



Machine Learning

By : Kunal Vyas
Software Engineer,
Siemens

About me

- Student
- 6+ Years of Industrial Experience.
- Currently working with Siemens .
- M. Tech. from IEST Shibpur, Kolkata; B.Tech. from MIT Pune.
- Areas of Interest : Internet of Things, Machine learning, etc.



Industry-research

Machine Learning Made For .NET

Machine Learning made for .NET is usually considered to be an open source learning framework. This Microsoft's ML.NET is again well support

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6th Mar 2019

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How Expedia.com was built on machine learning

Machine learning is at the peak of the hype scale, but travel company Expedia has been building its core business on machine learning for the best part of a decade.



Scott Carey
August 15, 2016

Manufacturing Operations: Machine Learning to Separate Actionable Trends from False Alarms

By: Bala Deshpande, Founding Partner, [SimaFore](#) & Chair, [PAW – Manufacturing](#)



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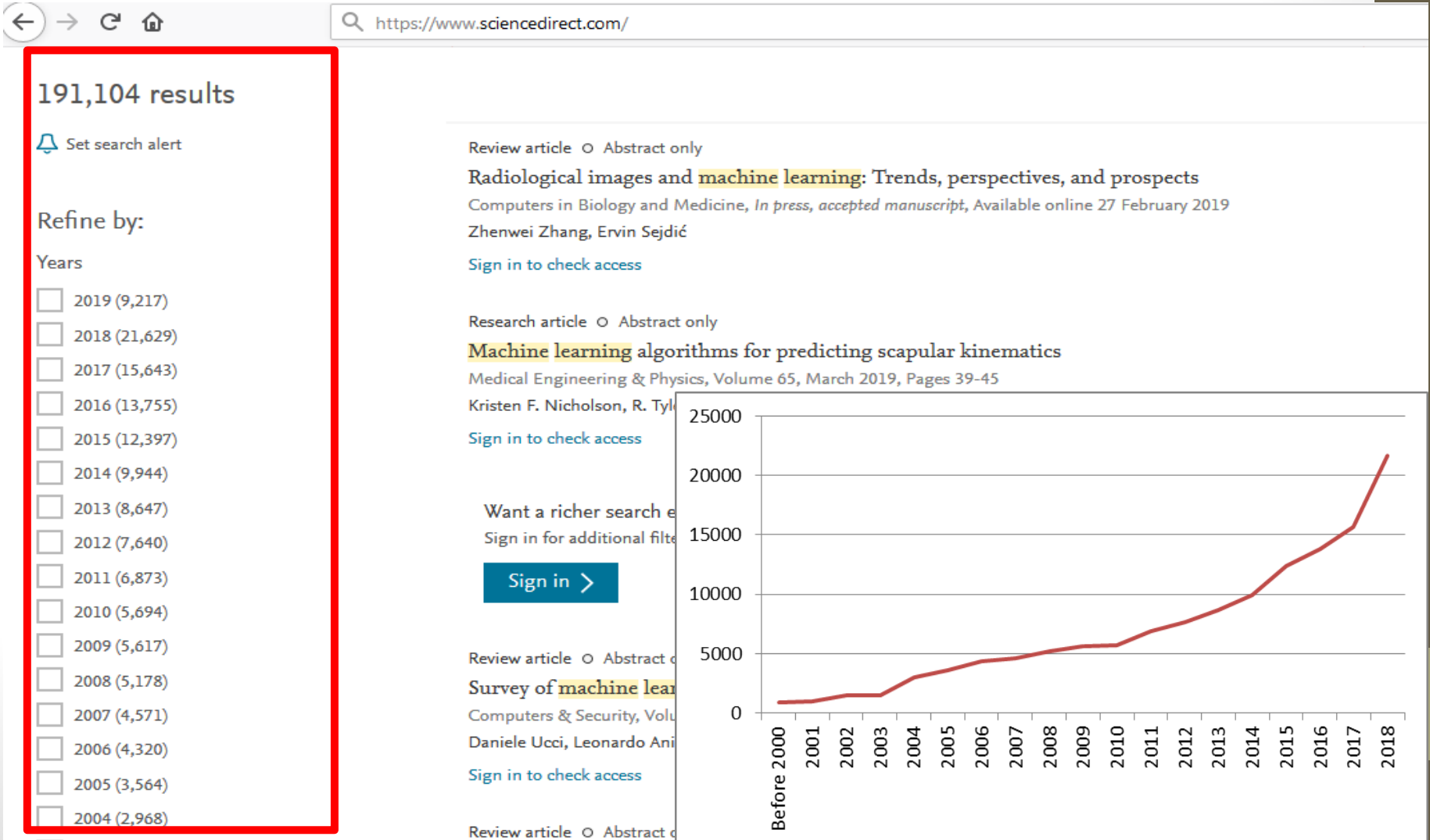
Predictive analytics is increasingly becoming the object of value within many so-called traditional industries like manufacturing. While historically data generated by and in manufacturing is mostly structured, today unstructured data is also becoming a

What eBay's Machine Learning Advances Can Teach IT Professionals

eBay has been gathering data and employing machine learning to connect more buyers to sellers and increase the trustworthiness of transactions. The use-cases are worth exploring for any IT professional looking to help improve a company's bottom line by applying machine learning to its customer-facing applications.

Source:Internet

Research publications



JOB Markets

Job Type

Full-time (27154)
Internship (1558)
Temporary (747)
Contract (517)
Part-time (372)
Commission (150)

Location

Seattle, WA (2895)
New York, NY (2071)
San Francisco, CA (1793)
Boston, MA (761)
Chicago, IL (745)

[+ more »](#)

Company

Amazon.com (3465)
Deloitte (704)
Microsoft (669)
Accenture (570)
Capital One (366)

[+ more »](#)

Experience Level

Mid Level (12438)

Data Scientist, Machine Learning

Qualcomm ★★★★★ 1,275 reviews
San Diego, CA

Applied Machine Learning fundamentals such as decision trees, neural networks, statistical modeling, and/or clustering....

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Software Intern, Machine Learning

Cadence Design Systems ★★★★★ 161 reviews
San Jose, CA 95129 (West San Jose area)

The Cadence Digital and Signoff Group Machine learning team is a high energy team which explores and implements Deep and Machine Learning

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Data Scientist - Mac

American Express ★★★★★
New York, NY

Collaborating with internal pr
launch machine learning pro
practical experience in buildi

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Machine Learning

EY ★★★★★ 5,983 review:

Machine Learning Engineer salaries in United States

\$143,650 per year

Based on 2,939 salaries



[Machine Learning Engineer salaries by company in United States](#)

Machine Learning Jobs, 6415 Machine Learning Openings - Naukri.com

<https://www.naukri.com/machine-learning-jobs> ▼

Apply to 6415 Machine Learning Jobs on Naukri.com, India's No.1 Job Portal. Explore Machine Learning Openings in your desired locations Now!

Machine Learning Jobs in Hyderabad Secunderabad - 198 Machine ...

<https://www.naukri.com > machine learning > hyderabad-secunderabad> ▼

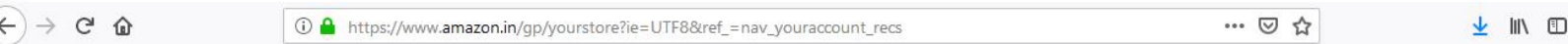
Apply to 198 Machine Learning Jobs in Hyderabad Secunderabad on Naukri.com, India's No.1 Job Portal. Explore Machine Learning job openings in ...

561 Machine Learning jobs in Hyderabad Area, India - LinkedIn

<https://in.linkedin.com/jobs/machine-learning-jobs-hyderabad-area-india>

Jobs 1 - 25 of 561 - Today's top 561 Machine Learning jobs in Hyderabad Area, India. Leverage your professional network, and get hired. New Machine Learning ...

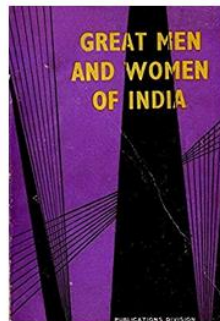
Real Life



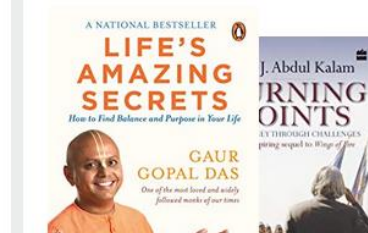
Recommended for you, Kunal



Read More in Indian Writing
23 ITEMS



Read More in History
56 ITEMS



Honda Amaze SX I VTEC (2017)

Pune • 20,000 km • First Owner



Evaluate Again

Market Value of Honda Amaze SX i VTEC

Recommended car price to be in between

₹ 5.40 Lakh ————— ₹ 5.64 Lakh

GOOD CONDITION

SUPERB CONDITION

ML History

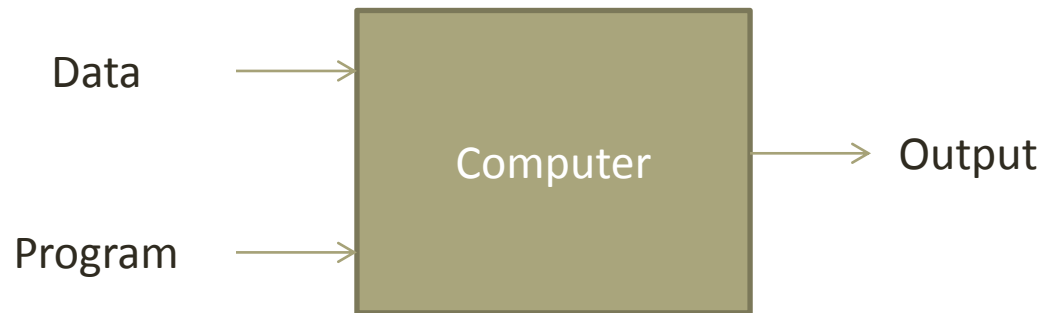
- 1950's: Arthur Samuel : checker playing program. Coined the term "Machine Learning" in 1959.
- 1960's: Frank Rosenblatt's perceptron, constructed according to biological principles.
 - Marvin Minsky & Seymour Papert: Single perceptron incapable of learning EXOR problem. Neural Network research went dormant.
- 1980s: Ross Quinlan: Developed Decision trees. i.e. ID3 algorithm.
- 1990s: Machine Learning, Statistics, Multi Layer Perceptron, Support Vector Machine, Reinforcement Learning etc. developed.
- 1997: IBM Deep Blue beats Gary Kasparov

ML History

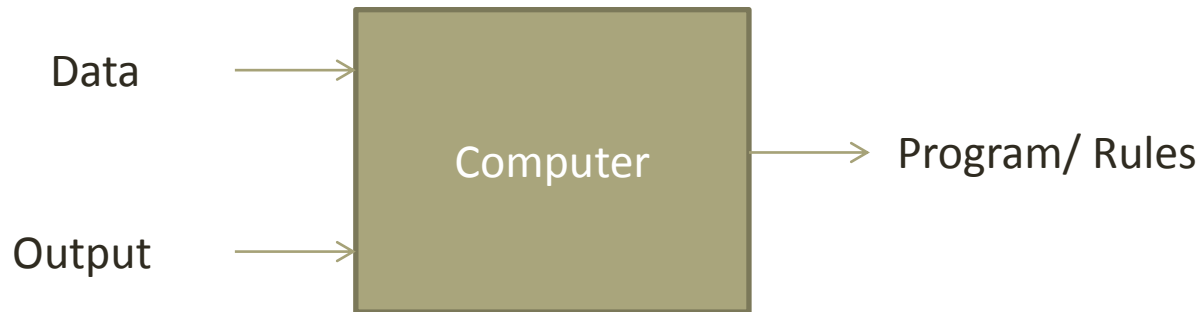
Why recent popularity ?

- Internet and generation of data.
 - Big Data
 - Internet of Things.
- Cloud availability and New Hardware .
 - GPU's
- New algorithms.
 - Deep Learning
 - Neural Networks
- New applications.
 - Medical Science, Computational Biology.
 - Autonomous vehicles, Robotics.
 - Computer Vision, OCR, Object detection, etc.

ML Vs. Traditional programming



Traditional Programming



Machine Learning

ML -defined

- A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P , its performance at tasks in T as measured by P , improves with experience.- Tom Mitchell
- Improving performance via experience
- Learning= Improving with experience at some task
 - Improve over T
 - With respect to performance measure P
 - Based on experience E

ML- Examples

Chess Learning problem

- Task T: Playing chess
- Performance Measure P: Number of games won against opponents.
- Experience E: playing practice games against itself or opponents.

Autonomous Vehicle Driving problem

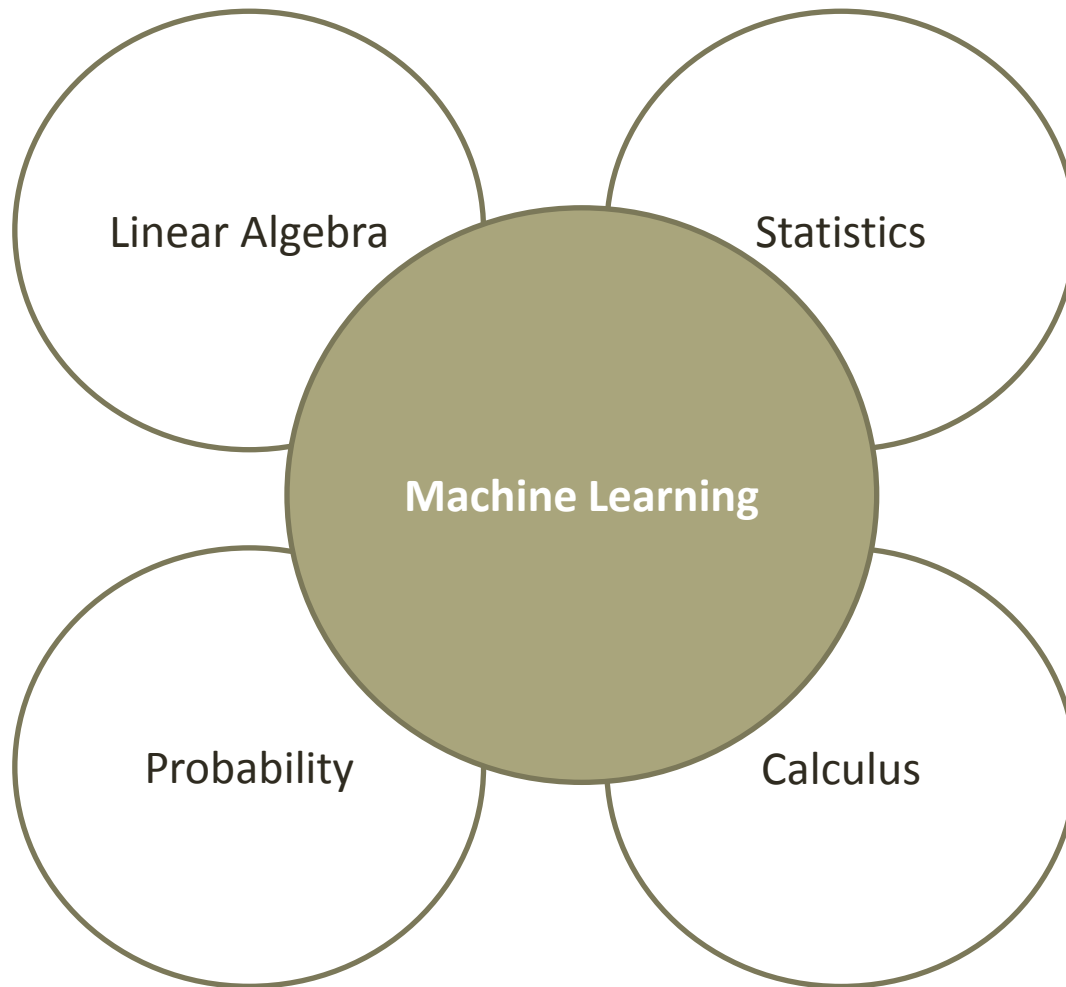
- Task T: driving vehicle
- Performance Measure P: Number of accidents involved.
- Experience E: Inter-vehicle communication, sensor inputs.

ML- Perception



- Machine learning by itself

ML- Practical



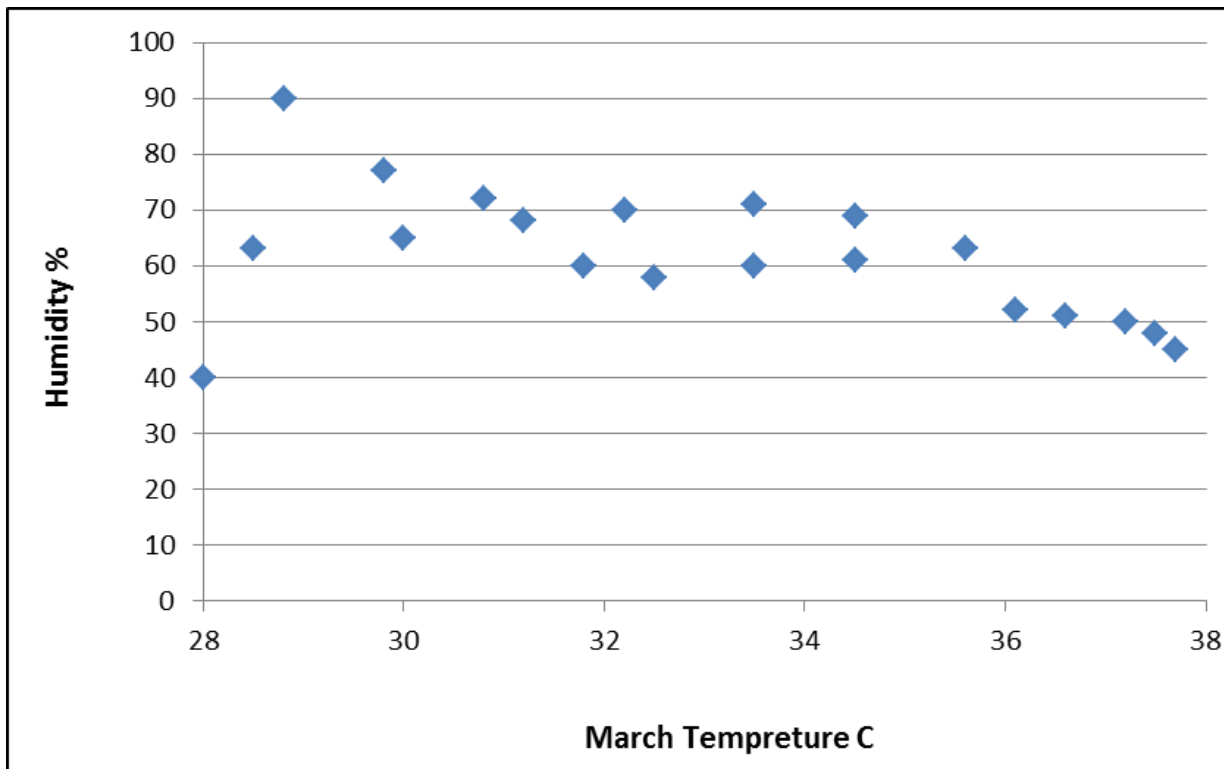
Example

- Pune: Day temperature Vs. Humidity for 20 days

Temperature C	Humidity %
28	40
28.5	63
30	65
31.2	68
32.2	70
33.5	71
34.5	69
28.8	90
29.8	77
30.8	72
31.8	60
32.5	58
33.5	60
34.5	61
35.6	63
36.1	52
36.6	51
37.2	50
37.5	48
37.7	45

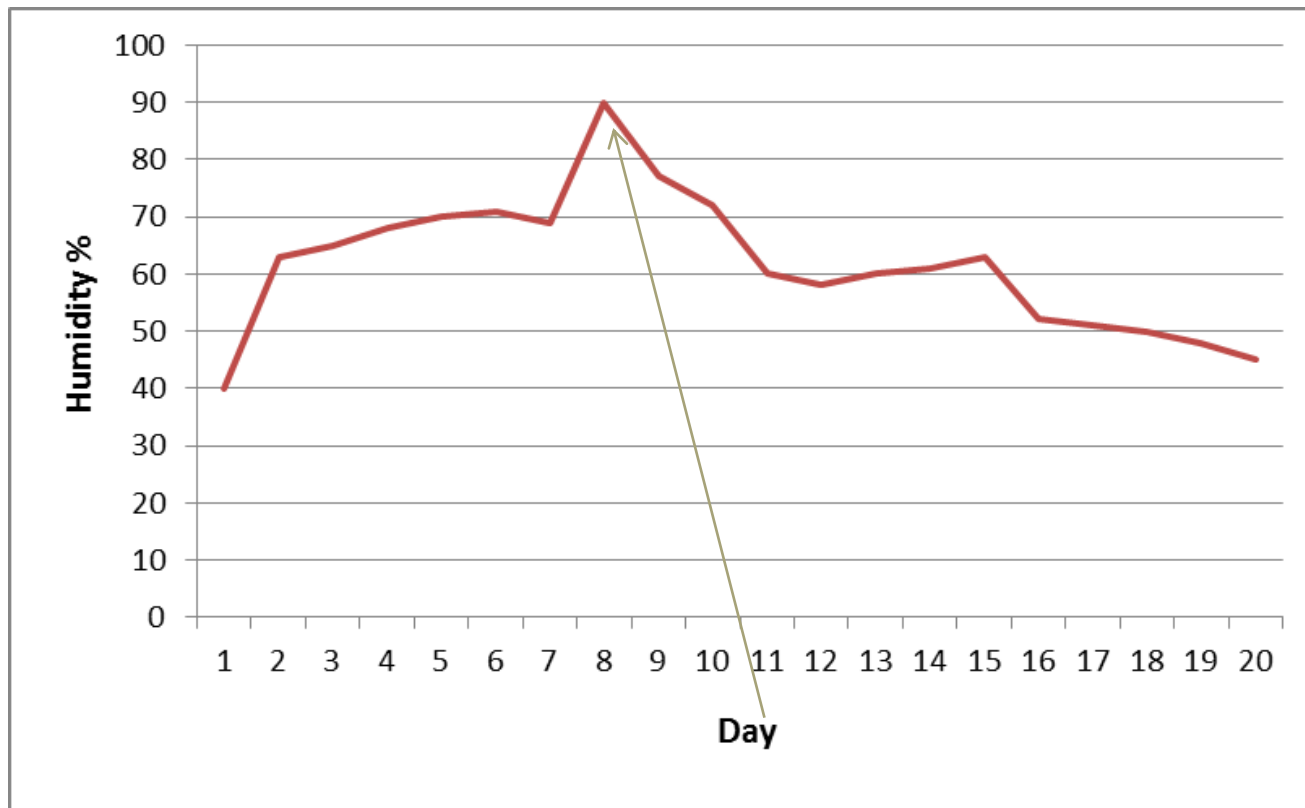
Example

- **Statistics :**
 - Avg. Temperature: 33 C
 - Avg. Humidity: 61.65 %



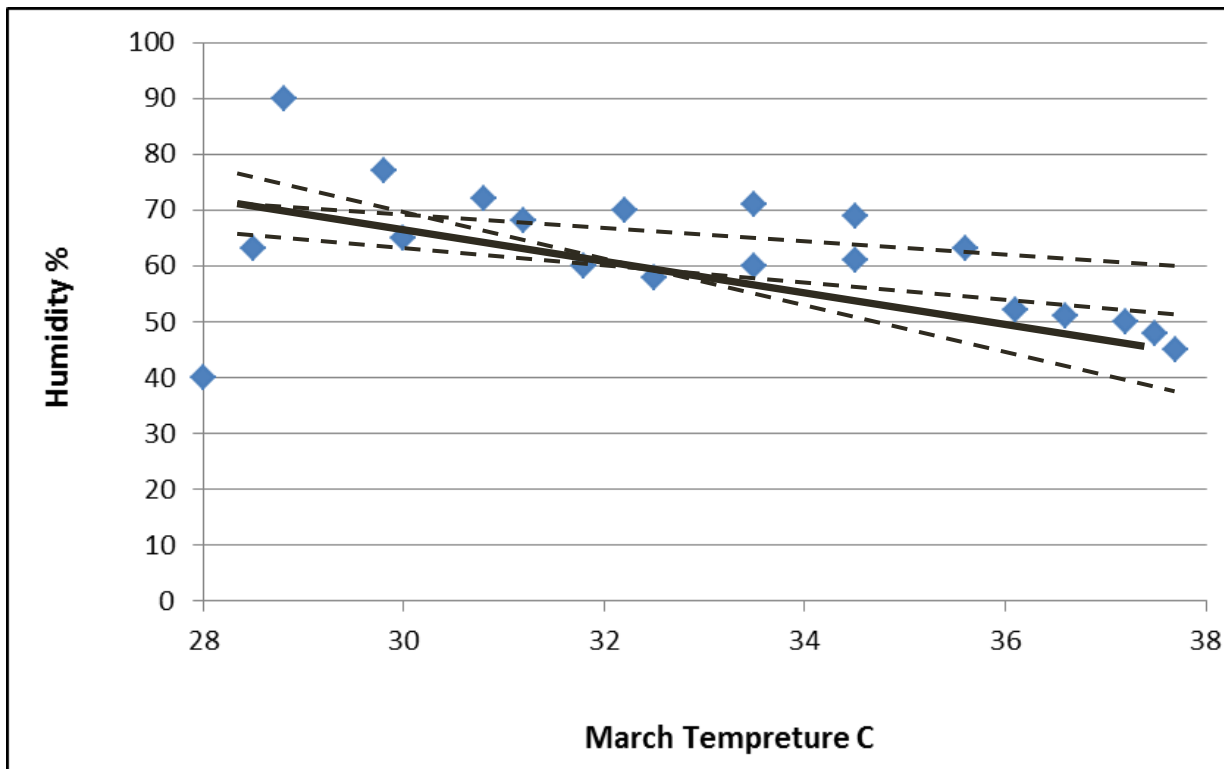
Example

- **Probability :**
 - Why sudden increase on day 9 ? Thundershowers



Example

- **Calculus :**
 - Finding relationship between Humidity and Temperature



Example

- **Linear Algebra:**
 - Pune: Day temperature Vs. Humidity for 20 Years
- Or
- Complete India's Day temperature Vs. Humidity for 20 Years

Thank You!