



# BUSINESS ANALYTICS & DATA

PRESENTED BY – REMYA R S



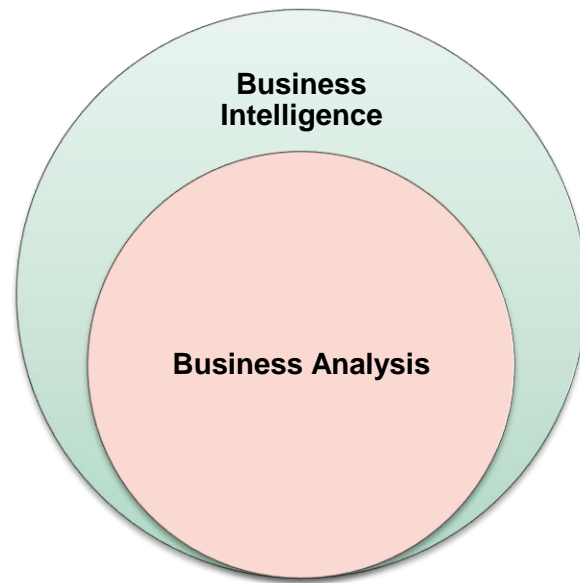
# Business Intelligence

Business intelligence (BI) refers to a collection of procedures, frameworks, and tools that transform unprocessed data into actionable knowledge that helps businesses operate profitably.

BI encourages the use of historical data to assist fact-based decision making rather than assumptions and intuition.

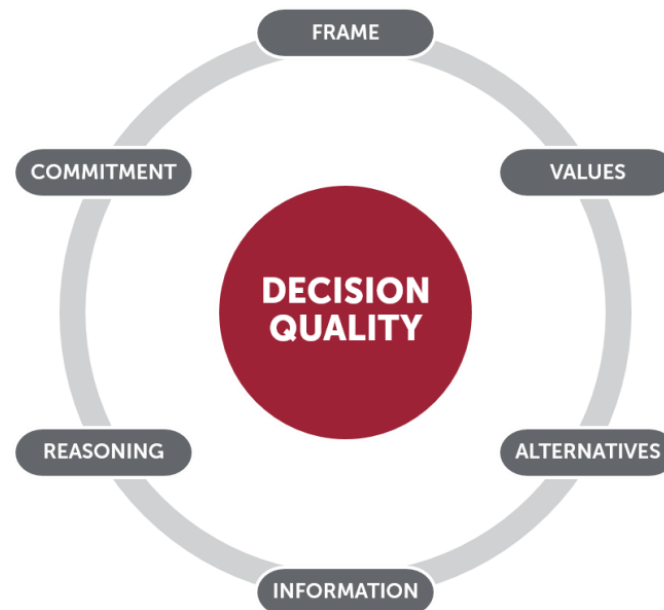
# Business Analytics

- Business Analytics is a subset of business intelligence (BI), focusing more on statistical and quantitative analysis, predictive modeling, and fact-based management to drive decision-making.



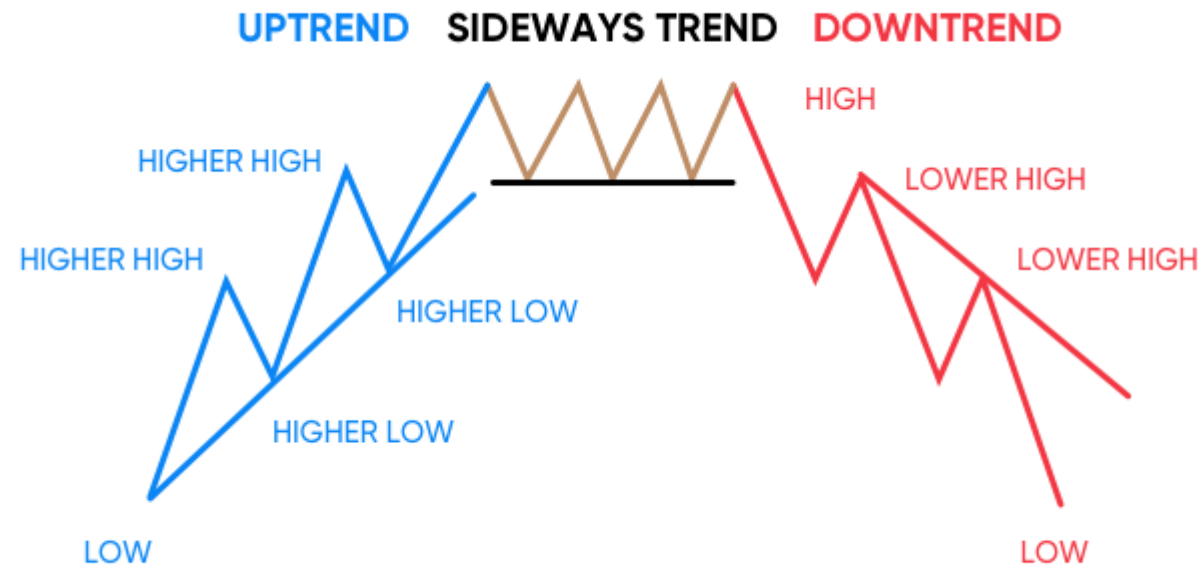
# Importance of Business Analytics

Business Analytics provides data-driven insights that can significantly **improve the quality of decisions** made by an organization.



# Importance of Business Analytics

It helps in **identifying market trends and patterns** that can be crucial for strategic planning. Understanding these trends allows businesses to adapt and stay competitive in a constantly evolving market.



# Importance of Business Analytics

By analyzing business processes, organizations can **identify inefficiencies and areas of improvement**. This leads to more streamlined operations, reducing costs and increasing productivity.



# Importance of Business Analytics

**Identifying and eliminating inefficiencies can lead to significant cost savings.** Analytics can pinpoint areas where resources are being wasted, allowing for better allocation and utilization.



# Importance of Business Analytics

Business Analytics allows companies **to gain deep insights into customer behavior and preferences**. This can lead to better customer service, targeted marketing efforts, and improved customer satisfaction and loyalty.





# Importance of Business Analytics

It helps in **identifying potential risks and mitigating** them before they become significant issues. Predictive analytics, a part of Business Analytics, can forecast future risks and opportunities, allowing proactive measures.



# Importance of Business Analytics

Analytics provides tools for **measuring the performance of various business functions**. This ensures that the organization is on track to meet its goals and objectives and highlights areas that need attention.



# Importance of Business Analytics

Companies that leverage Business Analytics can gain a significant **competitive advantage**. By making more informed decisions, **they can outperform competitors who do not utilize data as effectively**.



# The Role of Business Analytics in Decision-Making

Business Analytics plays a crucial role in decision-making by providing the necessary tools, techniques, and insights to make informed, data-driven decisions.

## **Business analysis helps in decision-making by:**

- Understanding what the business needs.
- Analyzing data to find important information.
- Spotting areas to improve and issues to fix.
- Picking the best solutions.
- Making sure everyone understands the plan.
- Helping with long-term goals.

# Case Studies of Business Analytics in Various Industries

## Retail Industry: Walmart

•**Challenge:** Walmart wanted to ensure products were available to meet customer demand without overstocking.

•**Solution:** Implemented **predictive analytics** to **forecast demand** based on historical sales data, weather patterns, seasonal trends, and local events.

•**Outcome:**

- Improved accuracy in demand forecasting.
- Reduced inventory costs.
- Increased customer satisfaction due to better product availability.

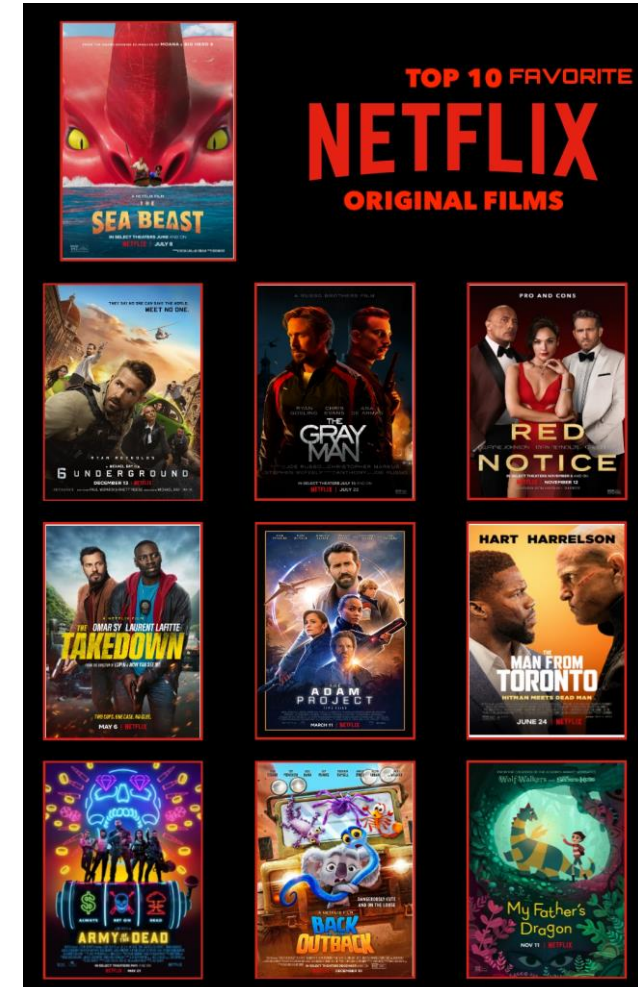




# Case Studies of Business Analytics in Various Industries

## Entertainment: Netflix

- Challenge:** Netflix wanted to enhance user engagement by recommending personalized content.
- Solution:** Employed collaborative filtering and **machine learning algorithms** to analyze viewing history, ratings, and user behavior to suggest content tailored to individual preferences.
- Outcome:**
  - Increased user engagement and satisfaction.
  - Boosted subscription rates.
  - Enhanced content discovery and retention.



# Case Studies of Business Analytics in Various Industries

## Television and Media: The New York Times

- Challenge:** The New York Times wanted to understand reader behavior and increase digital subscriptions.
- Solution:** Utilized **data analytics** to analyze reader engagement, content preferences, and subscription patterns to tailor content and marketing strategies.
- Outcome:**
  - Increased digital subscription rates.
  - Improved reader engagement and retention.
  - Enhanced content strategy based on reader insights.

## The New York Times

INTERNATIONAL EDITION | THURSDAY, AUGUST 18, 2022

### Leave God out of the culture wars

Tish Harrison Warren

#### OPINION

Two Sundays ago, my church had a baptismal service. Baptisms at our church are a mixture of solemnity and unbridled joy, often full of laughter and tears of joy. Those who were being baptized or, in the case of infants, their parents, took vows to pass their trust to God's grace and love and to renounce spiritual darkness, evil and "all sinful desires that draw" us from the love of God. After the baptism, the kids in our service ran forward giggling, trying to get sprayed with the baptismal water that our priest, Ryan, sling over the congregation as he called us to "remember your baptism."

On that Sunday, Ryan invited anyone else who wanted to get baptized to let him know. To my surprise, after the service ended and we were all mingling, two more people approached Ryan and asked if they could also get baptized. So after a short conversation with them, he baptized them.

Why do we talk about divinity only when we're fighting about something?

I have thought of that incessant Sunday for the past couple of weeks because there is a perplexing difference between the way we talked about God that morning and the way I typically hear God discussed online and in our broader cultural discourse.

The God of that baptismal service is one of joy, kindness and peace. The God I often hear about in American politics, in the news and on Twitter is one of cultural division and bickering. The God of that Sunday service seemed powerful and holy, yet gentle and beautiful. The God in our cultural discourse seems impatient and arrogant, a mostly sociological phenomenon related to political posturing and power plays.

In the news and on social media, God usually shows up when we are fighting about something. The subject of faith seems most often discussed in conversations about voting patterns and campaigning. God appears in our public discourse when Representative Marjorie Taylor Greene, a Georgia Republican, calls for Christian nationalism. Or in Twitter debates about whether a coach should publicly pray on the 50-yard line. Or when the far-right Warren, Page 2

The New York Times publishes opinion from a wide range of perspectives in hopes of promoting constructive debate about consequential questions.



A sixth-grade class in New Delhi, where billions of dollars have been spent since 2013 to improve schools, some of which had no drinking water or had been invaded by snakes.

### 'Our children are worth it'

NEW DELHI

Overhaul of public schools in the capital of India has students clamoring to enroll

BY KARAN DEEP SINGH

Pradeep Pawani used to skip school for work, sometimes months. His classrooms with tin ceilings were leaking but in the summer, the bathrooms were filthy.

Now, he gets dressed by 7 a.m. in a blue shirt and trousers, eager to go to school, in a new building where the sun isn't as hot. "I come to school because I know that I can become something," said Mr. Pawani, 26, who is in the 12th grade and dreams of becoming a top officer in India's elite bureaucracy.

In India, where millions of families lack the education to break the cycle of poverty, public schools have long had a reputation for decrepit buildings, mismanagement, poor instruction, even untold teacher strikes. Mr. Pawani's school, in a working-class Delhi neighborhood, was known as "the red school" for the bricks on campus and the color of its uniforms. Today, it is a highly sought-after



Manish Shrivastava, the Delhi education minister, started the overhaul by making surprise visits to schools. Now, other states in India are pushing to adopt "the Delhi model."

school, a beneficiary of the broader transformation of Delhi's education system. Last year, 100 percent of the students in Mr. Pawani's school who took the standardized examinations for grades 10 and 12 passed, compared with 89 percent and 62 percent in 2015. The old uniforms have been swapped for navy blue and lavender.

### Russia says its diamonds are ethical, not 'bloody'

Western countries move to label gems as tainted by the war in Ukraine

BY DIONNE SHERBY

Russia's invasion of Ukraine has led to global mid-searching about everance on Russian oil and gas, but a new diamond is unfolding over another of Russia's major exports: diamonds.

Russia is the world's largest supplier of small diamonds. For years, engagement rings, earrings and pendants for sale in the United States and beyond have included diamonds mined from deep in the permafrost in Russia's north-east.

Now, the United States and other countries are taking action that could effectively label Russian diamonds as "conflict diamonds," claiming that their sale helps pay for Russia's aggression in Ukraine.

"Proceeds from that production are benefiting the same state that is conducting a premeditated, unprovoked, and unprovoked war," said George Caprio, a U.S. State Department official, in a letter written in May to the chair of the Kimberley Process, an international organization created by a United Nations resolution to prevent the flow of conflict diamonds.

The European Union, Canada and other Western nations, as well as Ukraine and several activist organizations, have joined in similar calls for a Kimberley Process discussion about the implications of the invasion of Ukraine, including whether Russian gems should be considered conflict diamonds.

Also known as blood diamonds, conflict diamonds are commonly thought of as gems sold to finance war. The Kimberley Process, created after diamonds were used to finance a deadly war in Sierra Leone and elsewhere, defines them more specifically as "rough diamonds used by rebel movements or their allies to finance conflict aimed at undermining legitimate governments."

But "rebel movements" doesn't accurately describe Russia, and officials there vehemently object to labeling the nation's diamonds as conflict gems. They chalk up the effort by Western governments to do so as "political demagoguery" according to an emailed statement from the press service of Russia's Ministry of Finance.

The issue is coming under sharper focus as Western nations outraged by Russia's invasion of Ukraine restrict Russian gas and look for long-term alternatives to their reliance on its fossil fuels. Revenue from Russia's other big exports, such as oil and coal, is also being used to fund the war in Ukraine. The nation's gems are one of Russia's top non-energy exports by value, accounting for more than \$4.5 billion of exports last year, according to data from the U.S. Trade Representative's office. Russia's diamonds, Page 2

# Case Studies of Business Analytics in Various Industries

## Automotive: Ford Motor Company

•**Challenge:** Ford sought to enhance vehicle design and customer satisfaction.

•**Solution:** Used **data analytics** to analyze customer feedback, warranty data, and performance metrics to improve vehicle design and address common issues.

•**Outcome:**

- Improved vehicle quality and customer satisfaction.
- Reduced warranty claims and repair costs.
- Enhanced design and innovation processes.





# Case Studies of Business Analytics in Various Industries

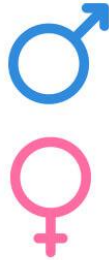
## Telecommunications: Vodafone

- Challenge:** Vodafone sought to reduce customer churn and improve customer retention.
- Solution:** Implemented **customer analytics** to analyze usage patterns, customer complaints, and service quality to identify at-risk customers and develop targeted retention strategies.
- Outcome:**
  - Reduced churn rates.
  - Increased customer retention.
  - Improved overall customer experience.



# Data

- Data - facts or pieces of information



# Data and its importance in Business Analytics

- Understanding problems and positions of organization / people
- Understanding needs of an organization or people
- Knowing nature of customer, employee, market etc....
- Decision Making
- Solving real world problems
- Improving process(fast and less expensive)
- Keep track of all
- Best utilization of resources available
- Finding performance of a company or group of people

# Types of Data

- Numerical Data - Data on which we can perform mathematical calculations.



- Categorical Data - Non Numerical Data

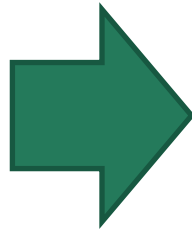


# Types of Data

Structured Data - Data that is organized in a predefined manner, typically using rows and columns, and follows a specific format.



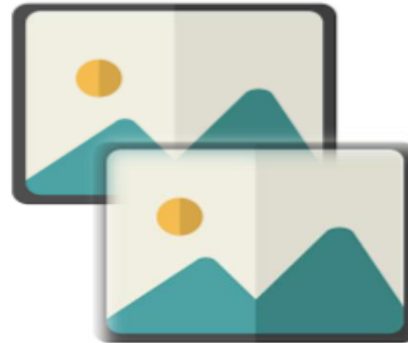
# Structured Data in a Dataset



NAME	AGE	GENDER	LOCATION	JOB	SALARY
Peter	25	M	Bangalore	Supervisor	₹50,000
Ira	28	F	New York	Engineer	₹90,000
Nancy	29	F	Mumbai	Architect	₹1,10,000
Aditya	26	F	Delhi	Trainer	₹80,000
Mahi	24	F	Chennai	Clerk	₹40,000
Asif	23	M	Riyad	Manager	₹1,50,000
Jacob	27	M	Dubai	Helper	₹20,000

# Types of Data

**Unstructured Data** - Unstructured data encompasses a variety of data types that do not fit neatly into traditional rows and columns.



# Analyzing Data for a Business



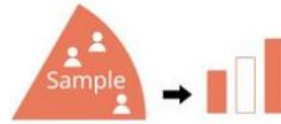
Understanding  
Problem  
Statement



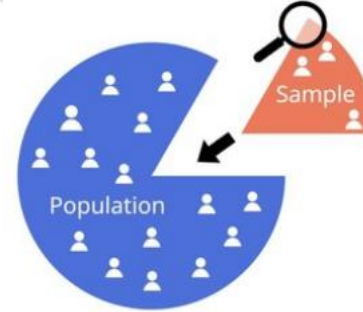
Data  
Collection



Data  
Cleaning



Descriptive  
Analysis



Inferential  
Analysis



Data  
Visualization



Predictive  
Analysis

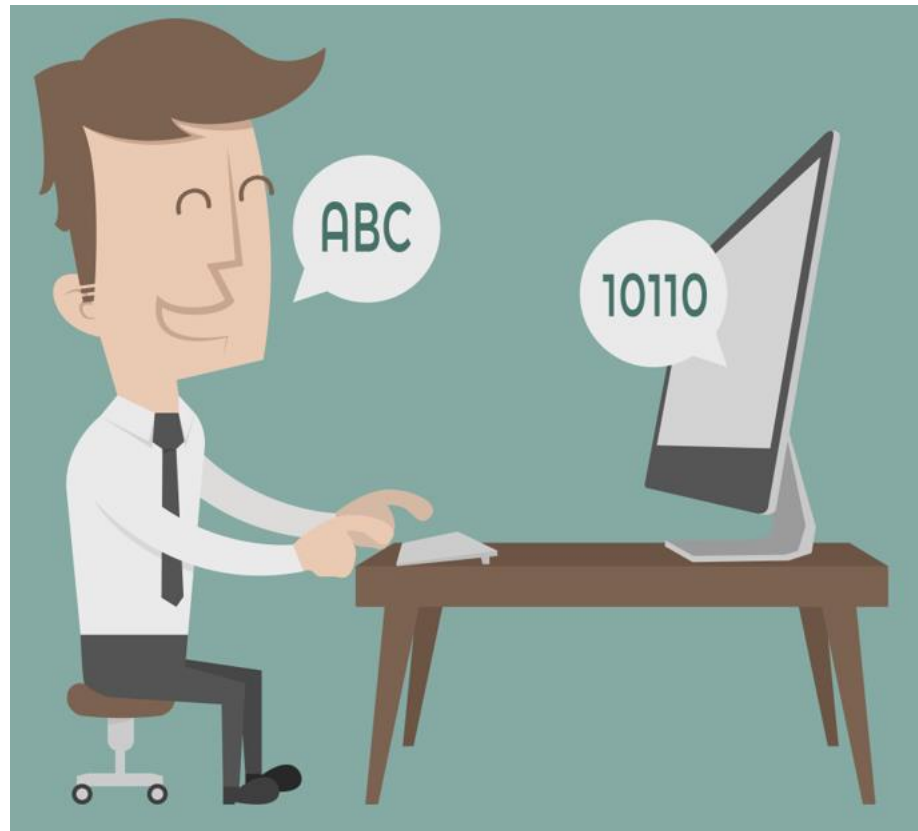


Take Decision









# TRANSLATING



```
print("Hello, World!")
```

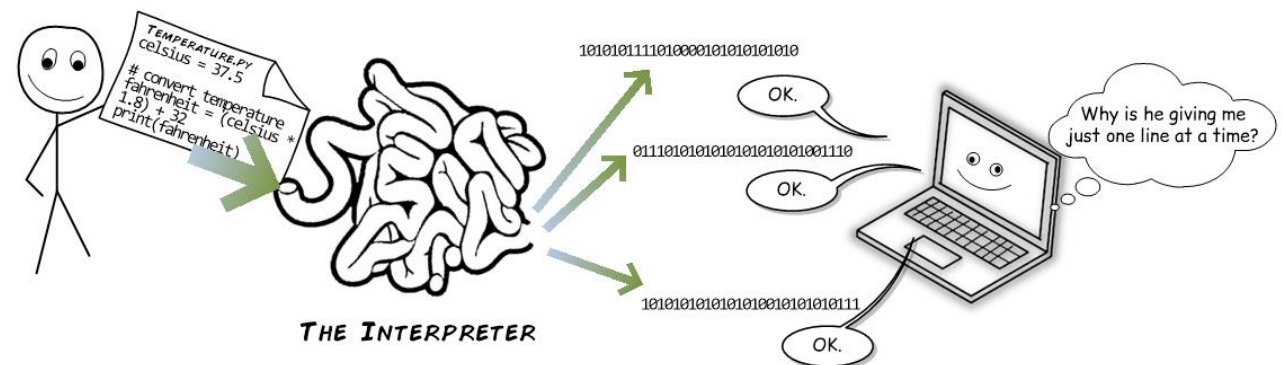
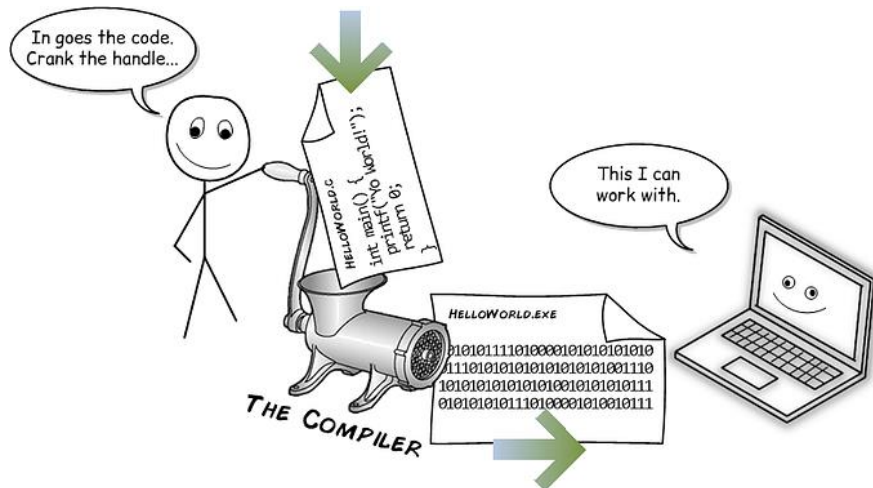
Interpreter  
or  
Compiler



```
01001000 01100101 01101100  
01101100 01101111 00101100  
00100000 01010111 01101111  
01110010 01101100 01100100  
00100001
```

# TRANSLATING

Python and R - interpreted language



# Python & R Programming



Type : Interpreted computer language  
Developed by : Guido van Rossum  
Integrates - C, C++, Java, JavaScript, and SQL.  
Cost - Free.  
Number of Packages - 300,000 +

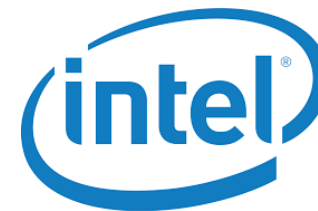
Type : Interpreted computer language  
Developed by : Ross Ihaka and Robert Gentleman  
Integrates - C, C++, Python, Java, Fortran, and JavaScript.  
Cost - Free.  
Number of Packages - 15,000+

# Introduction to Python Programming

Python is one of the most popular programming languages nowadays

Python is a widely-used general-purpose.

Python is generally used by :





# Origin

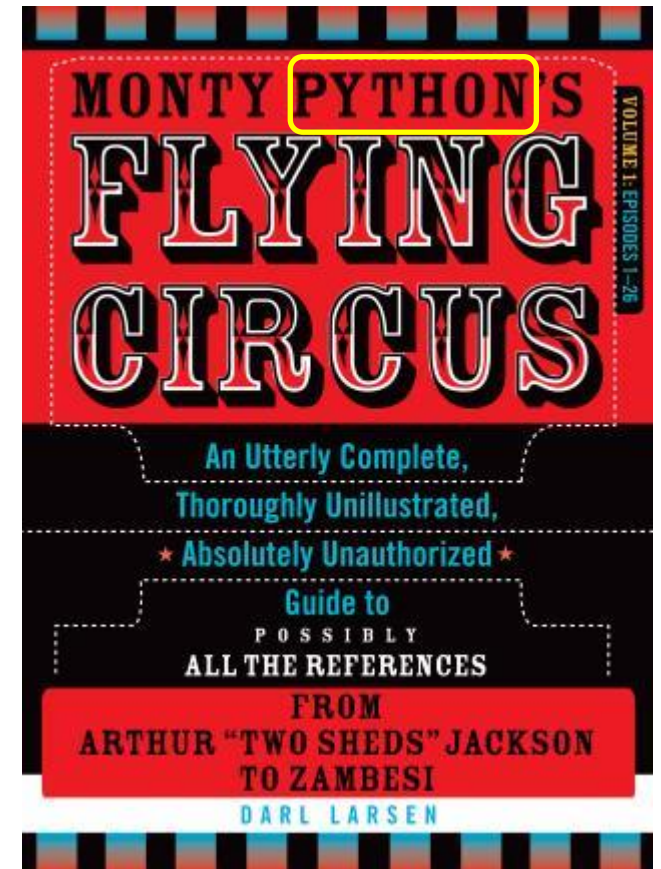
It was initially designed by Guido van Rossum in 1991 and developed by Python Software Foundation.



# 1989



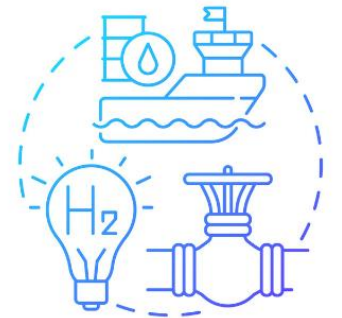
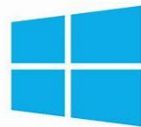
## Christmas Break



# Advantages Of Using Python

Simple  
syntax

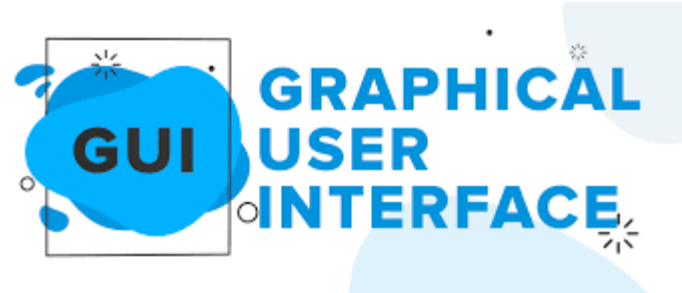
Small  
Codes



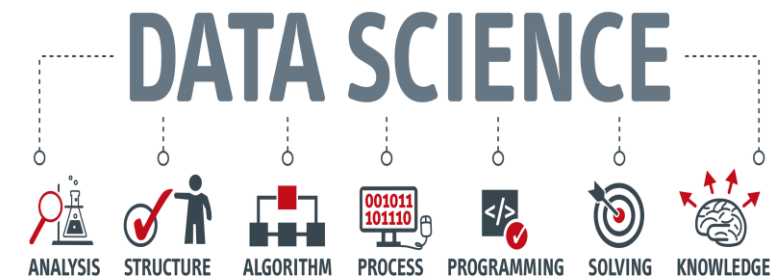
WIDE RANGE OF  
APPLICATION



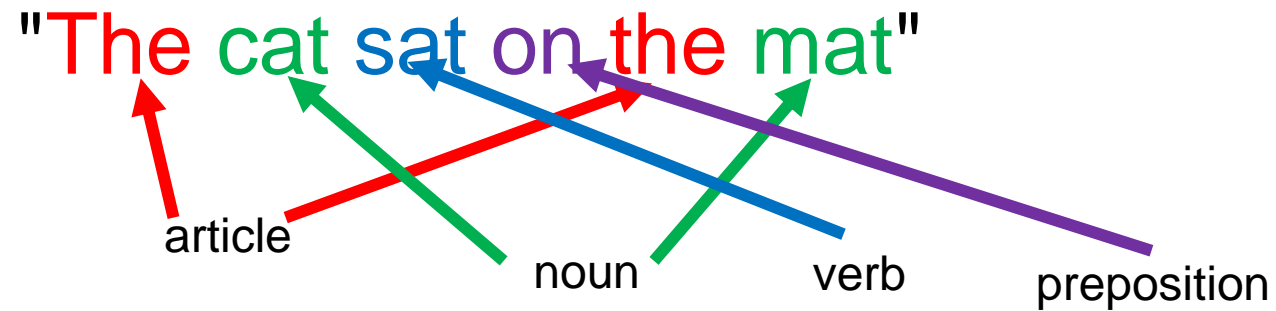
# Applications Of Python



**Numerical,**  
**Scientific**  
**Computing**



# Tokens Of Python



Keyword

Variable

Functions

Operator

Literal

# Keywords



and	or	not	if	elif	else	for	while	break	continue
as	def	lambda	pass	return	True	False	try	with	assert
class	del	except	finally	from	global	import	in	is	none
		nonlocal		raise	yield	async	await		



# Operators

## Arithmetic Operators

Operator	Name
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
**	Exponentiation
//	Floor division

## Comparison Operators

Operator	Name
==	Equal
!=	Not equal
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

# Variable & Literal

variable  $X = 1$  literal



Variable → Temporary storage space

# Data Type of a Variable



Variable → Temporary storage space

Shagun



**Datatype**

String

str

52



Integer

int

6.8



Floating Point

float

Datatype - represents the kind of data that a variable holds.

It tells what operations can be performed on a particular data

# Rules and Guidelines for Naming Variables

Use alphanumeric characters and underscores

Start with a letter or underscore

Use names that are descriptive

Avoid Keywords

Avoid using special characters

Case Sensitive

Aa Bb Cc Dd Ee Ff Gg Hh Ii

Jj Kk Ll Mm Nn Oo Pp Qq Rr

Ss Tt Uu Vv Ww Xx Yy Zz

\_

1 2 3 4 5  
6 7 8 9 10



# Functions

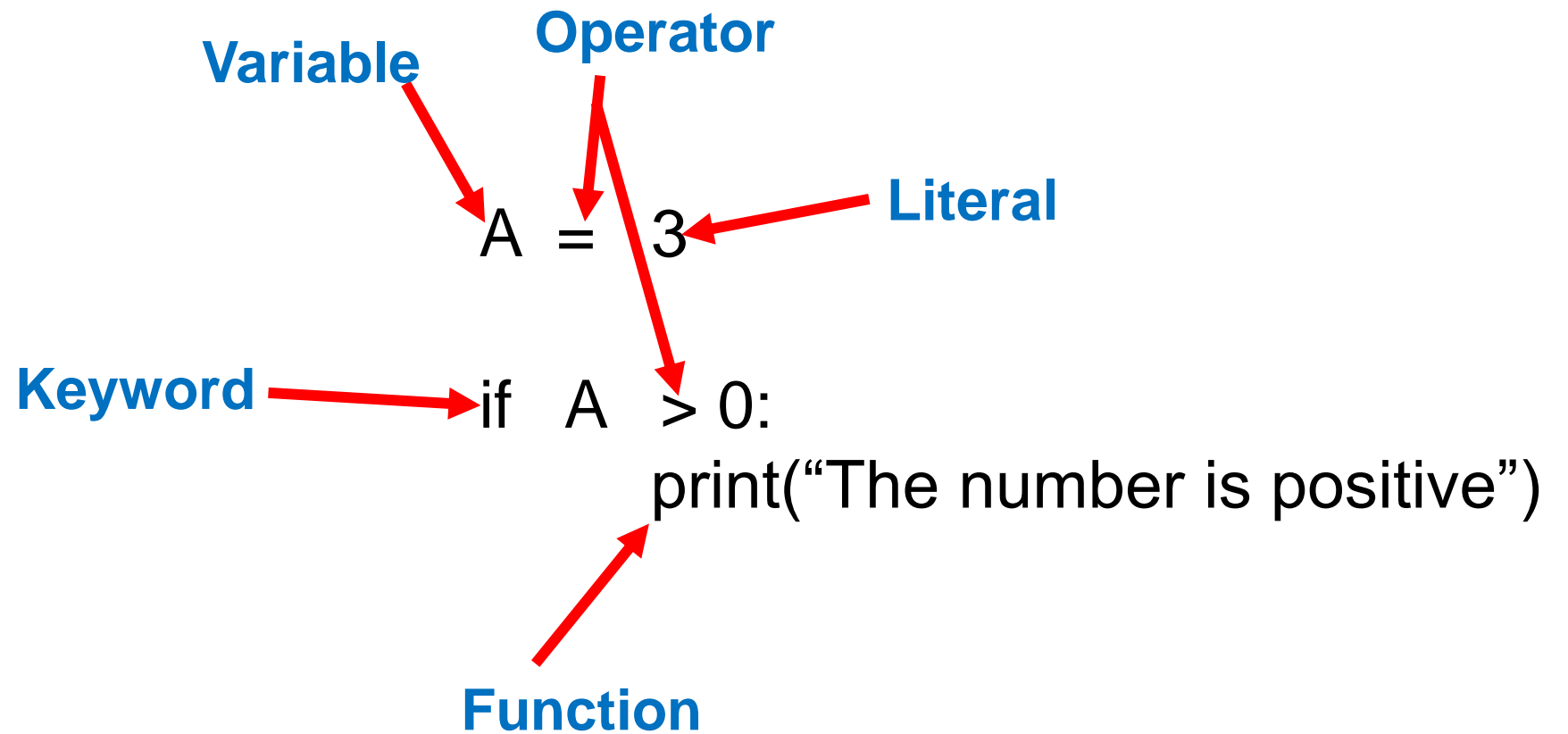
`print("Python Class")`



**Python Class**



# Code



# Functions

`print("Python Class")`



**Python Class**

# Libraries, Packages, Modules, Functions



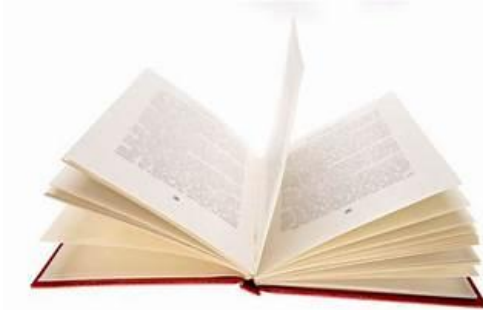
## Library

A library is a collection of modules that provide functionality for specific tasks.



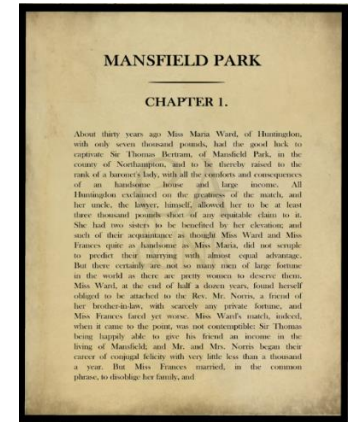
## Package

A package is a collection of related modules that are organized in a directory hierarchy.



## Module

A module is a single Python file that contains functions, classes, and variables.



## Function

A function is a block of code that performs a specific task.

## Some Common Libraries

 **pandas** - Data Manipulation and Analysis

**NumPy**  - Numerical Computing

 - Efficient Calculations

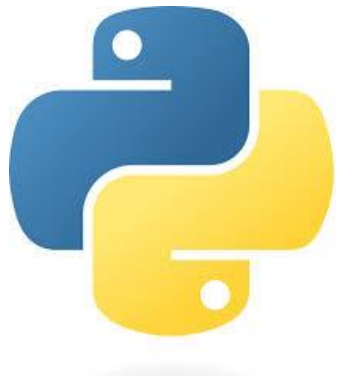
 **matplotlib**

 **seaborn**

 **plotly**

- Data Visualization

# GOOGLE COLAB



colab

- Google Colab, short for Google Colaboratory
- Its a free cloud service provided by Google that allows you to write and execute Python code in a web-based interactive environment.



*Thank  
You*