https://docs.google.com/presentation/d/1iT34LPx41VnDiFaMZSYJOxgc4Cwv5ys2U2veO-J66G0/edit?usp=sharing

**slide: 6**

**What is Machine Learning?**

Well, Machine Learning is a concept which allows the machine to learn from examples and experience, and that too without being explicitly programmed. So instead of you writing the code, what you do is you feed data to the generic algorithm, and the algorithm/ machine builds the logic based on the given data.

Google says "Machine Learning is the future," and the future of Machine Learning is going to be very bright. As humans become more addicted to machines, we’re witnesses to a new revolution that’s taking over the world, and that is going to be the future of Machine Learning.

Today’s artificial intelligence is most visible in products

like Apple’s Siri, Amazon’s Alexa, and Google’s … well,

pretty much everything. These “AI assistants” as they’re

commonly referred to, make suggestions, answer questions,

plan driving routes, make dinner reservations, and other

common tasks that make our lives a little bit easier.

**slide:7**

**Evolution of Machines**

As you know, we are living in the world of humans and machines. The Humans have been evolving(developing , vikshit karna) and learning from their past experience since millions of years. On the other hand, the era of machines and robots have just begun. You can consider it in a way that currently we are living in the primitive age of machines, while the future of machine is enormous(huge) and is beyond our scope of imagination.

In today’s world, these machines or the robots have to be programmed before they start following your instructions. But what if the machine started learning on their own from their experience, work like us, feel like us, do things more accurately than us? These things sound fascinating, Right? Well, just remember this is just the beginning of the new era.

human brain storage

2.5 petabytes (or a million gigabytes)

**slide:8**

neurons are inspire by human brain, it mimic the human brain.

**slide:33**

**Salesforce:** Salesforce’s AI tool is called [Einstein](https://www.salesforce.com/products/einstein/overview/). Billed as a tool that “… is a layer of artificial intelligence that delivers predictions and recommendations based on your unique business processes and customer data.”

Einstein can be integrated into every facet of the Salesforce CRM platform. It will cost businesses an additional $50 per user, per month.

**SugarCRM:** SugarCRM has recently launched an AI product called Hint. Their pitch is that with just a name and email address, “Hint automatically searches, tunes, and inputs helpful personal and corporate profile details about your prospect. Results appear in seconds.”

Enabling Hint will cost SugarCRM users an additional $15 per user, per month.

**Zoho:** Zoho offers a “conversational AI assistant” called [Zia](https://www.zoho.com/crm/zia-voice.html). Similar to the voice assistants built into most smartphones, but focused on CRM, “Zia is here to assist with everything from simple data to complex analytics. Talking to Zia is as simple as chatting with her from the bottom of your desktop screen, or calling her from your mobile app.”

Zia Voice is only included in Zoho CRM plans at the two highest tiers, which start at $35 per user, per month.

**Microsoft:** No sooner did we publish this post than [Microsoft announced](https://blogs.microsoft.com/blog/2018/09/18/announcing-new-ai-and-mixed-reality-business-applications-for-microsoft-dynamics/)new AI and mixed reality business applications for Microsoft Dynamics.

**slide:34**

Concept heavy, but code light.

many parameters, but good defaults. Only a few are important to adjust.

What is TensorFlow?

An open source machine learning framework for everyone.

since TensorFlow is open source there are a lot additional language choices communities support being added all the time

if you are interested you can try out TensorFlow in probably everyone favorite language right now Python 3

TensorFlow since it's release

#1 repository in "machine learning" category on GitHub

**slide: 39**

Connected to "Python 2 & 3 Google Compute Engine backend(CPU/GPU/TPU)"

CPU

RAM: 12.72 GB Disk: 48.27 GB

GPU

RAM: 12.72 GB Disk: 358.27 GB

TPU

RAM: 12.72 GB Disk: 48.97 GB

## Types of Machine Learning

Machine learning is sub-categorized to three types:

* **Supervised Learning – Train Me!**
* **Unsupervised Learning – I am self sufficient in learning**
* **Reinforcement Learning – My life My rules! (Hit & Trial)**

## What is Supervised Learning?

Supervised Learning is the one, where you can consider the learning is guided by a teacher. We have a dataset which acts as a teacher and its role is to train the model or the machine. Once the model gets trained it can start making a prediction or decision when new data is given to it.

## What is Unsupervised Learning?

The model learns through observation and finds structures in the data. Once the model is given a dataset, it automatically finds patterns and relationships in the dataset by creating clusters in it. What it cannot do is add labels to the cluster, like it cannot say this a group of apples or mangoes, but it will separate all the apples from mangoes.

Suppose we presented images of apples, bananas and mangoes to the model, so what it does, based on some patterns and relationships it creates clusters and divides the dataset into those clusters. Now if a new data is fed to the model, it adds it to one of the created clusters.

## What is Reinforcement Learning?

It is the ability of an agent to interact with the environment and find out what is the best outcome. It follows the concept of hit and trial method. The agent is rewarded or penalized with a point for a correct or a wrong answer, and on the basis of the positive reward points gained the model trains itself. And again once trained it gets ready to predict the new data presented to it.

## Random Forest

Random forests are made of many decision trees.

A random forest is a supervised classification algorithm. It creates a forest (many decision trees) and orders their nodes and splits randomly. The more trees in the forest, the better the results it can produce.

**Limitations of Machine Learning**

**Time Constraint in Learning**

It is impossible to make immediate accurate predictions. Also, remember one thing that it learns through historical data. Although, it’s noted that the bigger the data and the longer it is exposed to these data, the better it will perform.

**Problems With Verification**

Another limitation is the lack of verification. It’s difficult to prove that the predictions made by a Machine Learning system are suitable for all scenarios.