WELCOME

Machine Learning

Machine Learning

Day-1

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Classroom Teaching Plan

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Subject Discussion

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In class Assignments

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Daily Assignments

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Aptitude Problems

05

Coding Problems

Agenda

01 Introduction to ML

02 ML Vs Traditional Programming

03 In class assignment

04 Aptitude

05 Coding

First Step in Artificial Intelligence

Machine Learning

Artificial Intelligence (AI)

AI is a branch of computer science by which we can create intelligent machines which can behave like a human, think like humans, and able to make decisions like a human.

AI exists when a machine can have human skills such as learning, reasoning as solving problems.

AI

Artificial Intelligence

Robotics

Human Can Move

Computer Vision & Deep Learning

Human Can See & Recognize

IOT Sensors

Human Can Sense

Natural Language Processing & Speech Technology

Human Can Listen & Speak

Machine Learning & Data Science

Human can Learn & Analysis


AI
ML
DL

Machine Learning

What is ML ?

How to Learn ?

Why we Learn ?

Applications

Machine Learning



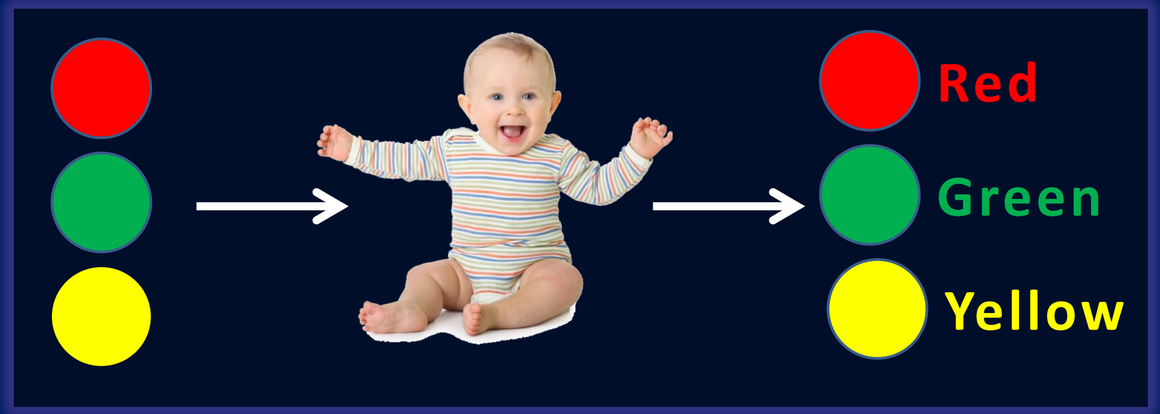
Machine Learning is a concept which allows the machine to learn from the experience using algorithms, and that too without being explicitly programmed. *~ Arthur Samuel (1959)*

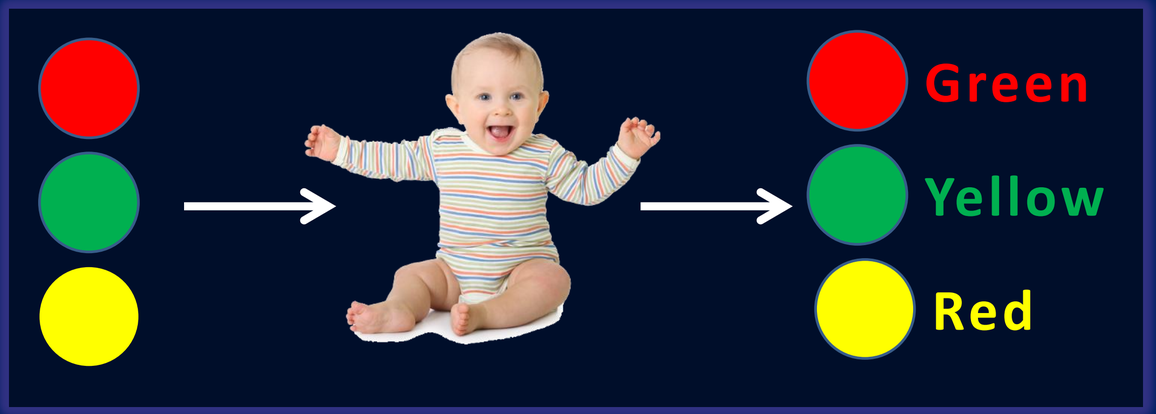
A computer program is said to learn “ if its performance at a task T , as measured by a performance P, improves with experience E." *~ Tom Mitchell(1997)*

ML

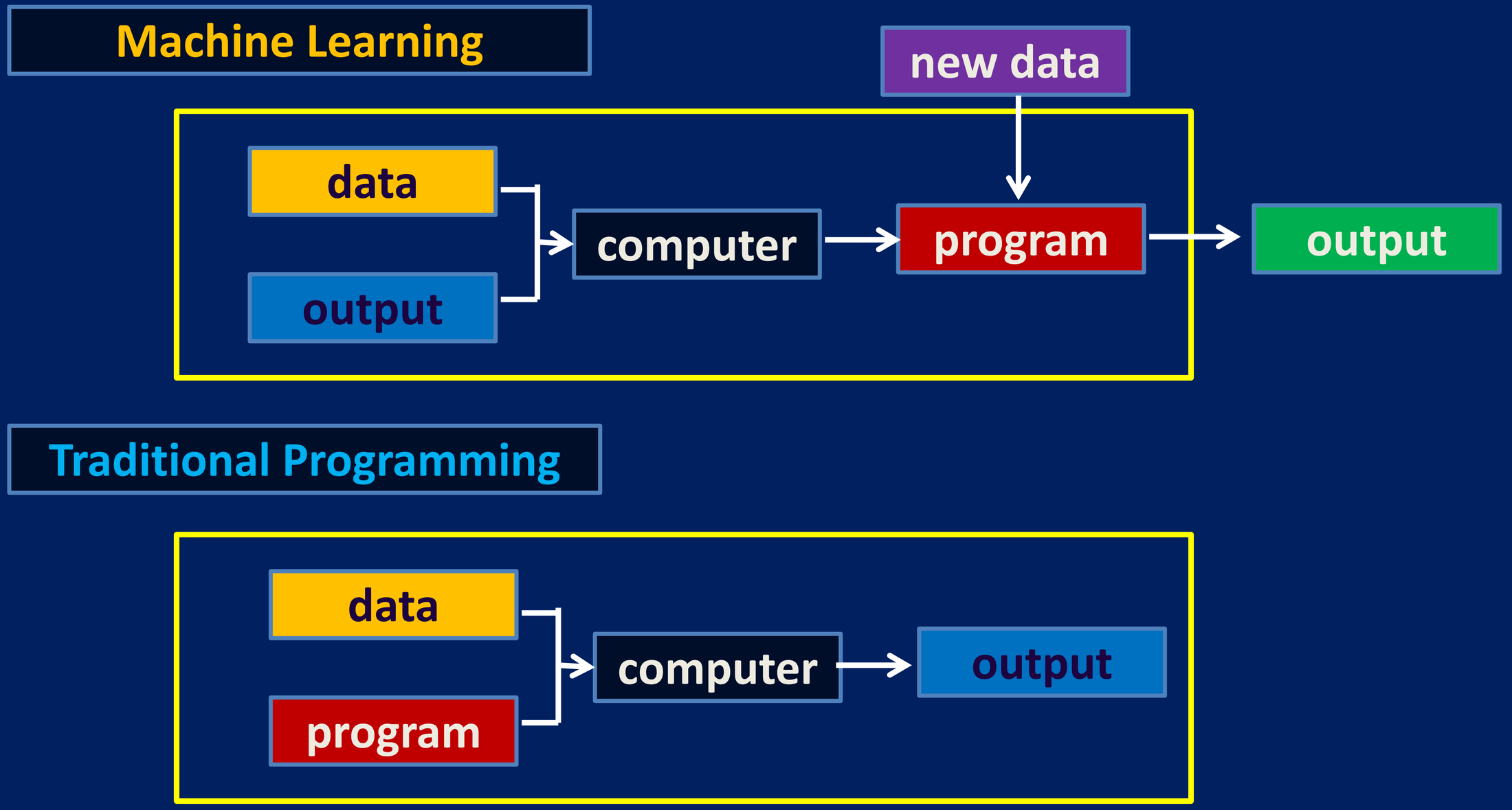
Red
Green
Yellow

Green
Yellow
Red





Machine Learning Vs Traditional Programming



How to Start ML

Programming language

Python
R
Java
C++

Mathematics

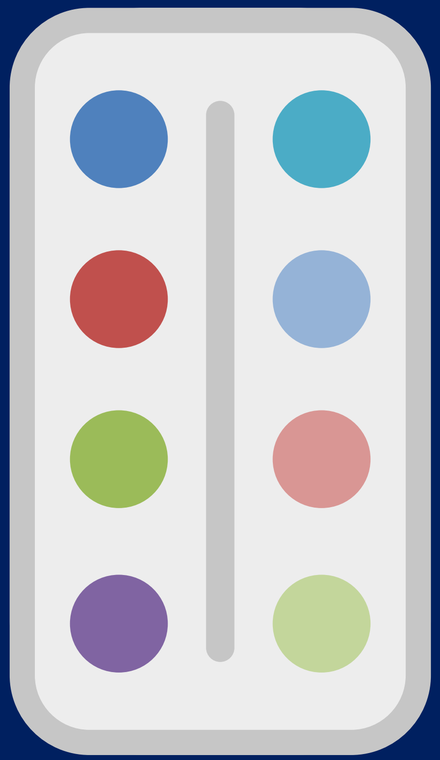
Linear algebra
Calculus
Statistics
Probability

Types of Learning

Supervised
Unsupervised
Reinforcement

Why we learn ML

JOB



Research & Development

Weather Prediction

ML

Fraud detection

ML

Diseases detection

ML

Robot Navigation

ML

Diseases classifications

ML

Social Media Analysis

ML

Autonomous Vehicle

ML

Customer segmentation

ML

Recommendation systems

ML

Applications of ML

Quiz

Which of the following true about ML ?

A) Machine Learning is a field of computer science

B) ML is type artificial intelligence that extract patterns out of raw data by using an algorithm or method

C) The main focus of ML is to allow computer systems learn from the experience without being explicitly programmed

D) All the above

Quiz

In traditional computer programming, you give input commands, What do you give input with machine learning

A) patterns

B) programs

C) rules

D) data

Quiz

How machine learning is related to Artificial Intelligence ?

A) AI focuses on classification, while ML is about clustering data

B) ML is a type of AI that relies on learning through data

C) AI is form of Unsupervised machine learning

D) AI & ML are same

Quiz

Many of the advances in ML have come from improved _____

A) Statistics

B) Structured data

C) Availability

D) Algorithms

Quiz

Machine learning is subset of _____

A) Deep Learning

B) Computer Vision

C) Natural Language Processing

D) Artificial Intelligence

Aptitude (Time and Work)

A can do a work in 15 days and B can do in 20 days. If they work on it together for 4 days , then the fraction work that is left is :

A) 1/4 **B) 1/10** **C) 7/15** **D) 8/15**

A's 1 day work = 1 / 15

B's 1 day work = 1 / 20

(A+B)'s 1 day work = 1/15 + 1/ 20 = 7/60

(A+B)'s 4 days work = 7/60 * 4 = 7/15

The remaining work = 1 – 7/15 = 8/5

Aptitude (Time and Work assignment)

A can lay railway track between two given stations in 16 days and B can do the same work in 12 days . With help of C, they did the job in 4 days only. Then, C alone can do the work in _____ days

A) 9 1/5 days B) 9 2/5days C) 9 3/5 days D) 10

Coding (Strings)

Word reversal

Input : Hello world Output: world Hello

```
public class Main extends Solution {
    public static void main(String[] args) {
        String sentence = "Welcome to Coding Practice";
        String reversedSentence =
                                        reverseWords(sentence);
        System.out.println(reversedSentence);
    }
}
```

```
class Solution{
    public static String reverseWords(String input)
{
        String[] words = input.split(" ");
        StringBuffer reversed = new
                                            StringBuffer();
        for (int i = words.length - 1; i >= 0; i--) {
            reversed.append(words[i]);
            reversed.append(" ");
        }
        return reversed.toString();
    }
}
```

Coding (Strings assignments)

String reversal

Input : Hello world Output: olleH dlrow

Thank you