

26.02.2022.

18 hr.
18 hr.

✓✓✓ Multiple

26.02.2022
27.02.2022

Finite
Diff

{ 05.03.2022
06.03.2022 }

✓ R-Studio

{ 10.03.2022
13.03.2022 } → Application of
MVA using
R-Studio

Classification

→ 4 hr. ✓ (4)

1) R-Studio ✓

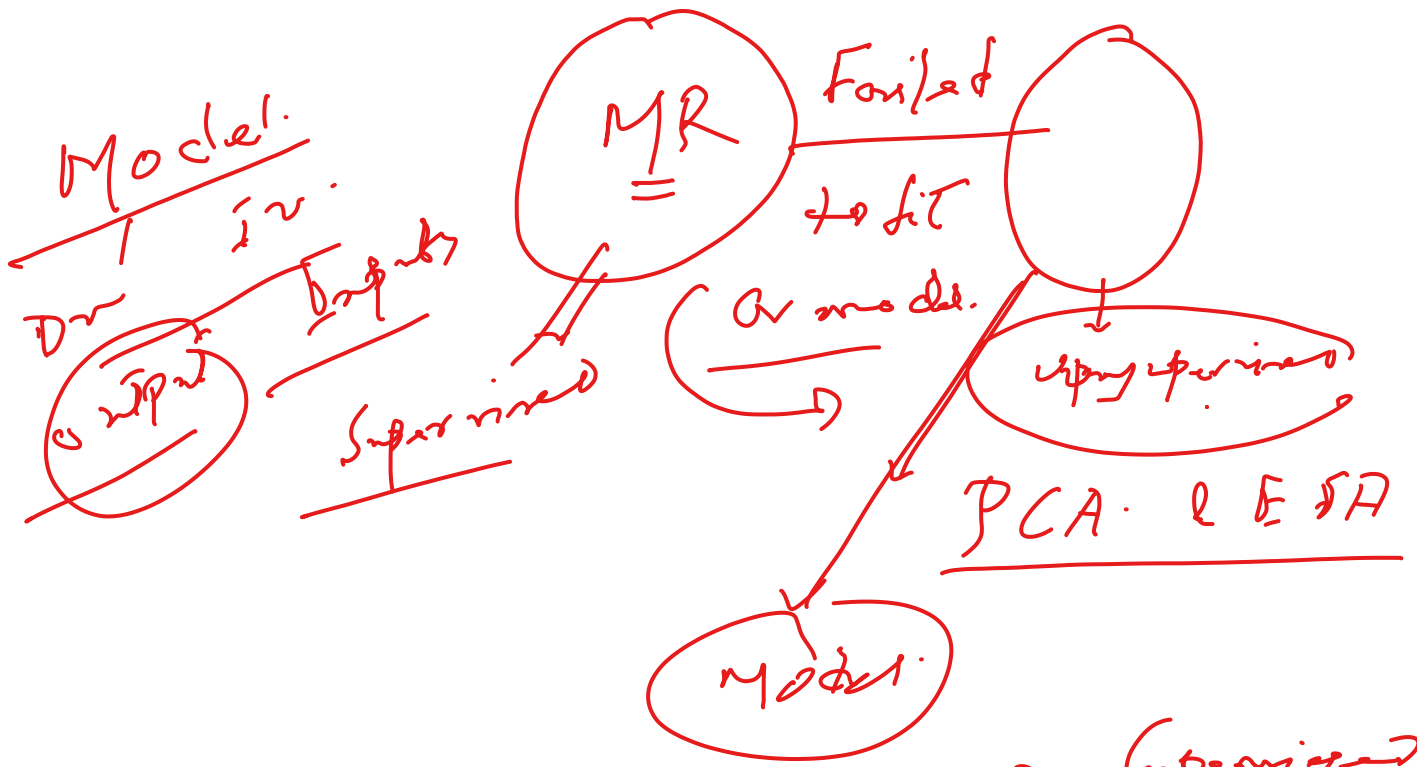
2) PCA ✓ () ✓

3) Classification

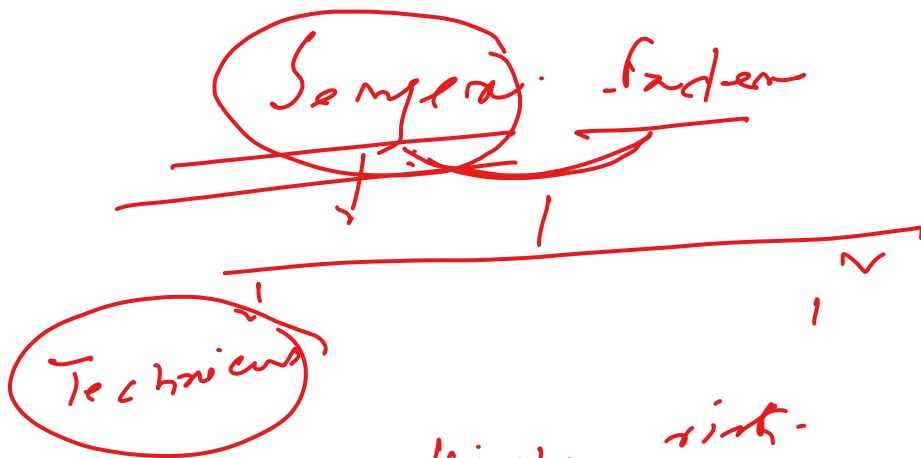
Application of Multiple Regression

17 1 Dr. 71 Er.

✓✓ BSE Sensor



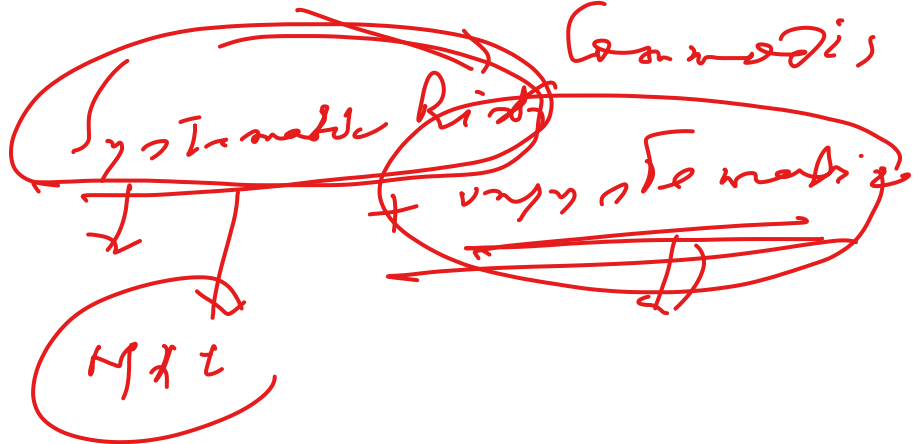
Model. on the basis of Supervised
 1) - models after unsupervised learning
 2) obj. to minimize error.



High risk.
 obj To maximize return
 = with risk. Equity
 Port folio ← mutual
 Excess return

Risk

=



CAPM

Seyen

depending on so many macro economic parameters.

In there any correlation between Dax and index with the macro economic parameters.

Conclusion

10

5

8

Basic Science

P
C
H

Social Science
H
G

Language
R
E

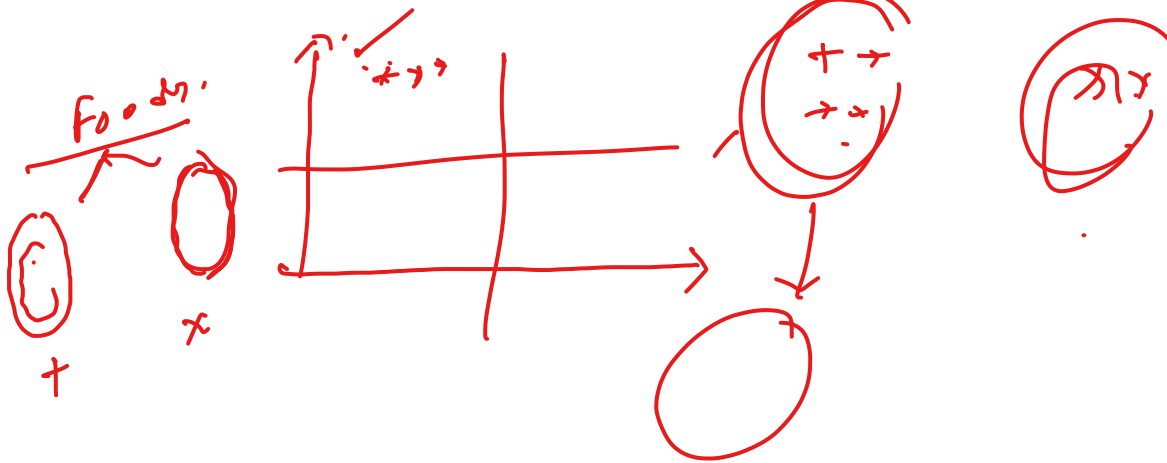
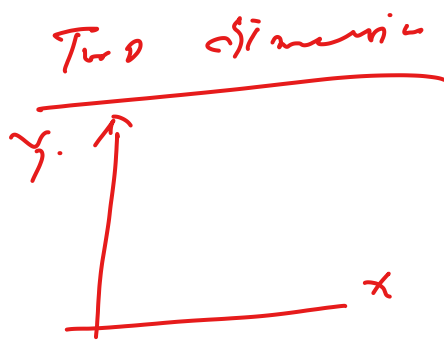
How can reduce dimension

✓
P
C
H

✓
P
T

H
G

7
Subjects
✓ can do



Seyan = f (Macro economic
factor)

Data daily monthly for the last
five year 2022 Feb

16 12
12
12
12
12
12
12
Step (1) 2016 Jan. 2021 Dec
Step (2) Macro economic Parameter
Gold Price FP2 FP5 DADR

✓ Step (3) $\sqrt{72 \times 10}$

✓ Step (4) Considering Seyan as a
Dr & all macro economic
Parameters as IV

Step (5) using correlation matrix to determine which parameter are important.

$$\text{Says } y = f(x_1, x_2, \dots, x_9)$$

Step (6) Apply multiple Regression to find R^2 , R^2 ;

$R^2 = \frac{\text{Explained}}{1 - R^2 = \text{unexplained}}$ Adj R^2 for goodness fit.
 R^2 is high it is good.

Step (7) How we understand which in var are influencing Ans: // Testing of Hyp (if possible)

Step - (8) Backward stepwise regression for deletion of variables.

Step - (9) (or) checking of multi-collinearity.
Null hypothesis correlation among the independent variables

If a huge multicollinearity
 occur among the Iv 's:
 $\Rightarrow$ Regression failed.

$\hookrightarrow$ Step (10) (or I) We have to check -
 x_1, x_2, x_3 & concept of time
 y Series:
 Time Series:
not
Step

$$y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8, x_9)$$

When there are 9 Iv 's, we have
 to solve 9 regression
Conceptually (why)

$$\begin{aligned} R_1^2 &= x_1 = f(x_2, x_3, \dots, x_9) \dots (1) \\ R_2^2 &= x_2 = f(x_1, x_3, \dots, x_9) \dots (2) \\ &\vdots \\ R_9^2 &= x_9 = f(x_1, \dots, x_8) \dots (9) \end{aligned}$$

If any one of R^2 is high.
 $\Rightarrow$ high correlation.

$$\text{Variance Inflation Factor (VIF)} = \frac{1}{1-R^2}$$

$$R^2 = \text{Explained} \quad 1-R^2 = \text{unexplained}$$

$$VIF = \frac{1}{\text{unexplained}} = \frac{1}{\text{Tolerance}}$$

i) $R^2 > 0.5 \Rightarrow$ High correlation
 $R^2 > 0.8 \Rightarrow$ very high correlation
 $R^2 > 0.9 \Rightarrow$ superb correlation

$$VIF = \frac{1}{1-R^2} \quad \text{Let } R^2 = 0.5$$

$$VIF = \frac{1}{1-0.5} = \frac{1}{0.5}$$

$$= 2 \checkmark$$

$\therefore VIF > 2$ for any $IV \Rightarrow$ MC occur.

$$R^2 = 0.8 \quad VIF = 5 \quad VIF > 5$$

$$R^2 = 0.9 \quad VIF = 10$$

$\therefore VIF > 10$

$\frac{9}{\sqrt{1F.}} \quad \frac{9}{\sqrt{1v.}}$

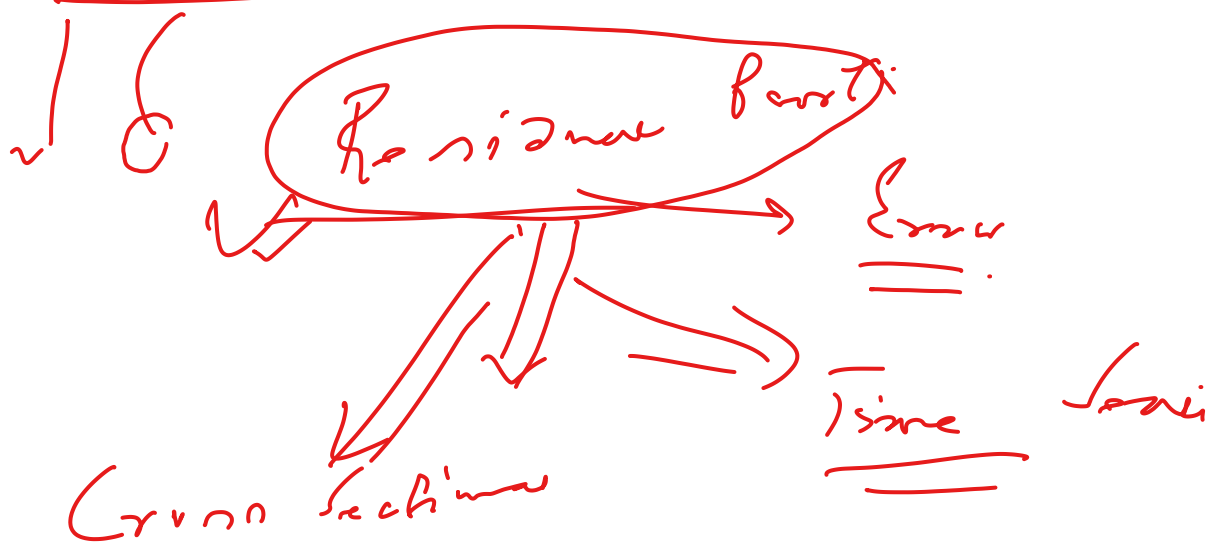
Maximum MC. $\Rightarrow$ Regression for
 maximizing $fv's$ failed.

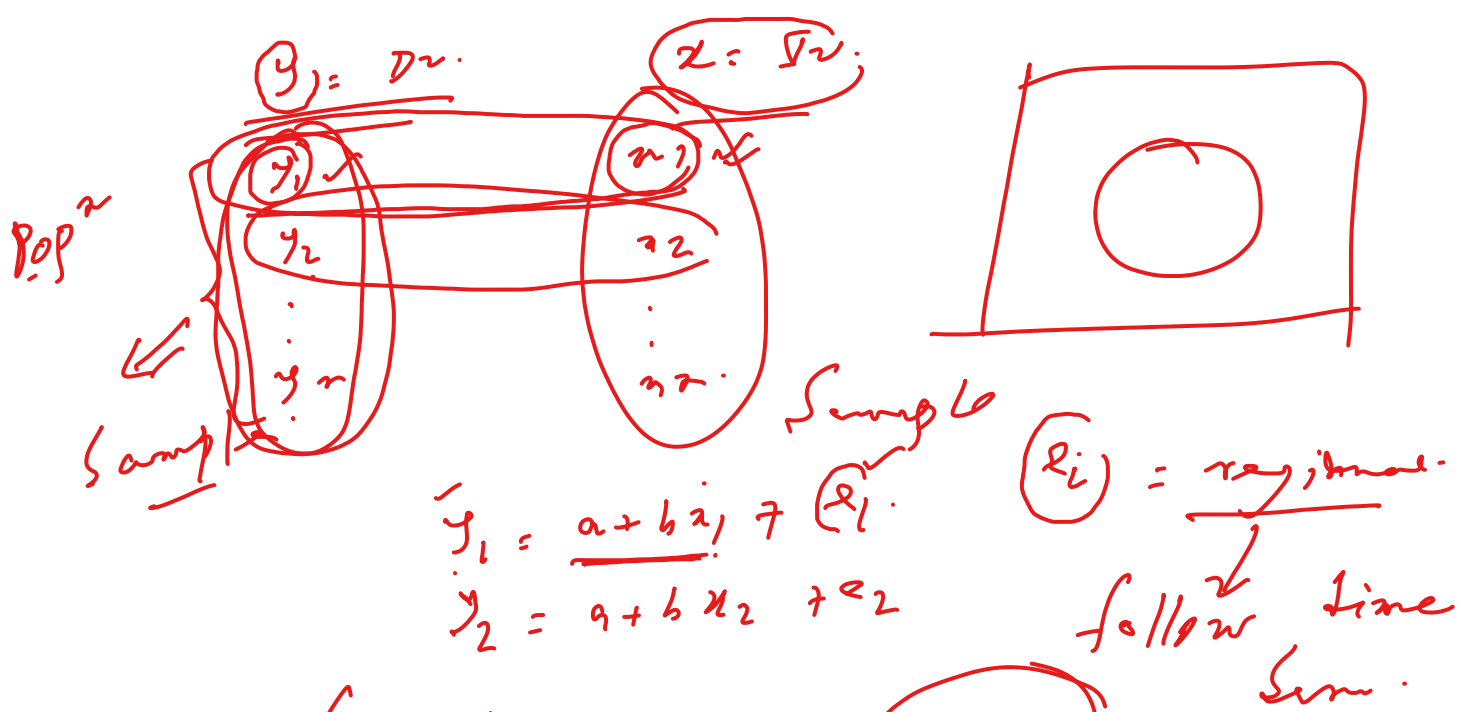
Hence have to take the help of
 unsupervised learning i.e.
PCA & EFA.

Principle Component Analysis.

✓✓ Exploratory factor analysis.

Factor Analysis.





✓ Correlation $\Rightarrow$ (x, y)

Auto correlation $\Rightarrow$ single variables

		Stock Price
P.	2010	✓
Cor.	2011	✓
	2012	✓
	1	

Durbin Watson

Bootstrapping.

from your own
boot your collection

7
P

Sampling.

P

Progress note

P = Patient

P = Practice

Q = 5

P = Professor

P P P P

