Model
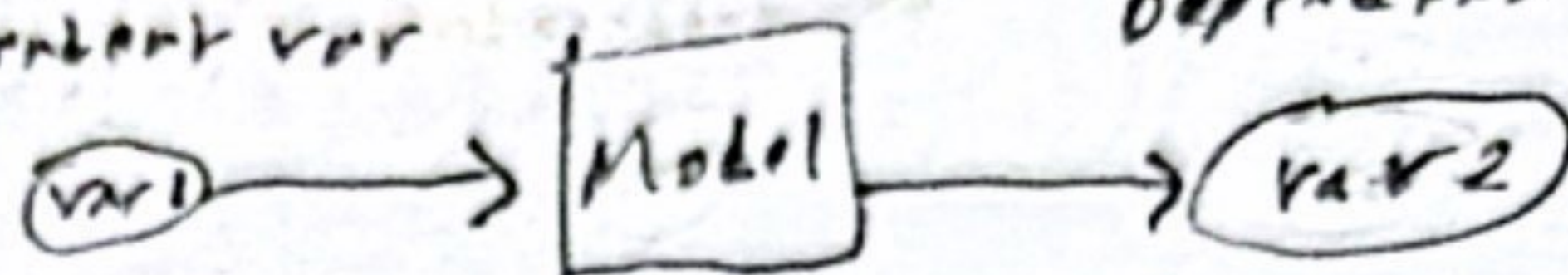
- a model in ML is a mathamatical representation
  that is trained to <u>recognize patterns in data</u>
  an make <u>predictions</u> or classifications based on
  those patterns.

(Ex of common type)

inputs, Features
indipendent var → |Model| → outputs, target,
deppendent var

var1 → Model → var 2

• a mapping function between
  input and output

✷ in <u>linear regretion</u> the model is the final

regretion line : $Y_i = \beta_0 + \beta_1 X_i \rightarrow$ indipendent

form = (y = mx+b)

Y_i = dependent var, β_0 = const/intercept, β_1 = slope/coifficient

m = slope, b = intercept

Ex: we might have a model that predicts house
    prices based on square futage of house.
    • This model predicts a liner relationship

square Feet
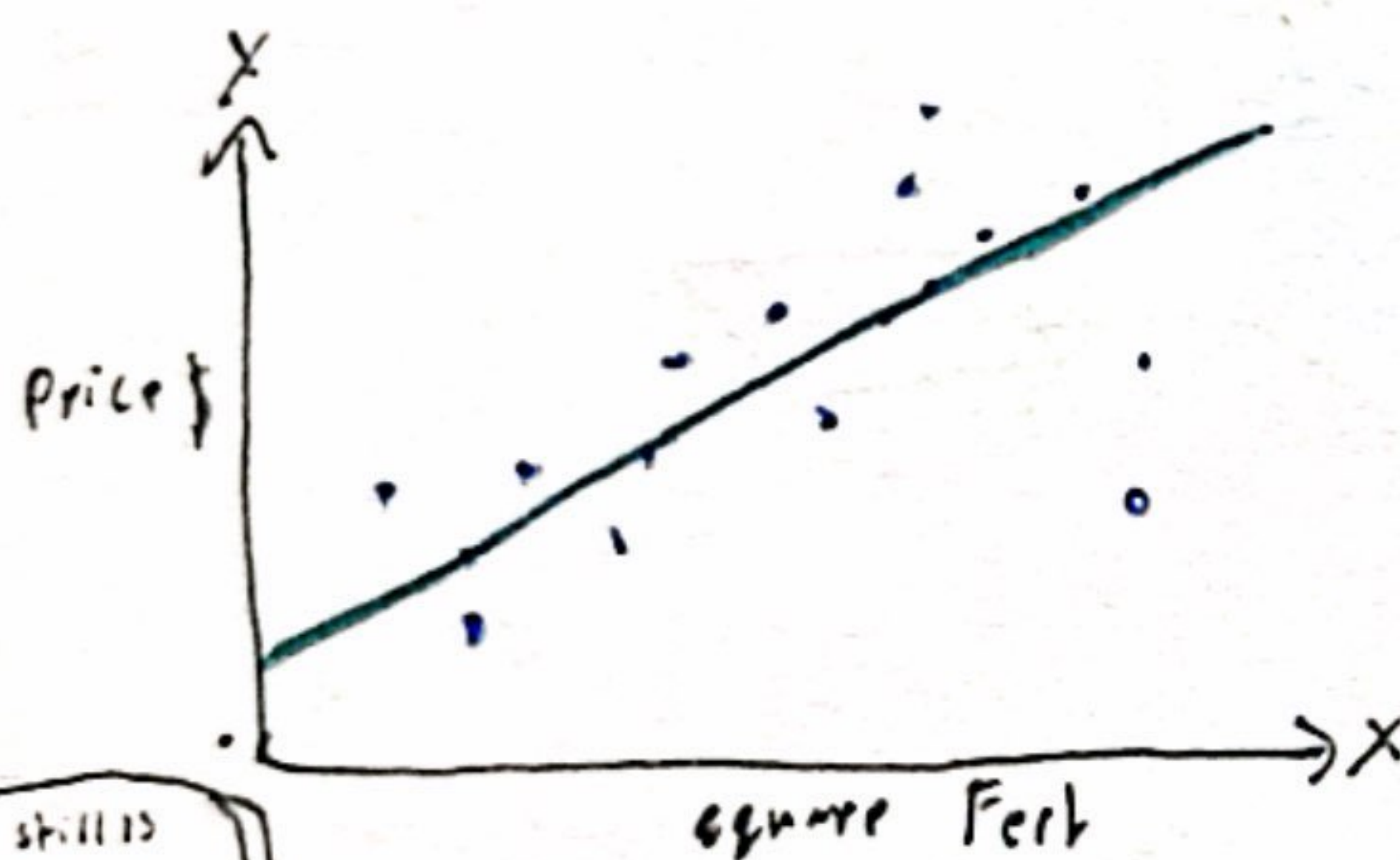
- here we plot all house prices
  agains sq ft and put a
  <u>line of best fit through it</u>
  we find it says: on avg
  each sq foot add. 200$/SQFT

then $Y(x) = 200 X + 1000$

- the model is the intercept /slope
  of the line
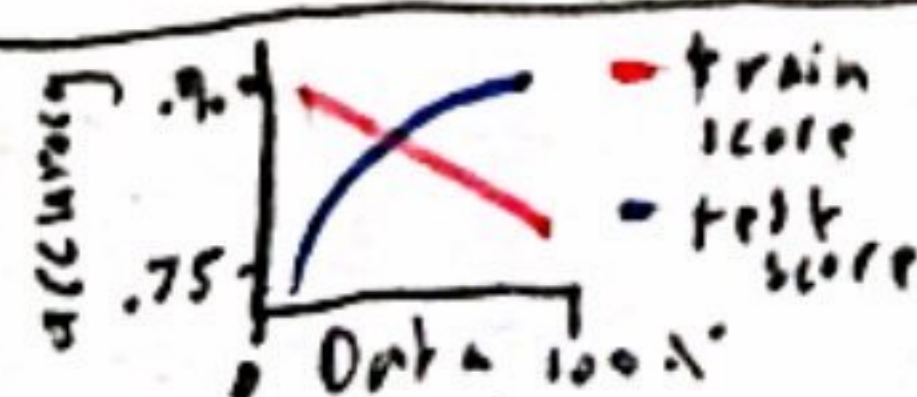
model skills is
good it train
score rises after
convergence while
test score drops
as long as both
simmilar values

opposin ex
with littel data
it memorizes
everything so
good train score
but cannot gen
well, bad test score

Now after traning
if we want to
predict price of
250 saft house

⇒ SQFT = 250

Model: 200x+1000 = 200(250)+1000
     = 51,000 $ is the pridiction
                  of the model

train score
test score

Learning curve. → used for bias variance issues
                   in models and other things

The learning curve is a plot with a curve that shows how the preformance
of a ML model (Validation scores like # of correct predictions) changes as the size of
the training data changes (inc/dec) as train data inc train accuracy slightly decrises
(as its harder to memoriize everything now) while ③ test accuracy improves (better generalization)
until both stabilize ar simmilar values (good generilization)