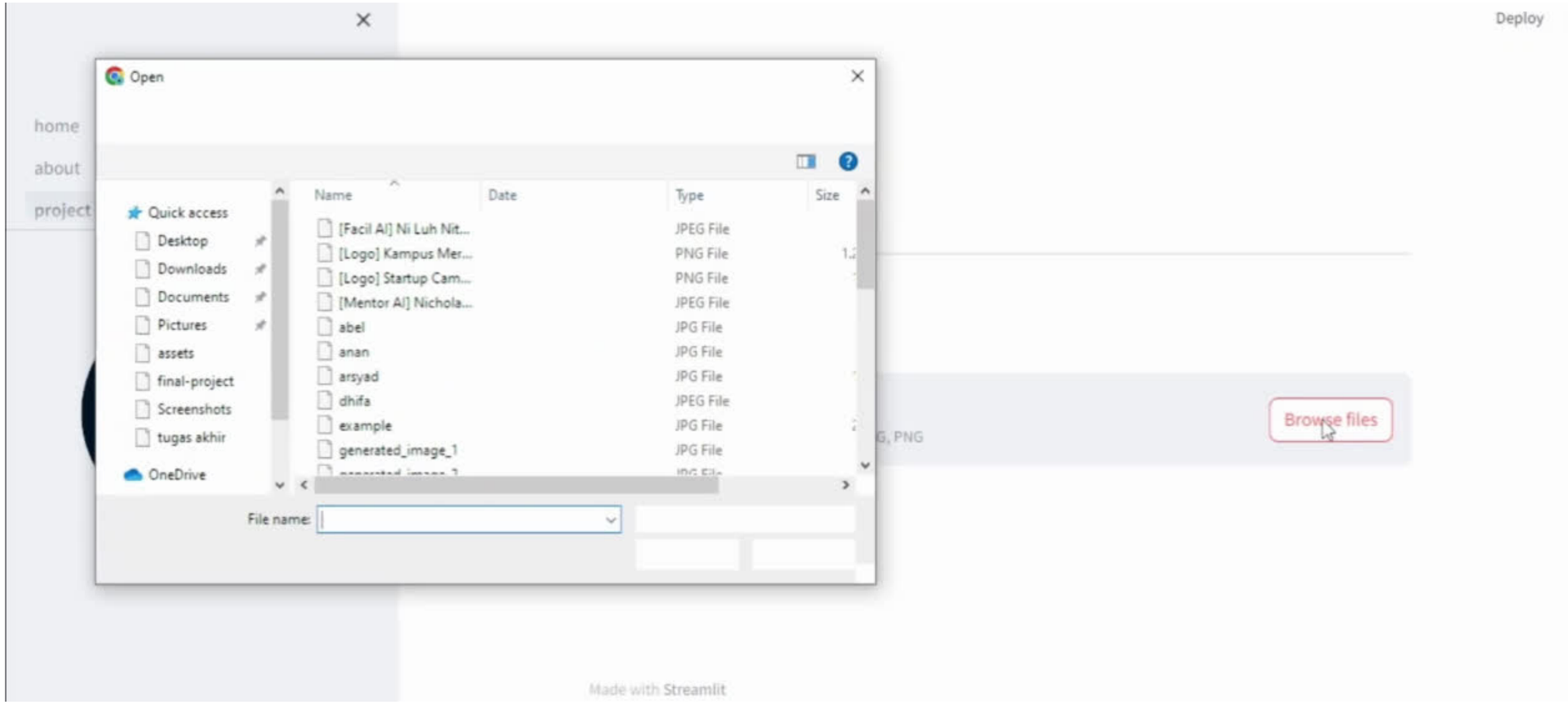
Original

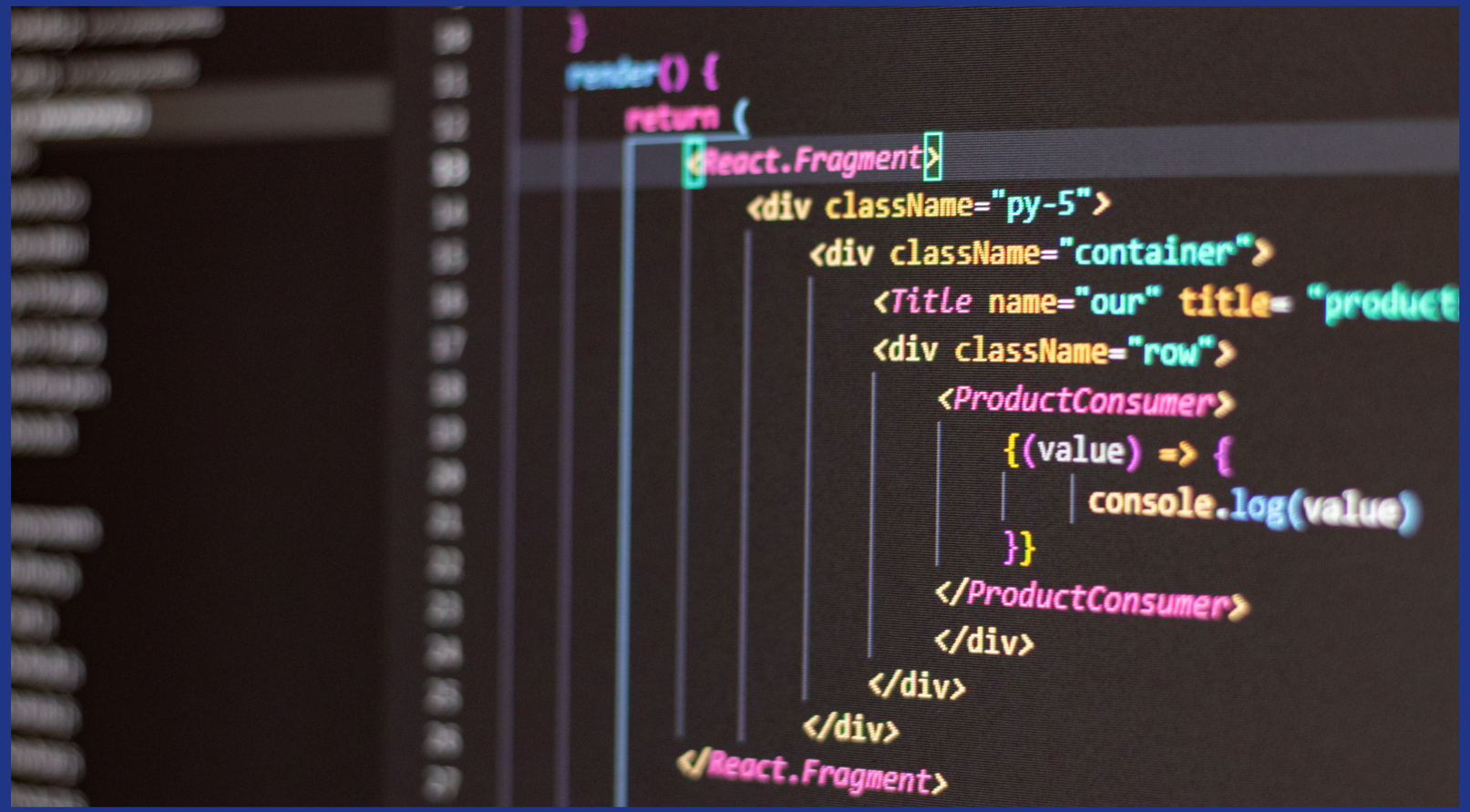
Model 1

Model 2

HASIL DEPLOYMENT

Hasil Deployment

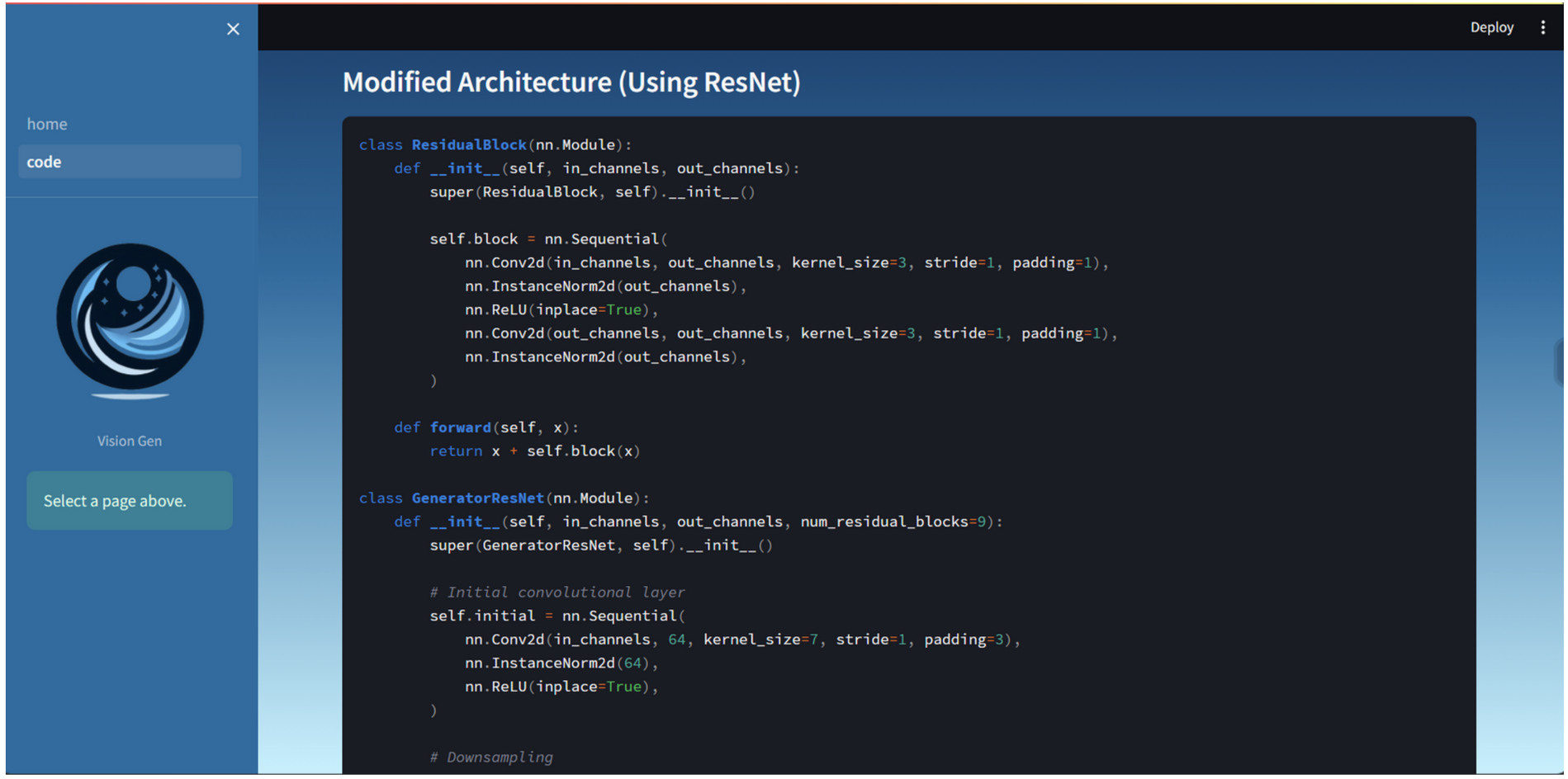




DEMO KODE DAN TEST IMAGE

Demo kode & Test image

Demo kode & Test image



Karena dimulai, maka juga akan diakhiri. Jika diakhiri tanpa memulai itu bukan presentasi melainkan masalah hati

THANK YOU