

Main Content

1. Welcome to DL101	1
a. Lecture	4
b. Workshop	5
c. All Topics	7
d. DL101 : Multiple Regression	8
e. Course Journey	9
f. Facebook Group	10
g. Document for DL101	11
2. AI Overview	12
a. AI and Machine Learning	13
i. History of AI	15
ii. What is AI?	18
iii. AI, ML and DL	19
iv. Type of Machine Learning	20
v. What is Supervised Learning?	22
vi. What is Unsupervised Learning?	23
vii. What is Reinforcement Learning	24
b. Supervised Learning	27
i. Concept of Supervised Learning	28
ii. Regression and Classification	30
iii. Classification	31
iv. Regression	33
3. Introduction	37
a. What is Multiple Regression	39
b. Extension to Neural Network	45
c. Real World Application	49
4. Model Creation	55
a. Data	59
i. Data Stating	61
ii. Data Requirement	69
b. Model	75
i. Assumption	77
ii. Real Face of the Model	80
iii. Cost function and Cost Landscape	90
iv. How to Create Model (Math)	98

1.	Least Square Method	100
2.	Calculation Example	109
v.	How to create model (Code)	116
vi.	Further Reading	125
c.	Prediction	131
i.	1-Sample	135
ii.	Multi-Sample	140
iii.	Code	149
5.	Basic Workshop	157
a.	Supervised Learning Workflow	158
b.	Code Pipeline	159
i.	Import Libraries	160
ii.	Read Data	162
iii.	Clean Data	164
1.	Handle Missing Values	165
2.	Handle Outliers	167
iv.	Train/Test	169
v.	Data Preparation	171
1.	Type of Features	173
2.	Type of Categorical Features	175
3.	Ordinal Encoding	177
4.	One Hot Encoding	180
5.	Feature Scaling	184
vi.	Create Model	186
1.	Setting Parameter	187
2.	Train Model	189
3.	Model's Weight & Bias	191
vii.	Prediction	193
viii.	Model Evaluation	195
1.	Scoring	196
2.	Scatter Plot between Predicted & Actual Values	199
ix.	Model Deployment	202
c.	AI in Marketing	205
i.	Abstract	206
ii.	Why this project important?	207
iii.	Who this project is for?	208
iv.	Ads Dataset	209

v.	What we learn from this project?	211
vi.	File	213
d.	AI in Investment	214
i.	Abstract	215
ii.	Why this project important?	216
iii.	Who this project is for?	217
iv.	SET50 Dataset	218
v.	What we learn from this project?	220
vi.	File	222
e.	Smart Farm	224
i.	Abstract	225
ii.	Why this project important?	226
iii.	Who this project is for?	227
iv.	Rice Dataset	228
v.	What we learn from this project?	231
vi.	File	233
f.	AI in Business	235
i.	Abstract	236
ii.	Why this project important?	237
iii.	Who this project is for?	238
iv.	Bike Sharing Dataset	239
v.	What we learn from this project?	242
vi.	File	244
g.	AI in Insurance	245
i.	Abstract	246
ii.	Why this project important?	247
iii.	Who this project is for?	248
iv.	Insurance Dataset	249
v.	What we learn from this project?	251
vi.	File	250
6.	Model Improvement	258
a.	Assumption	260
b.	Problem with Linearly Dependent	313
c.	Solution	343
d.	Regularization	379
i.	What is Regularization?	376
ii.	Ridge Regression	386

1.	What is Ridge Regression?	387
2.	Geometric View	389
3.	Properties	403
4.	Model Creation	405
5.	How to find Lambda	409
6.	Code	414
iii.	Lasso Regression	423
1.	What is Lasso Regression?	424
2.	Geometric View	426
3.	Properties	439
4.	Model Creation	447
5.	How to find Lambda	453
6.	Code	458
iv.	Elastic Net	466
1.	What is Elastic Net?	467
2.	Geometric View	469
3.	Properties	474
4.	Model Creation	483
5.	How to find Lambda & $l_{1\text{ratio}}$	489
6.	Code	494
v.	Conclusion	503
7.	Advance Workshop	507
a.	Supervised Learning Workflow	508
b.	Code Pipeline	509
c.	AI in Car Price	513
i.	Abstract	514
ii.	Why this project important?	515
iii.	Who this project is for?	516
iv.	Ads Dataset	517
v.	What we learn from this project?	519
vi.	File	525