Main Content

1. Welcome to DL102 1
    a. Lecture 4
    b. Workshop 5
    c. All Topics 7
    d. DL102 : Logistic Regression 8
    e. Course Journey 9
    f. Facebook Group 10
    g. Document for DL102 11
2. Logistic regression (2-class) 13
    a. Introduction 15
        i. What is Logistic Regression? 17
        ii. Extension to Neural Network 35
        iii. Real World Application 40
    b. Data 47
        i. Data Stating 49
        ii. Data Requirement 57
        iii. More about Target 62
    c. Model 67
        i. Assumption 69
        ii. Real Face of the Model 72
        iii. Cost Function and Cost Landscape 78
        iv. How to Create Model (Math) 88
            1. Problem with Least Squares Method 89
            2. Gradient Descent (Logistic Regression) 97
            3. Calculation Example 110
        v. How to Create Model (Code) 135
    d. Prediction 145
        i. 1-Sample 149
        ii. Multi-Sample 154
        iii. Code 164
    e. Improvement 172
        i. Imbalanced class 174
            1. Problem with imbalance class 175
            2. Solution 186
        ii. Regularization 194

3. Workshop (2-class) 205
a. Supervised Learning Workflow 206
b. Code Pipeline 207
i. Import Libraries 208
ii. Read Data 210
iii. Clean Data 212
1. Handle Missing Values 213
2. Handle Outliers 215
iv. Train/Test 217
v. Data Preparation 219
1. Type of Features 221
2. Type of Categorical Features 223
3. Ordinal Encoding 225
4. One Hot Encoding 228
5. Feature Scaling 232
vi. Create Model 234
1. Setting Parameter 236
2. Train Model 241
3. Model's Weight & Bias 243
vii. Prediction 245
viii. Model Evaluation 247
1. Confusion Matrix 248
2. Scoring 251
ix. Model Deployment 256
c. AI in Healthcare 259
i. Abstract 260
ii. Why this project important? 261
iii. Who this project is for? 262
iv. Heart Disease Dataset 263
v. What we learn from this project? 266
vi. File 268
d. AI in Agriculture 269
i. Abstract 270
ii. Why this project important? 271
iii. Who this project is for? 272
iv. Plant Disease Dataset 273
v. What we learn from this project? 275

vi. File 281
e. Fake news 282
i. Abstract 283
ii. Why this project important? 284
iii. Who this project is for? 285
iv. Fake news Dataset 286
v. What we learn from this project? 288
vi. File 295
4. Logistic Regression (multi-class) 297
a. Introduction 299
i. Logistic Regression with Multiclass 301
ii. Why Softmax? 310
iii. Extension to Neural Network 326
iv. Real World Application 333
b. Data 340
i. Data Stating 342
ii. Data Requirement 347
iii. More about Target 351
c. Model 356
i. Assumption 358
ii. Real Face of the Model 361
iii. Cost Function and Cost Landscape 370
iv. How to Create Model (Math) 371
1. Gradient Descent (Logistic Regression) 374
2. Calculation Example 384
v. How to Create Model (Code) 432
d. Prediction 442
i. 1-Sample 446
ii. Muti-Sample 452
iii. Code 462
e. Improvement 470
i. Imbalanced class 472
ii. Regularization 476
5. Workshop 484
a. Supervised Learning Workflow 485
b. Code Pipeline 486
c. AI in Fruit Industry 488

i. Abstract 489
ii. Why this project important? 490
iii. Who this project is for? 491
iv. Fruit Dataset 492
v. What we learn from this project? 494
vi. File 506
d. AI in News Categorization 507
i. Abstract 508
ii. Why this project important? 509
iii. Who this project is for? 510
iv. News Dataset 511
v. What we learn from this project? 513
vi. File 527