STAT 3690 Lecture 33

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A joint application of LDA/QDA & PCA

- Revisit the dataset of handwritten digits in Lecture 23: `mnist` is a list with two components: `train` and `test`. Each of these is a list with two components: images and labels.
  - The `images` component is a matrix with each row for one image consisting of 28*28 = 784 entries (pixels). Their value are integers between 0 and 255 representing grey scale.
  - The `labels` components is a vector representing the digit shown in the image.
  - Uninvertible $\mathbf{S}_k$ because of the shared blank on canvas

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Alternative methods (in the view of regression)

- (Multinomial) logistic regression

- k-nearest neighbors (k-NN)

- Tree-based

  - Decision tree/classification and regression tree (CART)
  - Random forest