

### 3-dars (Report)

ML model yaratishi

- Data Collection → Kaggle  
→ github
  - Data Preprocessing
  - Algorithm (model) selection
  - Model training
  - Evaluation
  - Testing
  - Deployment - tayyor modelni production qilish.
  - Monitoring
- MLOPs

1) Data collection (github, kaggle)

2) Data bilan tanishuv

3) 1-qism

Tozalash

Tushirib qoldirilgan qator/ustunlarni tashlab  
Duplicated qator/ustunlarni tashlab yuborishimiz

2-qism

Encoding

3-qism

Scaling

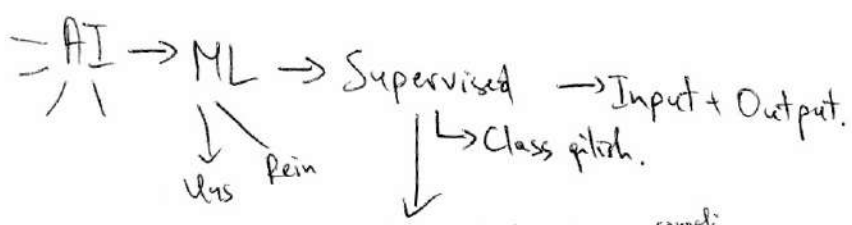
4)

ML model yaratish (2)

1. Input va Outputni aniqlash
2. Datalarni (train, test, qismlar ajratish)
3. Algoritmular tanlash (Linear regression, Logistic regression, DT)
4. Train qilish
5. Test qilish
6. Model Improvement
7. Deployment



- 1) import pandas as pd
- 2.1) df = pd.read\_csv('Copy Relative Path')
- 2) pip install pandas / %pip install pandas / !pip install pandas.
- 3) df.info() # data haqida umumiy ma'lumot olish.
- 4) df.isnull().sum() # tushib qolgan qiymatni aniqlash.
- 4.1) df.isnull() # True/False qilib tushib qolgan qiymatni aniqlab beradi. Har bir qator/ustun bo'yida.
- 4.2) df.isnull().any() # Column bo'yida True/False qilib tushib qolgan qiymatni topish.
- 5) df.tail() # oxirida qator olish/topish.
- 6) df.unique() # har bir ustundagi classlarni soni.
- 6.1) df['Churn'].unique() #
- 6.2) df['Churn'] # har biri qatorni belgilash, (Churn)ning har bir qatori.
- 6.3) df[['Churn', 'gender', 'Contract']] # 3ta column ni har bir qatorini chiqaradi.
- 7) df.head() # bosh qismini chiqaradi.



- 1) Classification turi (sanag'li chekli miqdorda bo'lsa) — Binary (fagat 2 ta)
- 2) Regression turi (cheksiz miqdorda bo'lsa) — multi-class (3+)

Install qilish:

import pandas as pd

- #1. pip install pandas
- #2. % pip install pandas
- #3. !pip install pandas

Terminal → New Terminal → in dars > pip install pandas  
(Qora oyna)

df = pd.read\_csv('Copy - path')

df.head

df.tail

df.unique() # xar bir ustundagi classlar soni

df['Ustun nomi'].unique()

df['Ustun nomi']

df[['Ustun1', 'Ustun2', 'Ustun3']]

df.info()

df.isnull().sum

df.isnull()

df.isnull().any()

Condition:

↓ Ma'lumotlarni boshqarish, nazorat qilish va filtrlash u/n ishlatiladigan kodlar.

• If → Then

# agar son musbat bo'lsa 'Yarshi', aks holda 'Yomon'.

```
a=4
if a>0:
    print('Yarshi')
    ~
    Yarshi.
```

```
a=-4
if a>0:
    print('Yarshi')
    ~
    ('Javob joy')
```

```
a=4
if a>0:
    print('Yarshi')
elif a<0:
    print('Yomon')
else:
    print('0')
    ~
    Yarshi.
```

```
baro=4
if baro==5:
    print('ALO')
elif baro==4:
    print('Yarshi')
elif baro==3:
    print('Urtacha')
elif baro==2:
    print('Yomon')
else:
    print('Yatoli isbot yoki Juda yomon')
```