# AI online workshop

1. Python, Django, OpenCV
   1. Python Installation & Basics
   2. Django Framework
   3. Web Templates in Django
   4. Passing Context to Django template
   5. Base template in Django
   6. Generic View
   7. URLs in Django
   8. Database in Django
   9. Django models and Fields
   10. User registration and authentication
   11. Rest API creation in Django
   12. CRUD operation using Rest API
   13. Build a website using Django
   14. Introduction to tensorflow, keras, nltk, spacy, scikit-learn, opencv, numpy
   15. OpenCV installation and I/O operations in image
   16. Wait Keys
   17. Convert color
   18. Stream webcam video
   19. Cap properties and save video
   20. Mouse click events
   21. ROI operations
   22. HSV object detection
   23. Threshold
   24. Matplotlib
   25. Morphological transformation
   26. Gradient and edge detection
   27. Pyramid representation
   28. Contours
   29. Template matching
   30. Object tracking
2. Deep Learning
   1. Biological Neuron
   2. Applications of Deep learning
   3. Convolutional Neural network
   4. McCulloch Neuron
   5. Perceptron
   6. Sigmoid Neuron
   7. Gradient descent algorithm
   8. Feed forward Neural networks
   9. Back Propagation
   10. PCA
   11. Auto Encoder
   12. Data Augmentation
   13. Dropout
   14. Skip-gram model
   15. Glove Representation
   16. Wor2Vec
   17. CNN – layer wise explanation
   18. CNN – ImageNet
   19. CNN – Image Classification
   20. CNN – Visualization filter
   21. Sequence Learning Problem
   22. Recurrent Neural Network
   23. Vanishing Gradient Problem
   24. Selective Read, Write, Forgot
   25. Long Short term memory
   26. Encode Decoder
   27. Image Recognition (part 1: Detection using pre-trained model)
   28. Image Recognition (part 2: Custom dataset Training)
   29. Image Recognition (part 3: Custom dataset Detection )
   30. Image Recognition (part 4: Model evaluation)
3. Natural Language Processing (NLP)
   1. Preprocessing techniques
   2. Edit Distance
   3. Weighted Edit Distance
   4. Noisy channel model spelling correction
   5. N-Gram model
   6. Lexical Analyzer & Morphological Analysis
   7. Part of speech Tagging
   8. Syntax Parsing
   9. Dependency Parsing
   10. Word Embedding
   11. WordNet
   12. Document Classification
   13. Document Similarity
   14. Word Sense detection
   15. Topic Modeling
   16. Latent Dirichlet Allocation
   17. LDA Applications
   18. Basics of Search Engine Technology
   19. Inverted Index Creation
   20. Inverted Index Coding
   21. BM25 Algorithm
   22. Simple search engine with BM25
   23. Spudorelavencefeedback Algorithm
   24. Smart search engine with relevance feedback
   25. Project 1: Document Similarity
   26. Project 2: Sentiment Analyzer
   27. Project 3: Named Entity Recognizer
   28. Project 4: Document Classifier
   29. Project 5: Chatbot (part1)
   30. Project 5: Chatbot (part2)