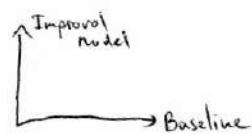


ML model structure

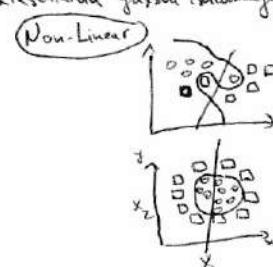
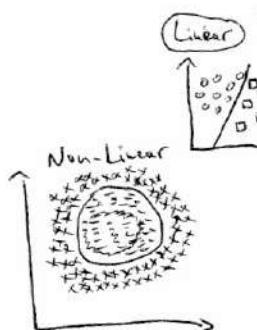
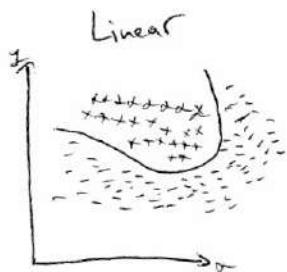
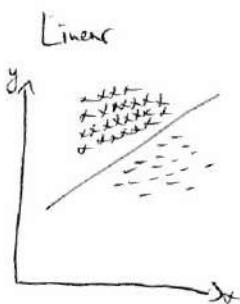
- Data Collection
- Data Preprocessing
- Model (Algorithm) selection
- Model Training → Prediction ($y_{pred} = y_{true} = 1$
 $y_{pred} = 200K$)
- Evaluation
- Testing
- Deployment

Modeling
Testing



- Linear Regression

- Linear Family
- Baseline Model
- Regression (Continuous)
 - Players goals
 - Not injury
- Linear Equation
 - x - input
 - y - output
 - Beta - parameter
 - epsilon - ERROR
epsilon



1) # Linear Regression amaliy

```
from sklearn.linear_model import LinearRegression
```

```
lr = LinearRegression()
```

```
lr
```

2) # Training

```
x = df.drop('Target column', axis=1)
y = df['Target column']
```

```
from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.3, random_state=42)
lr.fit(x_train, y_train)
```

Evaluation - geyidagliarni baxolydiß

prediction genialitik yashis / model ishlaklarini / Generalization? Overfitting? Yollabotish

Evaluation → Classification: → Accuracy score, Classification Report

bilinçli → Regression: → Mean Absolute Error (MAE), Mean Squared Error (MSE), Root Mean Squared Error (RMSE)
R² Score (Coefficient of Determination)

→ Linear Regression (parametr)

- Simple LR
- Multiple LR

Epsilon != 0 (epsilon hechgeker 0 bolmaydi)

→ Kuchlitomurlari:

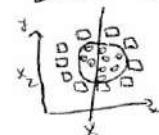
- Terz ussadda
- Kichikroq datalar bijn ishlashda osor
- Baseline model
- Kam shigim

→ Kudelitomurlari:

- Compex (non-linear) larni organa olmaydi
- Yet elemanlarda terz organizatsiya (stabileness)
- Ketke datessellarda yassha ishlamaydi.

Linear

Non-Linear



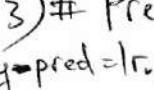
Non-Linear



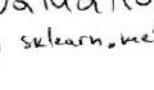
Non-Linear



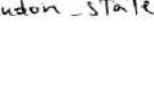
Non-Linear



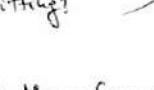
Non-Linear



Non-Linear



Non-Linear



Non-Linear

4) # Evaluation

```
from sklearn.metrics import mean_absolute_error, mean_squared_error, r2_score  
mae = mean_absolute_error(y-test, y-pred)  
mse = mean_squared_error(y-test, y-pred)  
r2 = r2_score(y-test, y-pred)
```