**IN402 Unit 5 Seminar Summary Laurence Burden**

* Online marketing and retail use cases
  + Real-world application of the course material
  + Effecting our day-to-day lives
    - Visible in Amazon marketing
  + Used for ads on our browsers
  + Tracks our purchasing behavior
  + We see more relevant news stories because of an algorithm to predict what we want to see
* Recommendation systems
  + Approaches and case studies
    - Collaborative filtering
      * Pros and Cons
        + Pos: Comprehensive purchase pattern interpretation
        + Neg: Problems scalability and computation power
        + Neg: Cold start problem

Can’t predict items immediately due to not having a history for the customer

* + - * + Neg: Scalability
      * Based on comparing similar users
        + Group the users together
      * Algorithms
        + Clustering models
        + K-NN
        + Bayesian Networks
      * Can predict a customer’s interest in a product that they didn’t know existed
    - Content-based filtering
      * Pros and Cons
        + Pos: Reduces new products’ cold start issue
        + Neg: Requires accurate product cataloging
    - Hybrid approach
      * Pros and Cons
        + Pos: Mitigates the drawbacks in the other two
        + Neg: More complex architecture
  + How ML Powered Recommendation Systems Work
    - Data collection and segmentation
      * Split the customer by relevant features
        + Browsing behavior
        + Personality
        + Demographic info
    - Data Storage
      * AWS pipeline for storage
      * Could include SQL databases and NoSQL databases
      * Non-structured data should be in a NoSQL database
      * Data warehouses can integrate data from multiple sources
    - Data analysis and decision making
      * Machine learning algorithms
        + Build models to make predictions
        + Recommend the most suitable content for the customer
  + Top Recommendation systems
    - Amazon
    - YouTube
    - Facebook
    - Netflix
    - LinkedIn
  + Driving Personalization with Machine Learning