Machine learning model deployment with ibm cloud watson studio

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What is Machine Learning ?

- According to Arthur Samuel(1959), Machine Learning algorithms enable the computers to learn from data, and even improve themselves, without being explicitly programmed.

- Few Day to Day Applications of Machine learning

1. Image recognition
2. Speech Recognition
3. Product Recommendation
4. Virtual Personal Assistant

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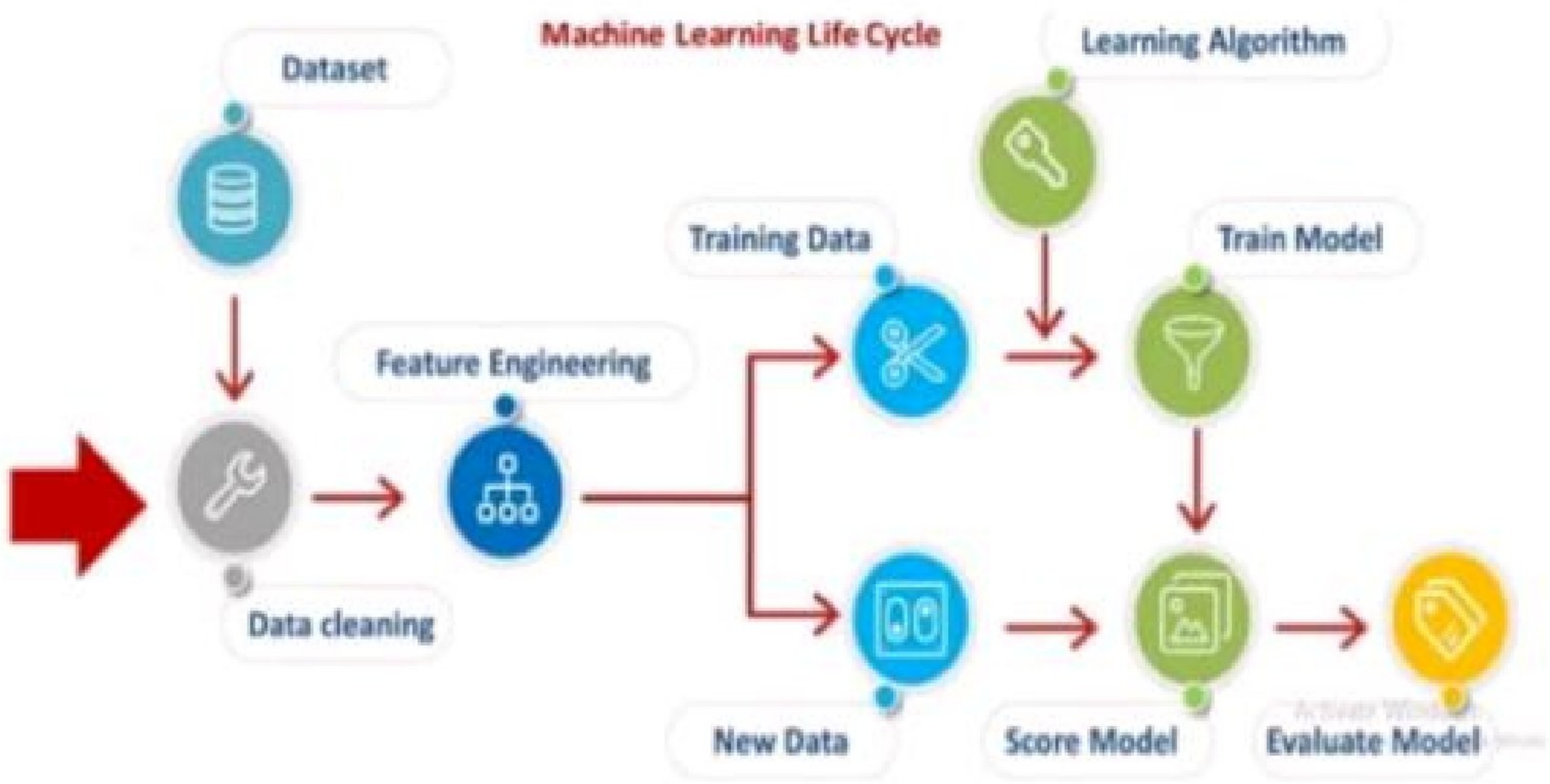
Machine Learning Life Cycle



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What is AWS

- Amazon Web Services (AWS) is an on-demand cloud platform offered by Amazon, that provides service over the internet. AWS services can be used to build, monitor, and deploy any application type in the cloud. Here's where the AWS Sagemaker comes into play.

- AWS is a broadly adopted cloud platform that offers several on-demand operations like compute power, database storage, content delivery, etc., to help corporates scale and grow.

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What is Amazon Sagemaker

- Amazon SageMaker is a managed service in the Amazon Web Services (AWS) public cloud. It provides the tools to build, train and deploy machine learning models for predictive analytics applications. The platform automates the tedious work of building a production-ready artificial intelligence (AI) pipeline.

- Deploying ML models is challenging, even for experienced application developers. Amazon SageMaker aims to simplify the process.

- AutoML is also supported by sagemaker. It process of automating the tasks of applying machine learning to real-world problems.

Benefits of Using IBM Cloud Watson Studio

Using IBM Cloud Watson Studio offers several benefits for machine learning deployment:

Efficiency - Streamline the machine learning development process

Collaboration - Work with teams to build and deploy models

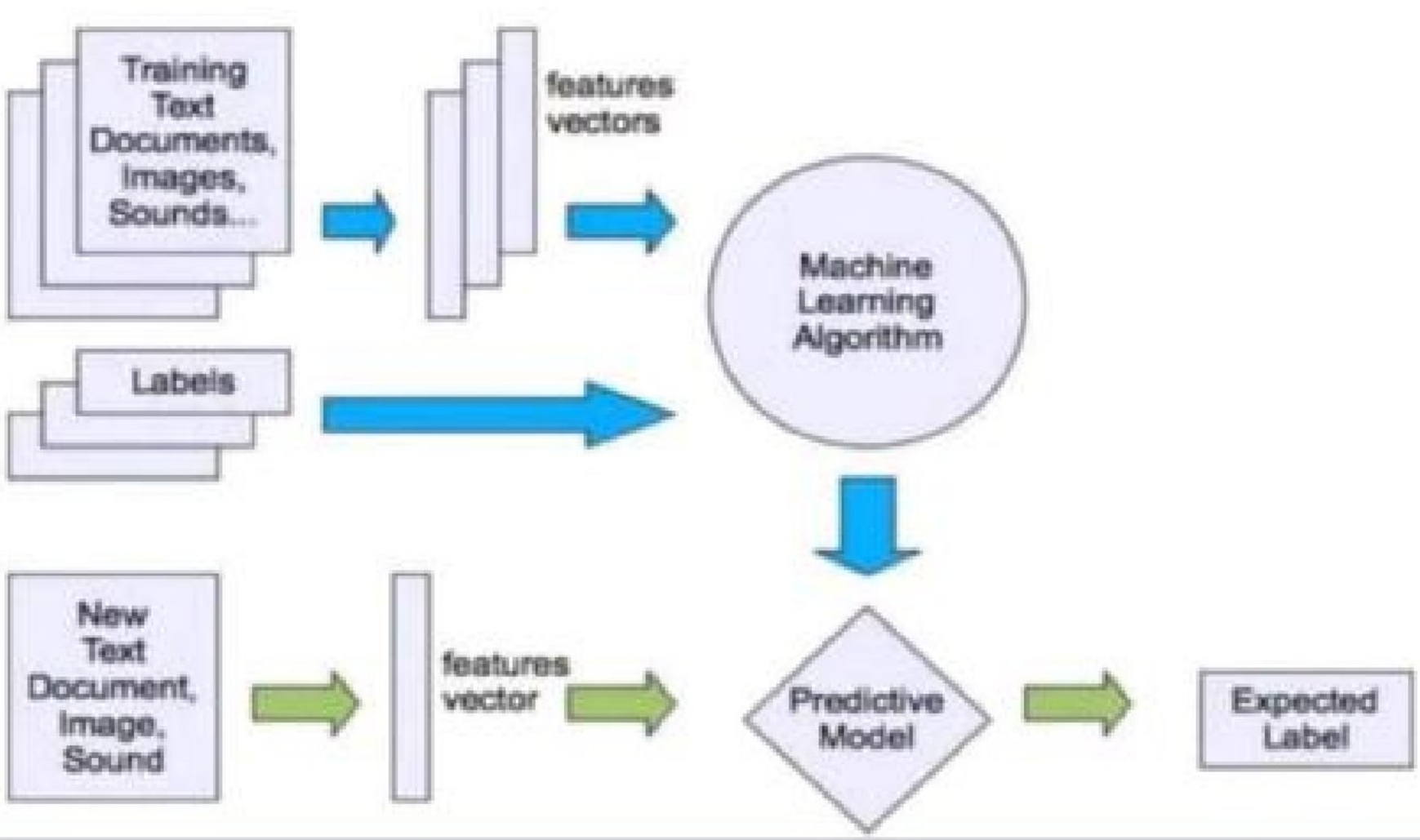
Scalability - Deploy models at scale

Accuracy - Improve model accuracy with monitoring tools

By using Watson Studio, you can accelerate your machine learning deployment and improve the accuracy of your models.

Machine Learning Structure

- **Supervised learning**



Algorithm

- **The success of machine learning system also depends on the algorithms.**
- **The algorithms control the search to find and build the knowledge structures.**
- **The learning algorithms should extract useful information from training examples.**

Conclusion

- We have a simple overview of some techniques and algorithms in machine learning. Furthermore, there are more and more techniques apply machine learning as a solution. In the future, machine learning will play an important role in our daily life.

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sb
from sklearn.model_selection impo
from sklearn.preprocessing import
from sklearn.feature_extraction.te
from sklearn import metrics
from xgboost import XGBRegressor

import warnings
warnings.filterwarnings('ignore')
```

```
df = pd.read_csv('boxoffice.csv',
                 encoding='latin-1')
df.head()
```

Output:

	title	domestic_revenue	world_revenue	\
0	Star Wars: Episode VIII - The Last Jedi	$620,181,382	$1,332,539,889	
1	The Fate of the Furious	$226,008,385	$1,236,005,118	
2	Wonder Woman	$412,563,408	$821,847,012	
3	Guardians of the Galaxy Vol. 2	$389,813,101	$863,756,051	
4	Beauty and the Beast	$504,014,165	$1,263,521,126	

	distributor	opening_revenue	opening_theaters	\
0	Walt Disney Studios Motion Pictures	$220,009,584	4,232	
1	Universal Pictures	$98,786,705	4,310	
2	Warner Bros.	$103,251,471	4,165	
3	Walt Disney Studios Motion Pictures	$146,510,104	4,347	
4	Walt Disney Studios Motion Pictures	$174,750,616	4,210	

	budget	MPAA	genres	release_days
0	$317,000,000	PG-13	Action,Adventure,Fantasy,Sci-Fi	382
1	$250,000,000	PG-13	Action,Adventure,Thriller	262
2	$149,000,000	PG-13	Action,Adventure,Fantasy,Sci-Fi,War	217
3	$200,000,000	PG-13	Action,Adventure,Comedy,Sci-Fi	241
4	$160,000,000	PG	Family,Fantasy,Musical,Romance	290