

Demo Day Final Report

Machine Learning with TensorFlow Training Professional Academy Digital Talent Scholarship 2022

| | |
|---------------|---|
| Group Number | Fin_2 |
| Dataset | Fintech/Banking and Finance |
| Name - DTS ID | <div>1. Budianto - 152236035101-671B</div> <div>2. Candra Kurniawan - 152236035101-768</div> <div>3. Dhianaufal - 152236035101-402</div> <div>4. Dimas Elang Setyoko - 152236035101-519</div> <div>5. Nurmansyah Amirudin - 152236035100-1161</div> |

Selected Theme: [Fintech/Banking and Finance]

Title of the Project: [Churn Customer Prediction]

Background Summary:

Saat ini sangat lazim ditemukan beberapabisnis yang menawarkan produk ataupun layanan yang serupa. Hal tersebut memicu persaingan yang kuat antar pelaku bisnis. Pelanggan merupakan aset yang paling berharga dari semua jenis bisnis. Menarik pelanggan baru memerlukan strategi pemasaran yang tepat namun disisi lain, biaya yang dikeluarkan juga sangat besar bila dibandingkan dengan mempertahankan pelanggan lama. Salah satu cara untuk mengoptimalkan biaya yang dikeluarkan oleh perusahaan adalah dengan mencegah pelanggan lama untuk pindah ke perusahaan lain. Proyek ini bertujuan untuk memprediksi apakah seorang pelanggan akan *churn* dikemudian hari dengan demikian, perusahaan khususnya team pemasaran dapat membuat kebijakan dan strategi pemasaran yang tepat kepada pelanggan lama sehingga meningkatkan loyalitas pelanggan lama.

Deskripsi singkat **Pernyataan Masalah, Pertanyaan Penelitian, Latar belakang masalah, dan Alasan mengapa tim Anda ingin mengatasi masalah tersebut.**

Deskripsi singkat:

Proyek yang akan dikerjakan terbatas pada dua point utama, yaitu melakukan eksplorasi data dan membuat model prediktif. Pada point eksplorasi data, kami akan memulai dengan cleansing dataset seperti menyeragamkan skala, melakukan transformasi feature dan me-manage missing value. Lalu yang dilakukan setelah itu adalah mengeksplorasi dataset dan hasil yang diperoleh adalah informasi terkait perilaku pelanggan. Pada point berikutnya, hal yang dilakukan adalah membuat model dan melakukan beberapa eksprimen terhadap arsitektur dan hyperparameter. Hasil eksprimen yang menunjukkan hasil yang positif akan kami gunakan sebagai final model

Please specifically mention what you’ve done:

1. [Budianto - 152236035101-671B] : **[Tidak kembali]**
2. [Candra Kurniawan - 152236035101-768] : [Proposal, Scripts, Ppt, & Video]
3. [Dimas Elang Setyoko – 152236035101-519] : [Proposal, Scripts, Ppt, & Video]
4. [Dhianaufal - 152236035101-402] : [Proposal, Scripts, Ppt, & Video]
5. [Nurmansyah Amirudin - 152236035100-1161] : **[Tidak Kembali]**

| Milestone description | Category | Assigned to | Progress | Start | Days |
|--------------------------------|-----------|-----------------------|----------|------------|------|
| Creating Proposal | | | | | |
| Brainstorming Proposal | Milestone | Candra, Dimas & Dhian | 25% | 17/07/2022 | 1 |
| Dividing Task making Proposal | On Track | Candra, Dimas & Dhian | 25% | 18/07/2022 | 1 |
| Creating Proposal | Med Risk | Candra, Dimas & Dhian | 50% | 19/07/2022 | 1 |
| Collect our Proposal in a docx | Goal | Candra, Dimas & Dhian | 100% | 20/07/2022 | 1 |

Code the machine learning project

| | | | | | | |
|------------------------------|-----------|-----------------------|-------------|------|------------|---|
| Brainstorming our dataset | Milestone | Candra, Dimas & Dhian | <div></div> | 10% | 21/07/2022 | 1 |
| Load the train and test data | Low Risk | Candra, Dimas & Dhian | <div></div> | 10% | 21/07/2022 | 7 |
| Define the keras model | Med Risk | Candra, Dimas & Dhian | <div></div> | 30% | 22/07/2022 | 6 |
| Compile Keras Model | Med Risk | Candra, Dimas & Dhian | <div></div> | 10% | 23/07/2022 | 5 |
| Fit Keras Model | Med Risk | Candra, Dimas & Dhian | <div></div> | 20% | 24/07/2022 | 4 |
| Evaluate Keras Model | Med Risk | Candra, Dimas & Dhian | <div></div> | 20% | 25/07/2022 | 3 |
| Make a Predictions | Goal | Candra, Dimas & Dhian | <div></div> | 100% | 26/07/2022 | 2 |

Making the Video Proposal

| | | | | | | |
|---------------------------|----------|-----------------------|-------------|------|------------|---|
| Record video Presentation | Low Risk | Candra, Dimas & Dhian | <div></div> | 50% | 25/07/2022 | 2 |
| Upload our video | Goal | Candra, Dimas & Dhian | <div></div> | 100% | 26/07/2022 | 2 |

Github repo & Documentation

| | | | | | | |
|------------------------------------|----------|-----------------------|-------------|------|------------|---|
| Create the repo & Upload the codes | Low Risk | Candra, Dimas & Dhian | <div></div> | 100% | 17/07/2022 | 7 |
| making the Final Documentation | Goal | Candra, Dimas & Dhian | <div></div> | 100% | 21/07/2022 | 7 |

Screenshot Output Model :

1. Kami mencoba melakukan fitting model dengan 100 Epochs dan juga 200 Epochs, dan melakukan plotting loss & accuracy.
2. 100 Epochs

Model: "sequential"

| Layer (type) | Output Shape | Param # |
|---------------------|--------------|---------|
| dense (Dense) | (None, 256) | 10240 |
| dropout (Dropout) | (None, 256) | 0 |
| dense_1 (Dense) | (None, 128) | 32896 |
| dropout_1 (Dropout) | (None, 128) | 0 |
| dense_2 (Dense) | (None, 64) | 8256 |
| dense_3 (Dense) | (None, 1) | 65 |

Total params: 51,457

Trainable params: 51,457

Non-trainable params: 0

Epoch 3/100

283/283 [=====] - 1s 3ms/step - loss: 0.2278 - accuracy: 0.9016 - val_loss: 0.2290 - val_accuracy: 0.8990 - lr: 0.0010

Epoch 4/100

283/283 [=====] - 1s 4ms/step - loss: 0.2242 - accuracy: 0.9036 - val_loss: 0.2286 - val_accuracy: 0.8991 - lr: 0.0010

Epoch 5/100

283/283 [=====] - 1s 4ms/step - loss: 0.2209 - accuracy: 0.9037 - val_loss: 0.2263 - val_accuracy: 0.8995 - lr: 0.0010

Epoch 6/100

283/283 [=====] - 1s 3ms/step - loss: 0.2174 - accuracy: 0.9065 - val_loss: 0.2259 - val_accuracy: 0.8985 - lr: 0.0010

Epoch 7/100

283/283 [=====] - 1s 4ms/step - loss: 0.2138 - accuracy: 0.9072 - val_loss: 0.2244 - val_accuracy: 0.8993 - lr: 0.0010

Epoch 8/100

283/283 [=====] - 1s 4ms/step - loss: 0.2126 - accuracy: 0.9070 - val_loss: 0.2228 - val_accuracy: 0.8998 - lr: 0.0010

Epoch 9/100

283/283 [=====] - 1s 4ms/step - loss: 0.2093 - accuracy: 0.9074 - val_loss: 0.2260 - val_accuracy: 0.8958 - lr: 0.0010

Epoch 10/100

283/283 [=====] - 2s 6ms/step - loss: 0.2077 - accuracy: 0.9094 - val_loss: 0.2216 - val_accuracy: 0.8989 - lr: 0.0010

Epoch 11/100

283/283 [=====] - 2s 6ms/step - loss: 0.2073 - accuracy: 0.9098 - val_loss: 0.2240 - val_accuracy: 0.8999 - lr: 0.0010

Epoch 12/100

283/283 [=====] - 2s 7ms/step - loss: 0.2032 - accuracy: 0.9113 - val_loss: 0.2215 - val_accuracy: 0.9022 - lr: 0.0010

Epoch 13/100

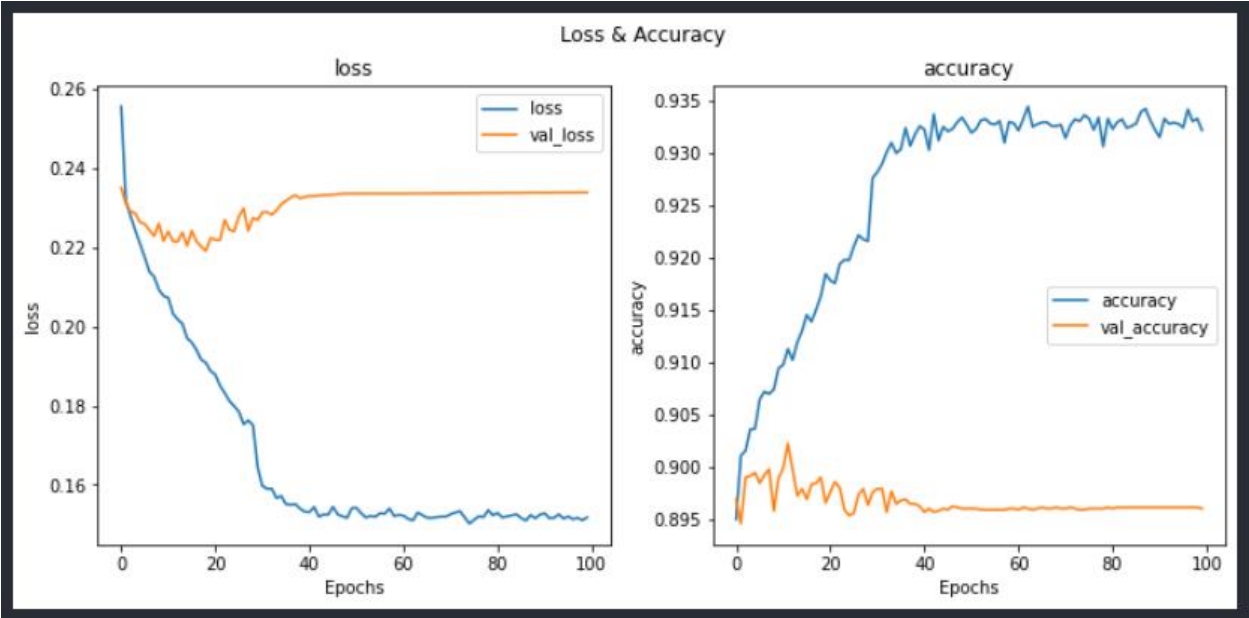
...

Epoch 99/100

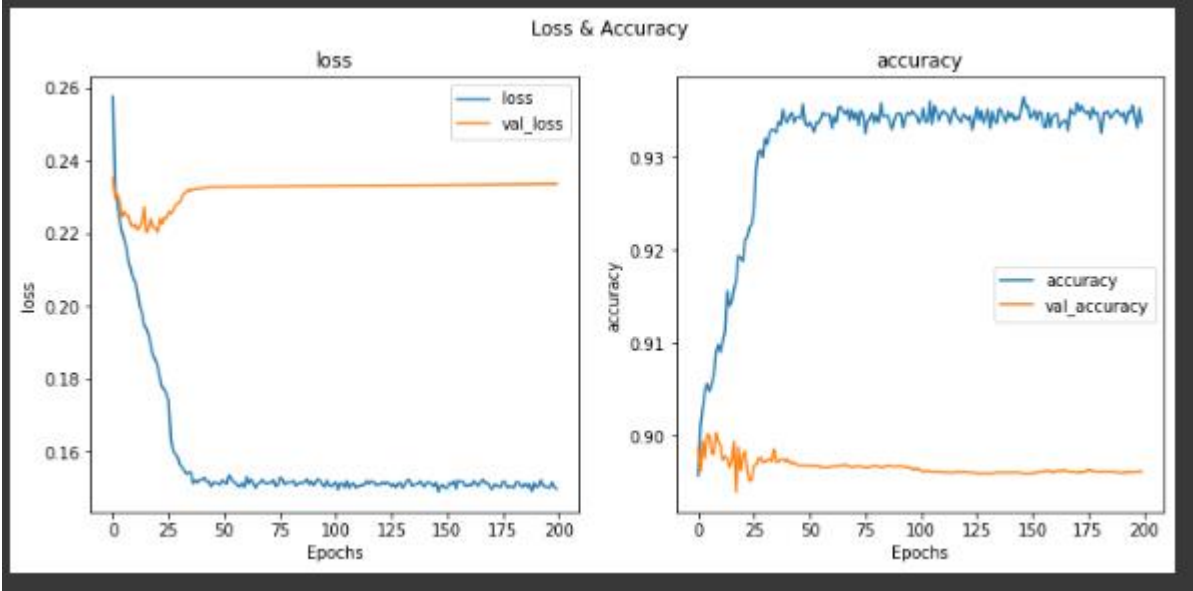
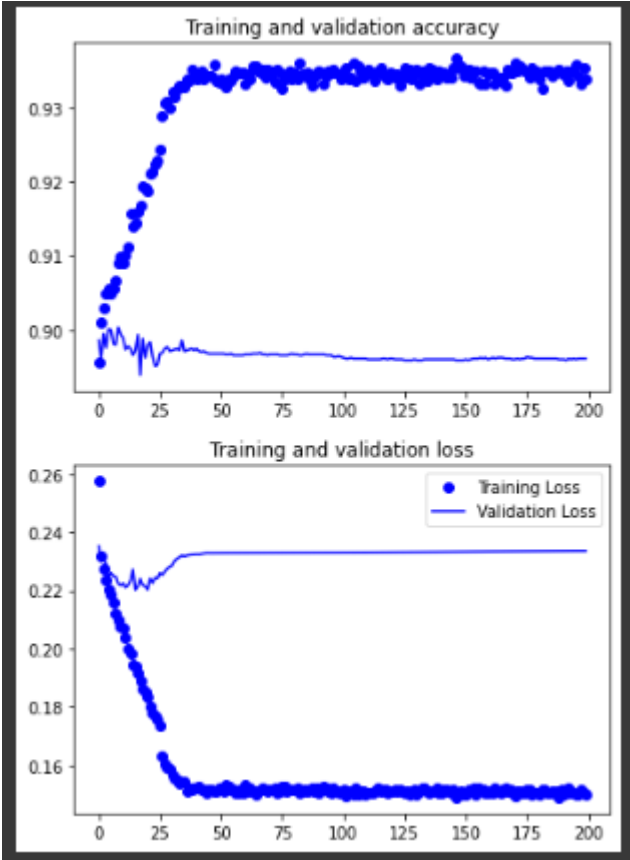
283/283 [=====] - 1s 4ms/step - loss: 0.1511 - accuracy: 0.9333 - val_loss: 0.2338 - val_accuracy: 0.8962 - lr: 1.0000e-06

Epoch 100/100

283/283 [=====] - 1s 4ms/step - loss: 0.1518 - accuracy: 0.9321 - val_loss: 0.2338 - val_accuracy: 0.8961 - lr: 1.0000e-06



3. 200 Epochs dan melakukan predict pada X_test dan y_test



```
### Setelah melakukan training the model, selanjutnya kami mencoba untuk memprediksi ke X_test (data baru)

## melakukan konversi probabilitas menjadi 0 or 1 untuk memprediksi data kolom y
predictions = (model.predict(X_test) > 0.5).astype(int)

# summarize the first 5 cases
for i in range(50):
    print('%s => %d (expected %d)' % (X_test[i].tolist(), predictions[i], y_test[i]))

"""print('Classification Report')
target_names = ['0', '1']
print(classification_report(X_test, y_pred, target_names=target_names))
"""

70158, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
58, 2.8679268884263003, -0.20666126714374117, -0.18466538882663303, -2.117626156373252, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
609270158, 2.8679268884263003, -0.20666126714374117, -0.18466538882663303, -2.117626156373252, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
86520137507, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
986520137507, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
09270158, 2.8679268884263003, -0.20666126714374117, -0.18466538882663303, -2.117626156373252, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
70158, -0.34868392358102396, 4.838836100353822, -0.18466538882663303, -2.117626156373252, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
609270158, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
6520137507, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
0, 2.8679268884263003, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
137507, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
270158, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
609270158, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
609270158, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 1 (expected 1)
9270158, 2.8679268884263003, -0.20666126714374117, -0.18466538882663303, -2.117626156373252, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
9270158, -0.34868392358102396, -0.20666126714374117, -0.18466538882663303, 0.47222688338561514, 0.16805648040528232, -0.1648025541661214, -0.03203980937953267] => 0 (expected 0)
```

Github Repo Link:

Berikut link repositori team fintech-2 mlt dts tahun 2022

-[https://github.com/Cakurniawan/mlt_fin2_demoday.git]

10-Min Video Presentation Link:

-[<https://youtu.be/0GQFjYB8iV0>]

Project Reference:

Sumber-sumber yang kami gunakan dalam pengerjaan proyek Machine Learning kami sebagai berikut:

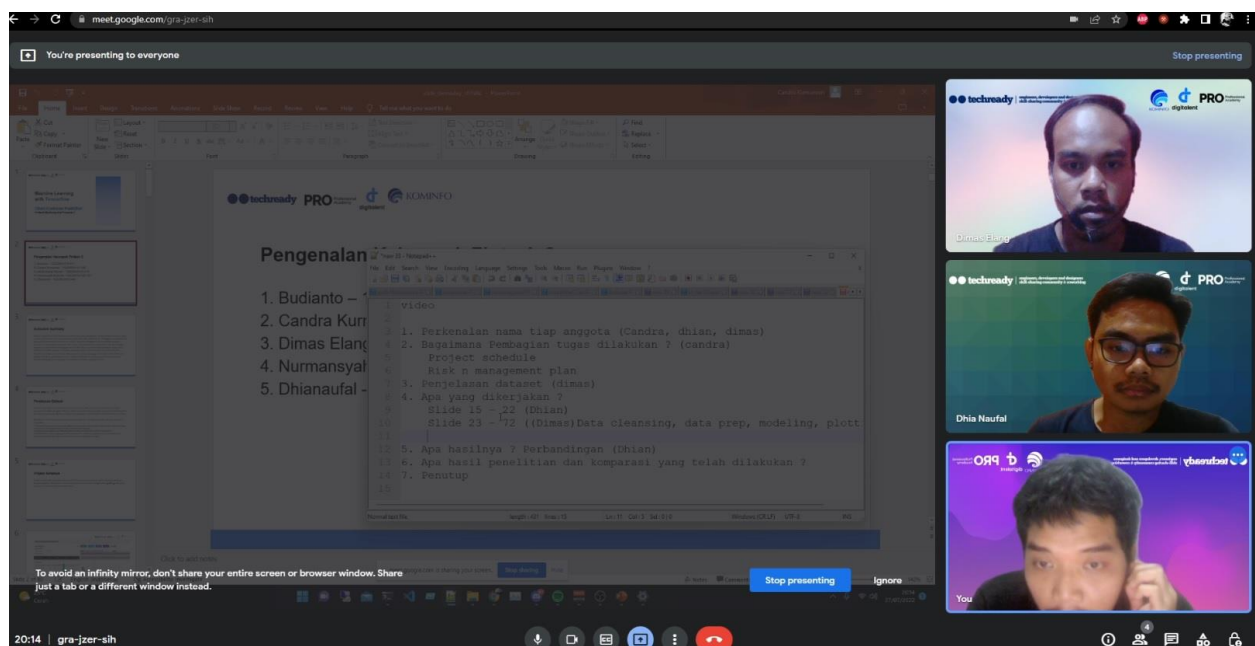
1. <https://keras.io/>
2. <https://www.tensorflow.org/>
3. <https://www.google.com/>
4. <https://machinelearningmastery.com/tutorial-first-neural-network-python-keras/>
5. <https://machinelearningmastery.com/binary-classification-tutorial-with-the-keras-deep-learning-library/>

Documentation:

Dalam mengerjakan tugas proyek DTS-MLT2 Tahun 2022, kami selaku team Fintech_2 mengerjakan tugas secara bersama-sama melewati aplikasi Discord dan untuk pengerjaan tugas Video kami melakukan via google meet,

Dan untuk dokumentasi mengenai jadwal pengerjaan proyek, penjelasan script model machine learning terdapat pada file powerpoint kami.

Capture sbb:



FIN_2 MLT2 PRODTS2022

general

26 July 2022

Search

Server Boosts are here! Rally your friends to Boost your server.

See Levels & Perks

INFORMATION

welcome-and-rules

notes-resources

TEXT CHANNELS

general

proposal_fin_2

sesi-record-video

github-repo-demoday

share

slide-ppt

Dhianaufal

Yesterday at 00:11

-*- coding: utf-8 -*-
"""DemoDay.ipynb

Automatically generated by Colaboratory.
Original file is located at

Expand demoday.py 9 KB

DemoDay.ipynb

365.03 KB

kalo gini gmn gengs?
maaf baru beres

candra kurniawan

Yesterday at 00:26

Wedewww jagoo bngt mas dhian (edited)
Itu udah oke banget sih sbnernya
Lnjut pagi kali ya mas coba sy liat lg hehe

Dimas Elang Setyoko

Yesterday at 00:28

Mantap mas, sy tambahi yg pakai model tensorflow ya

candra kurniawan

Yesterday at 00:28

Tpi itu pake skitlearn yah

ONLINE — 1

candra kurniawan

OFFLINE — 3

(kuy)Nurmansyah Am...

Dhianaufal

Dimas Elang Setyoko

FIN_2 MLT2 PRODTS2022

general

26 July 2022

Search

Server Boosts are here! Rally your friends to Boost your server.

See Levels & Perks

INFORMATION

welcome-and-rules

notes-resources

TEXT CHANNELS

general

proposal_fin_2

sesi-record-video

github-repo-demoday

share

slide-ppt

@candra kurniawan

Yesterday at 19:03

ppt nya blm selesai nih, apa sy buat dlu pptnya ya ?

Dhianaufal

Yesterday at 19:04

boleh

@candra kurniawan

Yesterday at 19:04

ppt nya blm selesai nih, apa sy buat dlu pptnya ya ?

Dhianaufal

Yesterday at 19:04

bebas bang

Dimas Elang Setyoko

Yesterday at 19:14

Iya bang, buat point*nya aja dulu. Nanti kita isi pelan²

candra kurniawan

Yesterday at 19:19

okeoke

Dimas Elang Setyoko

Yesterday at 22:59

Sorry ya guys, sy telat ngumpulannya

demoday.ipynb

776.22 KB

Final_Report_Template.docx

228.27 KB

Di laporan, sy baru nambah screenshotnya aja

ONLINE — 1

candra kurniawan

OFFLINE — 3

(kuy)Nurmansyah Am...

Dhianaufal

Dimas Elang Setyoko

FIN_2 MLT2 PRODTS2022

general

27 July 2022

Search

Server Boosts are here! Rally your friends to Boost your server.

See Levels & Perks

INFORMATION

welcome-and-rules

notes-resources

TEXT CHANNELS

general

proposal_fin_2

sesi-record-video

github-repo-demoday

share

slide-ppt

candra kurniawan

Today at 00:45

maaf teman2, saya me-edit sedikit yah file ipynb mas Dimas, sy mencoba melakukan model.fit dengan 200 epochs, dan plotting dgn matplotlib.pyplot dan membuat sedikit prediksi data X_test untuk mengetahui apakah per satu-satu baris masuk kedalam klasifikasi angka 0 atau 1 (edited)

demoday_candra_v1.ipynb 867.85 KB

Dhianaufal

Today at 00:46

okee untuk video besok aja kali ya udah ngantuk

candra kurniawan

Today at 00:46

-*- coding: utf-8 -*-
"""demoday_candra_v1.ipynb

Automatically generated by Colaboratory.
Original file is located at

Expand demoday_candra_v1.py 22 KB

oke mas Dhian, siap cepet kok kyknya, dan juga diupload nyua ke yutub ya, cepet semoga aamiin

Dimas Elang Setyoko

Today at 00:46

Iya mas, udah ngeak memungkinkan juga kalau sekarang harus ngerekam video

ONLINE — 1

candra kurniawan

OFFLINE — 3

(kuy)Nurmansyah Am...

Dhianaufal

Dimas Elang Setyoko

FIN_2 MLT2 PRODTS2022

Server Boosts are here! Rally your friends to Boost your server.

See Levels & Perks

INFORMATION

welcome-and-rules

notes-resources

TEXT CHANNELS

general

proposal_fin_2

sesi-record-video

github-repo-demoday

share

slide-ppt

proposal_fin_2

20 July 2022

candra kurniawan

20/07/2022

dear masbro @Dimas Elang Setyoko

berikut file docs proposal ya bro, yang point 345 sudah ya bro, atau bs masbro apabila ada yg kurang bs saran lagi ke saya

Proposal_Template_Fintech_2.docx

250.05 KB

ganttt_fin_2.xlsx

39.13 KB

Risk_Register_MLT2_DTS2022.xlsx

27.22 KB

yang perlu dilihat yg file Proposal template fintech 2 aja bro gimana masbro ? @Dimas Elang Setyoko

21 July 2022

Dimas Elang Setyoko

21/07/2022

Silahkan mas, mohon koreksinya juga ya mas

Proposal_Template_Fintech_2.docx

250.33 KB

candra kurniawan

21/07/2022

slah mas mantap banget sudah aplikasi yang di bagian Project SCana

ONLINE — 1

candra kurniawan

OFFLINE — 3

(kuy)Nurmansyah Am...

Dhianaufal

Dimas Elang Setyoko

FIN_2 MLT2 PRODTS2022

Server Boosts are here! Rally your friends to Boost your server.

See Levels & Perks

INFORMATION

welcome-and-rules

notes-resources

TEXT CHANNELS

general

proposal_fin_2

sesi-record-video

github-repo-demoday

share

slide-ppt

slide-ppt

1. Nama
2. Alamat
3. Pekerjaan
4. Hobi

untuk ppt pengenalan dahulu

candra kurniawan

Yesterday at 21:29

slide_demoday_v1.pptx

1.89 MB

Dhianaufal

Yesterday at 22:14

mau gimana nih pembagiannya?

candra kurniawan

Yesterday at 22:14

sbnt mas, ktnya mau ada penambahan dari abang Dimass

Dhianaufal

Yesterday at 22:14

okee siap

Dimas Elang Setyoko

Yesterday at 23:38

Ada sedikit tambahan dari sy, selebihnya udah mantap banget ppt-nya

slide_demoday_v1.pptx

1.89 MB

ONLINE — 1

candra kurniawan

OFFLINE — 3

(kuy)Nurmansyah Am...

Dhianaufal

Dimas Elang Setyoko