Applied Machine Learning (0907726)

List of Lab Experiments

No	Experiment	Preparation	Report	Notes
1	**Python Toolkits**	Study the material of slides: • Course Introduction (pdf) • Machine Learning Introduction (pdf) • Python Introduction (pdf) Watch the videos: • Lecture 1: Course Introduction and ML Introduction (Part 1, Part 2) • Lecture 2: ML Introduction (Slide 28 to 46) and Python (Link)		Done at home
2	**Basic Python Programming: Loops, Sets, Functions, and Classes**	Study the material of slides: • Python Basics (pdf) • Important Python Packages (pdf) Watch the videos: • Lecture 3: Python Basics, Important Python Packages (Link)		
3	**Advanced Python Programming: Processing Text Files**	Study the material of slides: • Advanced Python (pdf) Watch the videos: • Lecture 4: Important Python Packages, Advance Python (Part 1, Part 2)		Uses file1.txt
4	**NumPy Exercises**	Study the material of slides: • NumPy (pdf) Watch the videos: • Lecture 4: Important Python Packages, Advance Python (Part 1, Part 2)		

5	**Data Preparation and Regression**	Study the material of slides: • End-to-End Machine Learning Project (pdf) Watch the videos: • Lecture 5: Chapter 2: End-to-End Machine Learning Project (Link)		Uses 'diabetes.features.csv' and 'diabetes.labels.csv'
6	**Regression with Simple Data Preparation**	Study the material of slides: • End-to-End Machine Learning Project (pdf) Watch the videos: • Lecture 6: Chapter 2: End-to-End Machine Learning Project (Slides 26 to 58, Link), (Slides 59 to end, Link)		Uses E6_Regression.csv
7	**Classification with Moderate Data Preparation**	Study the material of slides: • Classification (pdf) Watch the videos: • Lecture 7: Chapter 3 Classification (Slides 1 to 29, Link), (Slides 30 to end, Link)		Uses leave.csv
8	**Regression and Classification Using Classical Techniques**	Study the material of slides: • Training Models and Regression (pdf) • Classical Techniques (pdf) Watch the videos: • Lecture 8: Chapter 4: Training Models and Regression (Link) • Lecture 9: Chapters 5, 6, & 7: Classical Techniques (Slides 1 to 25, Link), (Slides 26 to end, Link)	Submit, weight 5%	
9	**Unsupervised Learning: Using PCA for Dimensionality Reduction**	Study the material of slides: • Unsupervised Learning and Clustering (pdf) Watch the videos: • Lecture 10: Chapter 8 & 9: Unsupervised Learning and Clustering (Link)		Uses 'Wholesale customers data.csv'

10	**Regression and Classification Using Neural Networks**	Study the material of slides: • Neural Networks (pdf) • Artificial Neural Networks with Keras (pdf) Watch the videos: • Lecture 11: Chapter 10: Neural Networks (Link, until Minute 1:13), Artificial Neural Networks with Keras (Slides 1 to 23, Link), (Slides 24 to end, Link)		
11	**Deep Neural Networks Warmup**	Study the material of slides: • Deep Neural Networks (pdf) • Deep Computer Vision Using Convolutional Neural Networks (pdf) • Recurrent Neural Networks (pdf) • Reinforcement Learning (pdf) • Recommender Systems (pdf) Watch the videos: • Lecture 12: Chapter 11: Training Deep Neural Networks (Link) • Lecture 13: Recurrent Neural Networks and Reinforcement Learning (Link) • Lecture 14: Recommender Systems (YouTube)	Submit, weight 5%	Uses DNN.ipynb