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DATA MINING (Week4)

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DSBA CURRICULUM DESIGN

FOUNDATIONS

- Data Science Using Python
- Statistical Methods for Decision Making

CORE COURSES

- Advanced Statistics
- Data Mining (Week-4/5)
- Predictive Modelling
- Machine Learning
- Time Series Forecasting
- Data Visualization

DOMAIN APPLICATIONS

- Financial Risk Analytics
- Web & Social Media Analytics
- Marketing Retail Analytics

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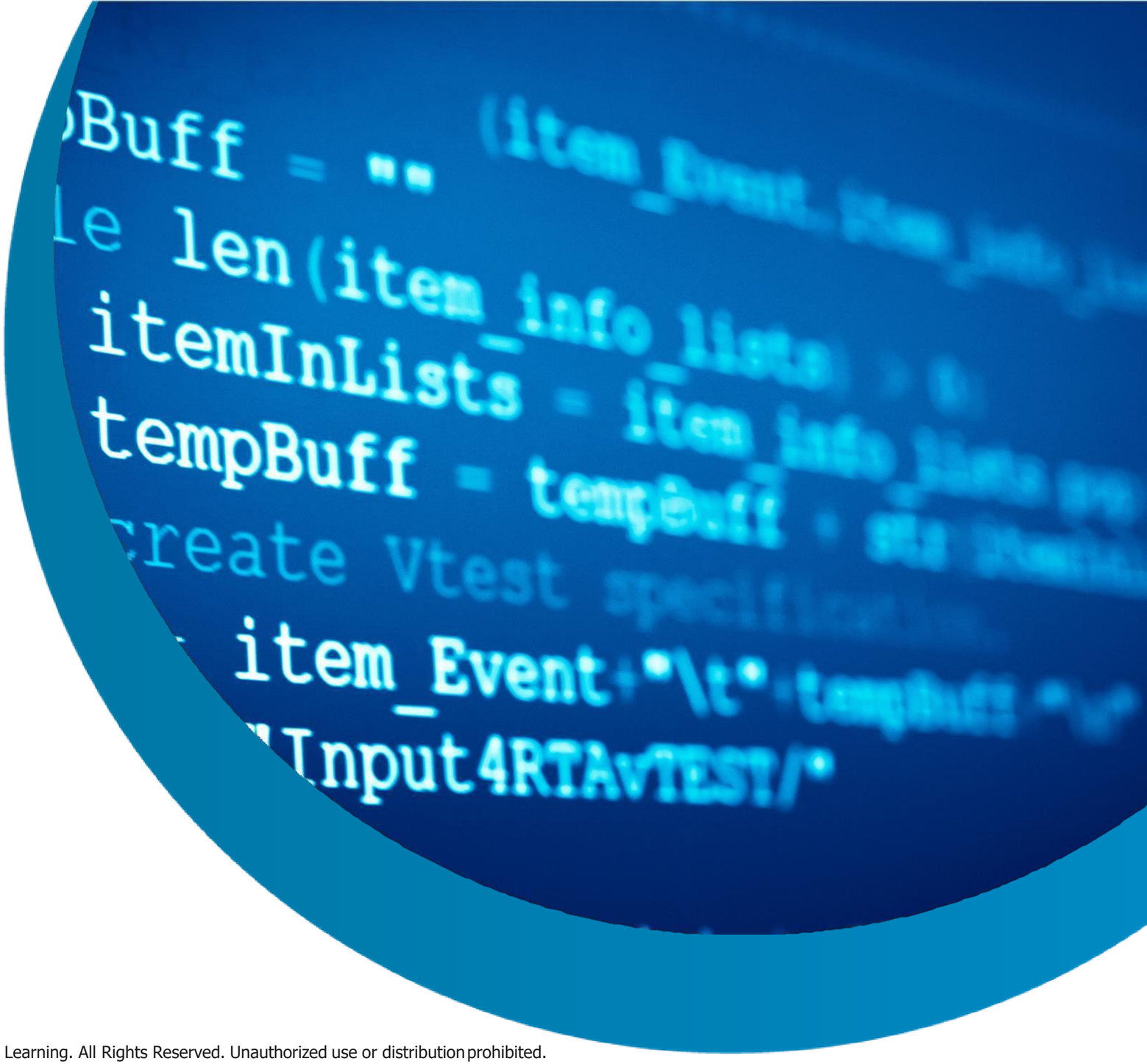
LEARNING OBJECTIVE OF THIS MODULE

- Clustering
- CART & Model Performance Measures
- Random Forest
- Neural Network



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LEARNING OBJECTIVES OF THISSESSION

- Single-layer/Multi-layer Network
- Different types of Activation Function
- Neural Network Algorithm

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TRY ANSWERING THE FOLLOWING

- Name a few Activation Functions.
- Name the three main layers in Neural Network Architecture.
- What are the cons of having high learning rates?

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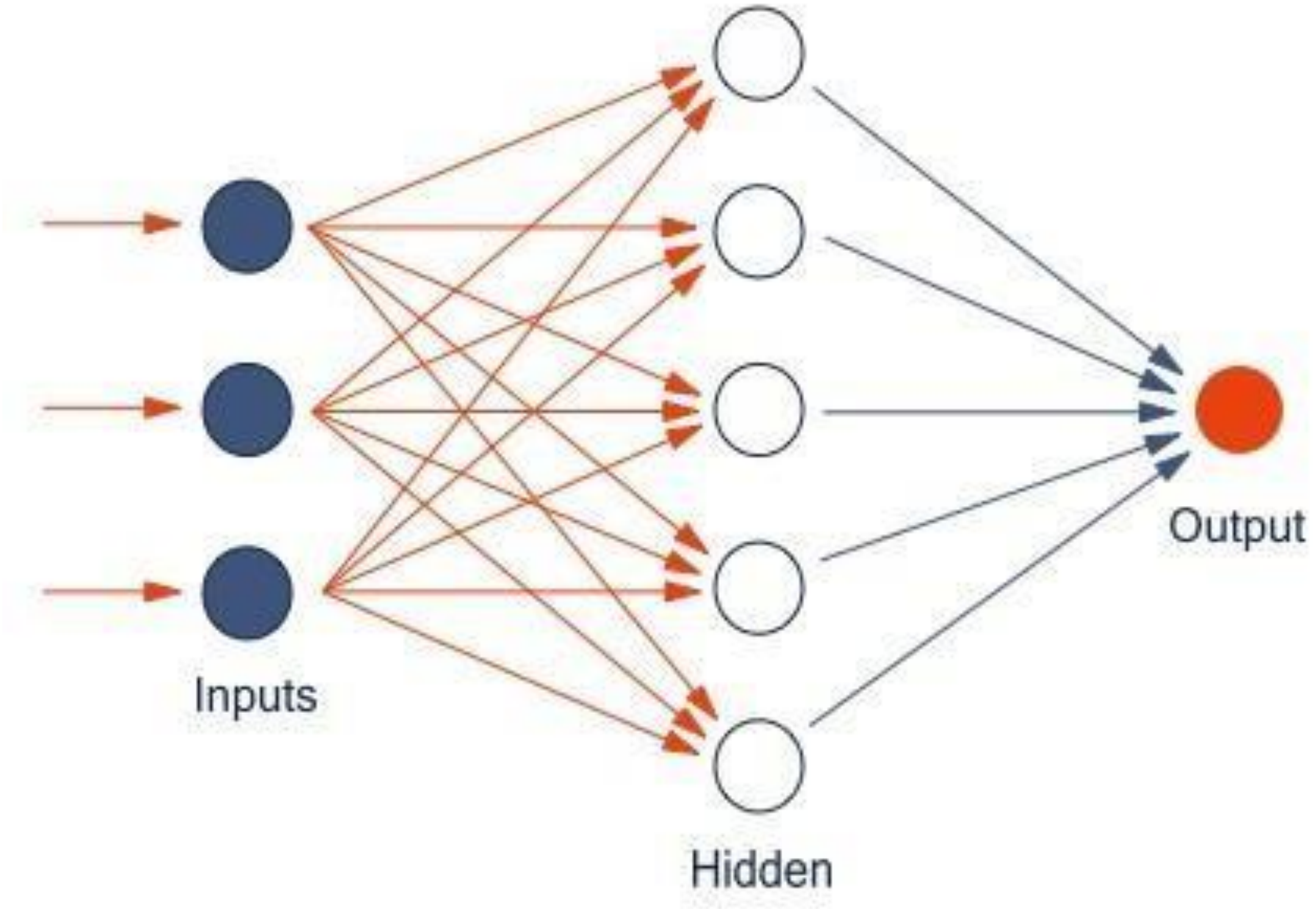
BROAD OVERVIEW- Neural Networks



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Industry Application - Not just the best coffee

Starbucks has been credited with revolutionizing the coffee industry. Starbucks Rewards is often regarded as one of the best retail loyalty programs in existence

Starbucks has used Artificial Neural Networks and targeted marketing to keep customers engaged with their app. The company has integrated its rewards system location and purchase history on their app. This allows them to offer an incredibly personalized experience, helping to increase the revenue by $2.56 billion.

Reference: https://blog.smile.io/loyalty-case-study-starbucks-rewards

Industry Application - Saving time and money on Travel Insurance

Allianz Travel Insurance adopted a system powered by Artificial Neural Networks. Their systems analyses a number of factors such as trip length, cost, the traveler's age and reason for travel if you are paying with air miles.

For example a trip booked on the day of departure makes cancellation coverage unnecessary. Customers who don't need cancellation coverage can purchase a product that only covers post-departure travel problems such as travel delay, delayed or lost baggage or medical emergencies. That can result in cost savings to the customer, potentially offering a product that is 30% cheaper than comparable products offering cancellation coverage.

Allianz used such information to identify the best product for the customer. This not only ensures that the customer gets the most relevant coverage but it also reduces the time spent searching and researching.

Reference : https://www.forbes.com/sites/christopherelliott/2019/04/21/in-travel-insurance-machine-learning-is-turning-conventional-wisdom-on-its-head/#4151ac334eb7

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CASE STUDY - Customer Churn

Customer churn and engagement has become one of the top issues for most banks. It costs significantly more to acquire new customers than retain existing. It is of utmost important for a bank to retain its customers.

We have a data from a MeBank (Name changed) which has a data of 7124 customers. In this data-set we have a dependent variable “Exited” and various independent variables.

Based on the data, build a model to predict whether the customer will exit the bank. Split the data into Train and Test dataset (70:30), build the model on Train data-set and test the model on Test-dataset. Secondly provide recommendations to the bank so that they can retain the customers who are on the verge of exiting.

Data Science @ Work

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Power Ahead

Apply **Data Science at your workplace** to gain some instant benefits:

- Get noticed by your management with your outstanding analysis backed by data science.
- Create an impact in your organization by taking up small projects/initiatives to solve critical issues using data science.
- Network with members from the data science vertical of your organization and seek opportunities to contribute in small projects.
- Share your success stories with us and the world to position yourself as a subject matter expert in data science.

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ANY QUESTIONS

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HAPPY LEARNING