**MODEL BUILDING- TRAIN THE MODEL**

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| Project Name | Crude Oil Price Prediction |



t ra i n i ng s i ze= int ( len (data o i 1 ) \* 8 . 6 S )

test siz e=Ien (data\_o iI } -t r ai ni ng\_s i ze

t r ai n\_da ta, test\_data=data oi1 [0 :bra in i ng\_si ze , : j , data\_o i L t raini ng\_s i ze : Len (dat a\_o i1) , : 1 ]

t r ai ni ng s i ze, test s ize 5380, 2876)



de{ create dataset(dataset,time steo:1). datal,dataY=[I,[l

for i in range(Ten(dataset)-time\_step-1):

a:dataset[i :(i+time step),0) datax.aooend(a) data°.aooend(dataset}i+time steo,0])

return np.array(dataX),np.array(dataY}

x tes t, y\_te st= c reate dataset ( te st\_d at a,I ine step )

print ( x\_tra in . shape ) , print (y\_tra in . sh a oe )



print ( x t est . sh aDe , print (y te st shape )

|  |  |
| --- | --- |
| a nna} ( [0.11335703, 0. 11661884, 0.1205 3962, | . , 0.10980305, 0. 10B9886 , |
| 0.11054346 ] , |  |
| [0.11661484, 0. 12053902, 0. 115 50422, | , 0.1089886 0. 11858386, |
| 0.101658b2], |  |
| [0.12053902, 0.T1550\*22, 0.1156523, | ., 0.11054346, 0.10165852, |
| 0.89906708], |  |
| [0.3E731823, 0.35176958, 0.3E08B261, | , 0. 3639 1234 0. 37082796, |
| 0.37042796],  [0.351769b8, 0.3G880261, 0.353b46J7, | , 0. 3704279 6 0. 37082796, |
| 0.37879461], |  |
| [ D . 3G0802 G1, 0. 35 3 5 657, 0 . 3529 542zt, | . , 0. 3704279 6, 0. 37B79861, |
| D . 37916482 ] ] ) |  |

x test=x te st reshape (x te st . s Tape [0 ] , x test sh ap e 1 ] , 1

{rom tensorflow.kenas.models import Sequential

+rom te n sOak I a\# . ke ras . laye r s import Dense

from tensorflow.keras.Tayers import LSTM



mo de I . ah d ( L STFI ( 58, ret u r n\_seq ue n c es =T rue, in pu t\_s ha oe= ( 10, I ) ) ) mn de I . ah d ( L STf i ( 58, ret u rn\_s eq ue n c es =T rue ) )

to de I . ad d ( L ST1] 50 ) )

model.add(LSTM(5O,return sequences:True,input shape:(10, 1)})

mod el.add(Dense(1})

Model: “seguei t ia1 ?“

lstm 1 (rlTM)



\*otal params: 50,851



5 O j



20200

20 20 8

model.compile(loss:'mran n',optimizen:'akan )

mooel.fit(x\_train,y\_train,valiaatiQn data:(x test,y test),epochs:3,batch size:G#,verbose:1)

E ooc h 1/ 3

84/8A [==============================] 11s A8ms/step loss: 0.0023 val\_loss : 0.0010

Eooch 2/3

84/84 [==============================j - 2s 28ms/step lOss i.2599e-04 val\_loss: 8.0346e-04

Eooch 3/3

84/8^ [==============================] - 2s 30ms/step loss i.2479e-04 val\_loss: 9.4227e-04