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| A picture containing drawing, stop, room  Description automatically generated | Machine Learning Practical  Practical #1 | | |
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| **Subject/Cours** | Machine Learning | **Class** | M.Sc.IT Sem 3 |
| **Topic** | Design the Machine Learning Model | **Batch** | Batch 1 |
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| **Topic : Design the Machine Learning Model** | | | |
| 1. **AIM: Design a simple machine learning model to train the training instances and test the same.**   **Description:**   1. Training Data   Training data is the data you use to train an algorithm or machine learning model to predict the outcome you design your model to predict.  Training data is always more or equal in size than test data   1. Test Data   Testing data is used to evaluate our model performance. | | | |
| **Code with output** | | | |
| import numpy  import matplotlib.pyplot as plt  numpy.random.seed(2)  x = numpy.random.normal(3,1,100)  print(x)  y = numpy.random.normal(150,40,100) /x  print(y)  plt.scatter(x,y)  plt.show()      train\_x = x[:80]  train\_y = y[:80]  test\_x = x[:20]  test\_y = y[:20]  print(train\_x,train\_y,test\_x,test\_y)      plt.scatter(train\_x,train\_y)  plt.show()  train\_x,test\_x,train\_y,test\_y = train\_test\_split(x,y,test\_size=0.3)  plt.scatter(test\_x,test\_y)  plt.show()    mymodel = numpy.poly1d(numpy.polyfit(train\_x, train\_y, 4))  myline = numpy.linspace(0,6,200)  plt.scatter(train\_x, train\_y)  plt.plot(myline, mymodel(myline))  plt.show()    mymodel = numpy.poly1d(numpy.polyfit(test\_x, test\_y, 4))  myline = numpy.linspace(0,6,200)  plt.scatter(test\_x, test\_y)  plt.plot(myline, mymodel(myline))  plt.show()  r2 = r2\_score(train\_y, mymodel(train\_x))  print(r2)  print(mymodel(5))      # As we get high rscore the model is working good | | | |
| |  | | --- | | 1. Learnings | | After creating random data for x and y we have divided it into train test part with 80:20 ratio. visualizes the data and the fitted models. Then after fitting model, we have evaluated model performance using r square. Then make prediction using trained model | | | | |
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