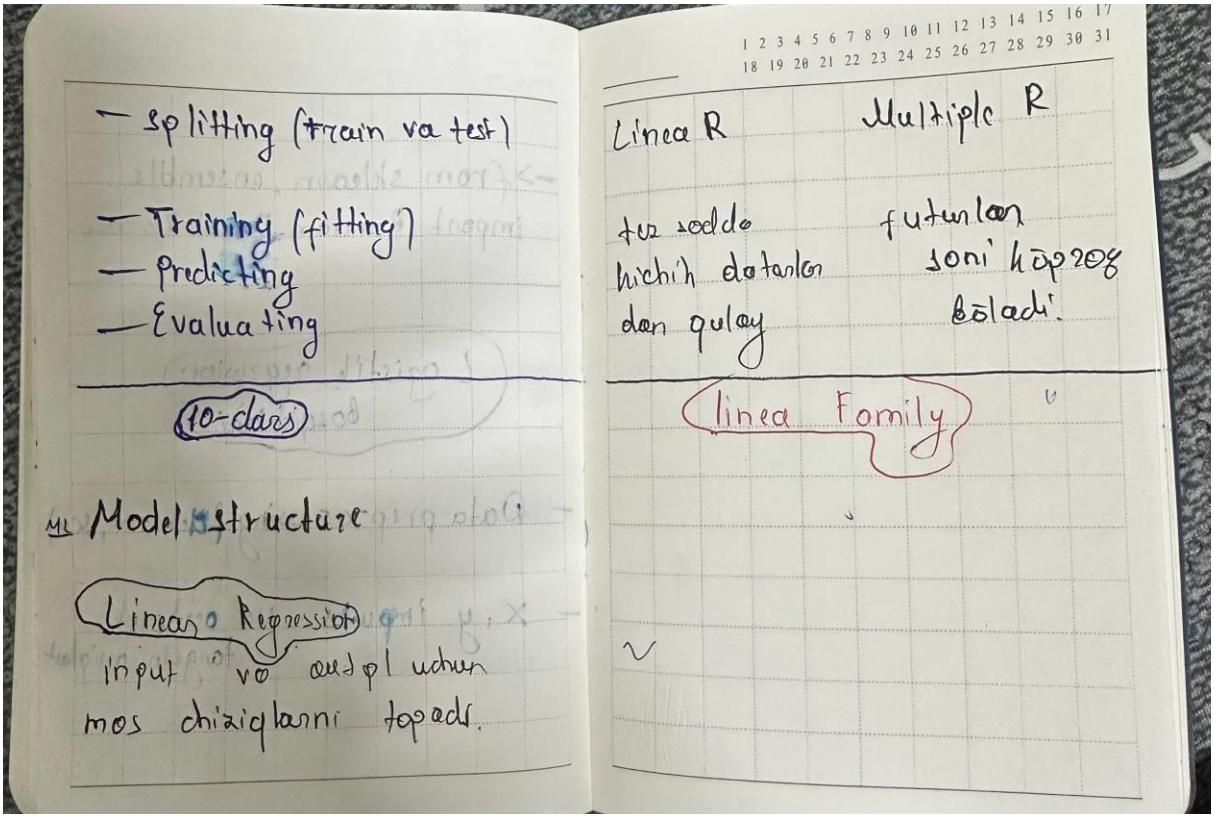


- splitting (train va test)
- Training (fitting)
- predicting
- Evaluating

(10-dars)

ML Model structure

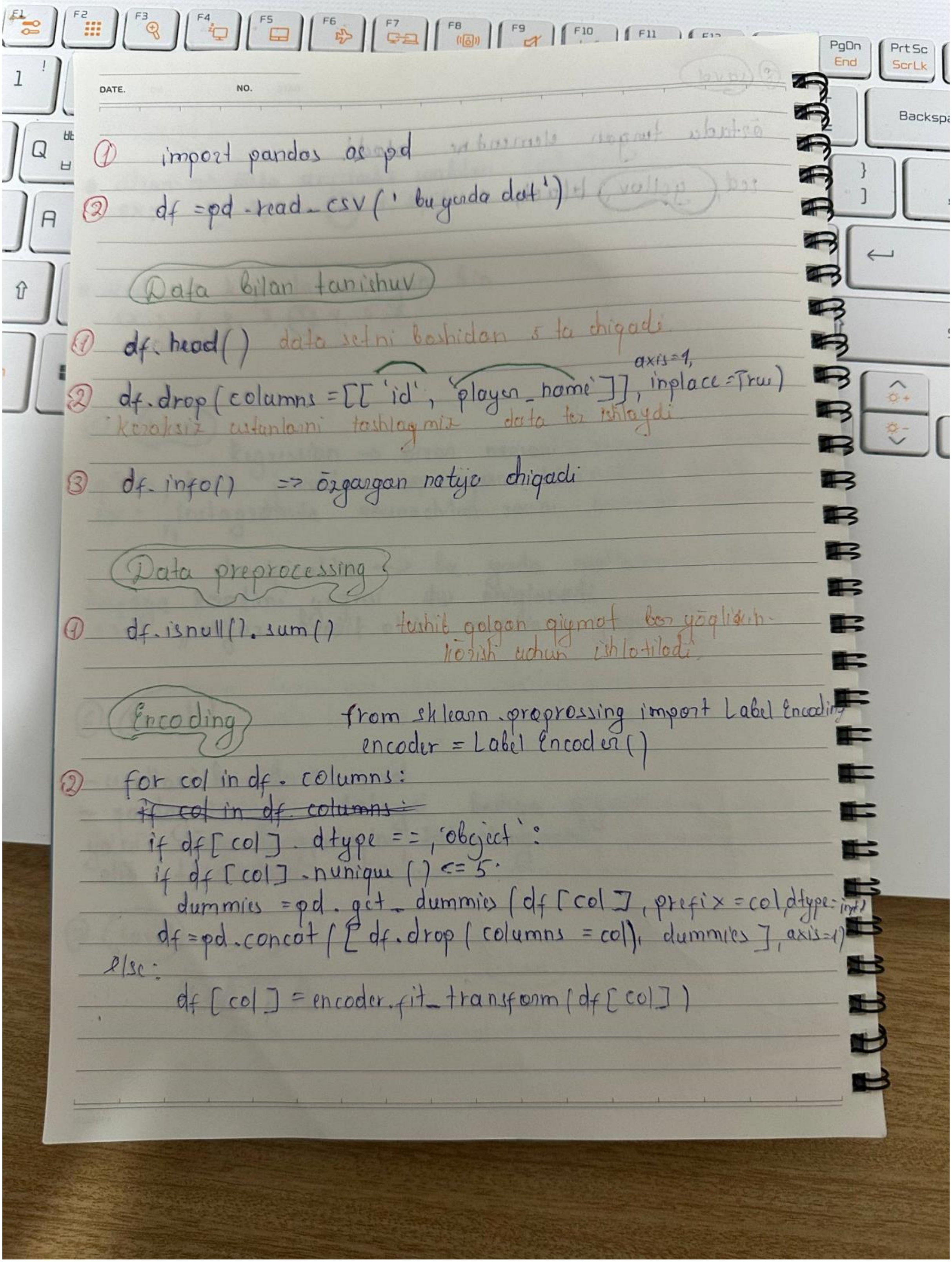
Linear Regression

input va output uchun mos chiziqlarni topadi.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
18 19 20 21 22 23 24 25 26 27 28 29 30 31

Linea R	Multiple R
tez sodda kichik datalar dan qulay	futurlar soni kōproq bōladi.

linea Family



DATE. NO.

① import pandas as pd

② df =pd.read_csv(' bu yerda dat')

Data bilan tanishuv

① df.head() data setni boshidan 5 ta chiqadi

② df.drop(columns =[['id', 'player_name']], axis=1, inplace=True)
keraksiz ustunlarni tashlaymiz data tez ishlaydi

③ df.info() => ōzgargan natija chiqadi

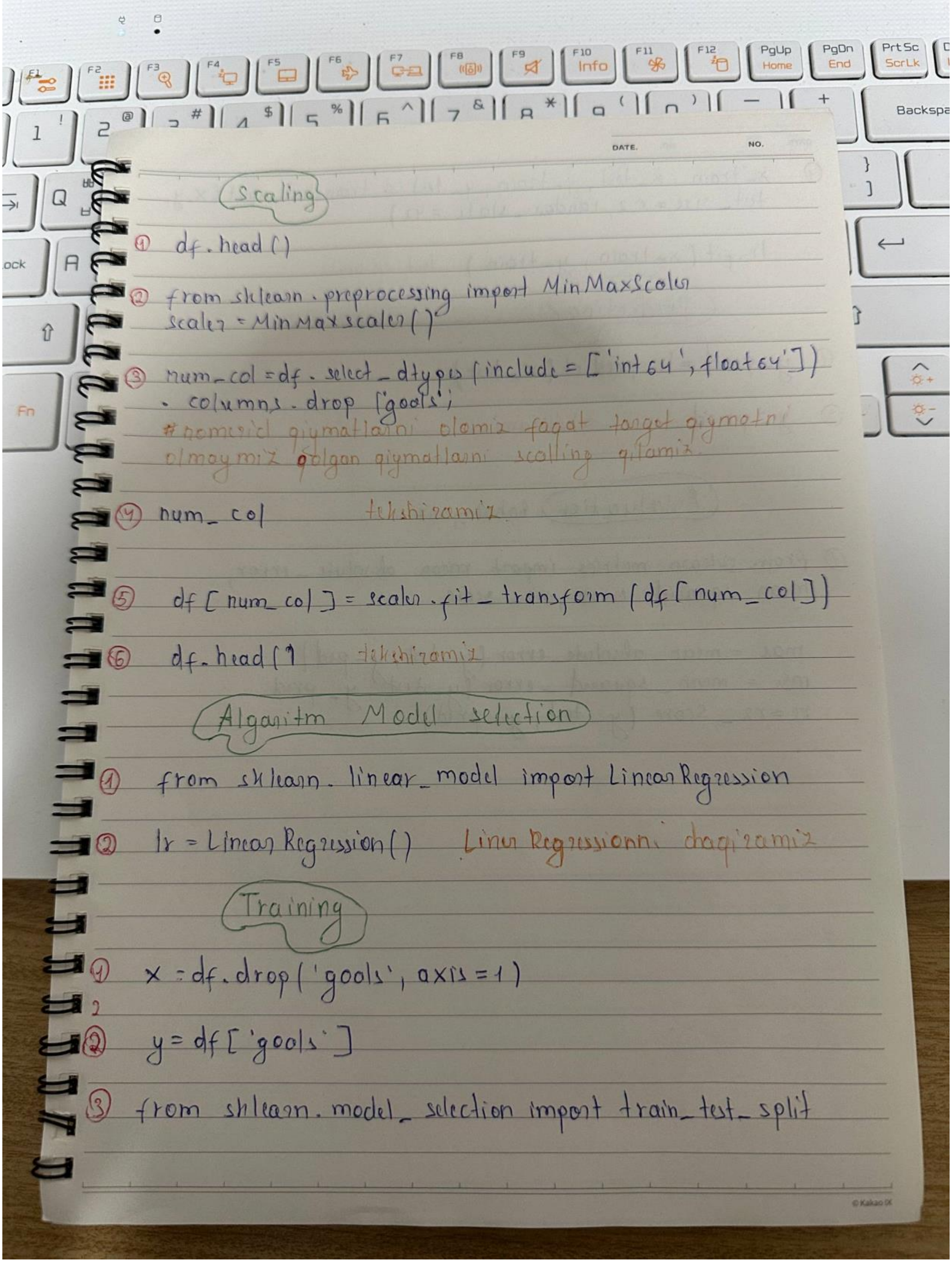
Data preprocessing

① df.isnull().sum() tushib qolgan qiymat bor yōqligini kōrish uchun ishlatiladi

Encoding

```
from sklearn.preprossing import Label Encoding
encoder = Label Encoder()
```

②
```
for col in df.columns:
  ~~if col in df.columns:~~
  if df[col].dtype == 'object':
  if df[col].nunique() <= 5:
    dummies =pd.get_dummies(df[col], prefix=col,dtype=int)
   df=pd.concat([df.drop(columns =col), dummies], axis=1)
else:
    df[col] =encoder.fit_transform(df[col])
```



DATE. NO.

Scaling

① df.head()

② from sklearn.preprocessing import MinMaxScaler
scaler = MinMaxscaler()

③ num_col = df.select_dtypes(include=['int64', float64'])
.columns.drop['gools';
#numerical qiymatlarni olamiz faqat target qiymatni olmaymiz qolgan qiymatlarni scalling qilamiz

④ num_col tekshiramiz

⑤ df[num_col] = scaler.fit_transform(df[num_col])

⑥ df.head() tekshiramiz

Algaritm Model selection

① from sklearn.linear_model import LinearRegression

② lr = LinearRegression() Liner Regressionni chaqiramiz

Training

① x = df.drop('gools', axis=1)

2

② y = df['gools']

③ from sklearn.model_selection import train_test_split

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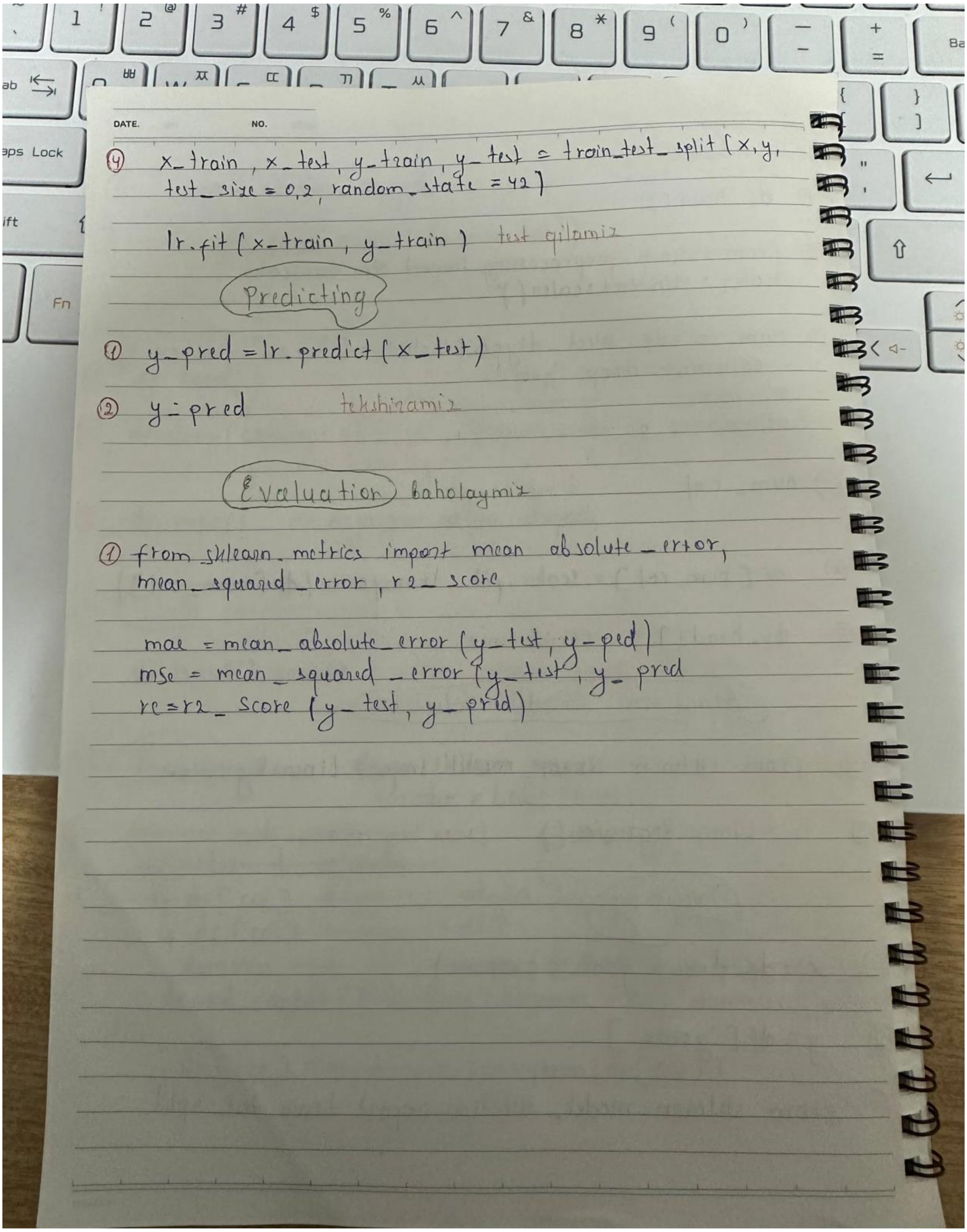

DATE. NO.

④ x_train , x_test, y_train, y_test = train_test_split (x, y,
test_size = 0,2, random_state = 42)

lr.fit (x_train, y_train) test qilamiz

Predicting

① y_pred = lr.predict (x_test)

② y_pred tekshiramiz

Evaluation baholaymiz

① from sklearn.metrics import mean absolute_error,
mean_squared_error, r2_score

mae = mean_absolute_error (y_test, y_ped)
mse = mean_squared_error (y_test, y_pred
re = r2_score (y_test, y_pred)