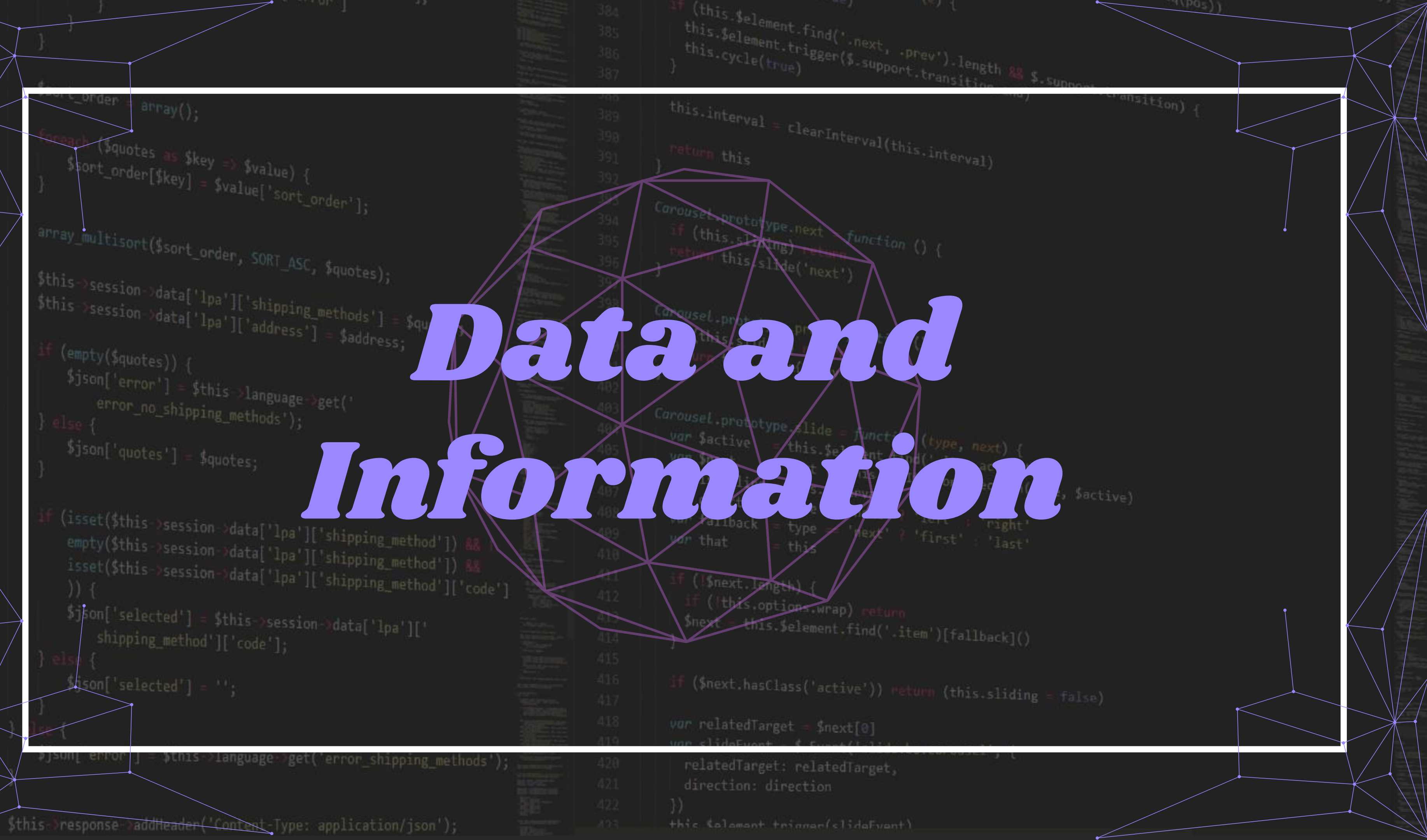


# PORTFOLIO #2



# ***Data and Information***





In the digital age, **data** fuels every aspect of business operations - from sales and marketing to strategic planning and customer service. But data alone is not enough to drive success. To thrive in today's competitive landscape, businesses must transform raw data into actionable insights, seamlessly transitioning from raw input to meaningful output. This process, known as turning **data into information**, holds the key to unlocking the power of data-driven decision making.

**Data** refers to unprocessed facts, statistics, or figures collected from various sources. It can be numbers, text, images, or any other form of input.

**Information** is the organized, processed, and meaningful interpretation derived from data. It provides knowledge, context, and understanding, enabling decision-makers to make informed choices and take appropriate actions.

## ***Main Differences Between Data and Information***

The terms data and information can mean different things in different contexts, but the main differences between them are:

- Data is a collection of facts. Information is how you understand those facts in context.
- Data is unorganized, while information is structured or organized.
- Information is an uncountable noun, while data is a mass noun.
- Data is not typically useful on its own, but information is.
- Data generally includes the raw forms of numbers, statements, and characters. Information doesn't have to.
- Information depends on data.



# ***Importance of Data***

- **Decision-Making:** Data enables leaders to make informed strategic decisions using facts, projections, and predictive analytics. This data-driven decision making is vital for organizational growth and competing in the market.
- **Science and Research:** Data is at the core of scientific research and discovery. Researchers rely on data analysis to test hypotheses, derive insights, validate concepts, and make new findings. Data helps accelerate the pace of innovation.
- **Technology and Innovation:** The tech industry relies on data to improve products/services, enhance user experiences, and develop data-driven business models. Startups leverage data analytics to build disruptive solutions.
- **Social Good:** Data helps governments, non-profits, and international agencies track progress on social issues, allocate resources, and design targeted interventions to uplift communities.
- **Legal Research:** In law, data aids in examining prior cases, understanding crime trends, conducting forensic analysis, projecting future litigation patterns, and regulating new technologies.



# ***Importance of Data***

The idea, which emphasizes turning raw data into insightful knowledge, is based on ideas from information theory and data science. In order to properly manage and use data in a variety of domains, including business intelligence, decision-making, and knowledge management, in order to extract actionable insights and make well-informed decisions, it is imperative to comprehend this distinction.

The importance of data cannot be overstated. It acts as the lifeblood of modern enterprises, guiding strategic decisions and fueling innovations that drive economic growth and social betterment. Organizations that harness the full potential of data are better equipped to navigate the complexities of the contemporary business environment.



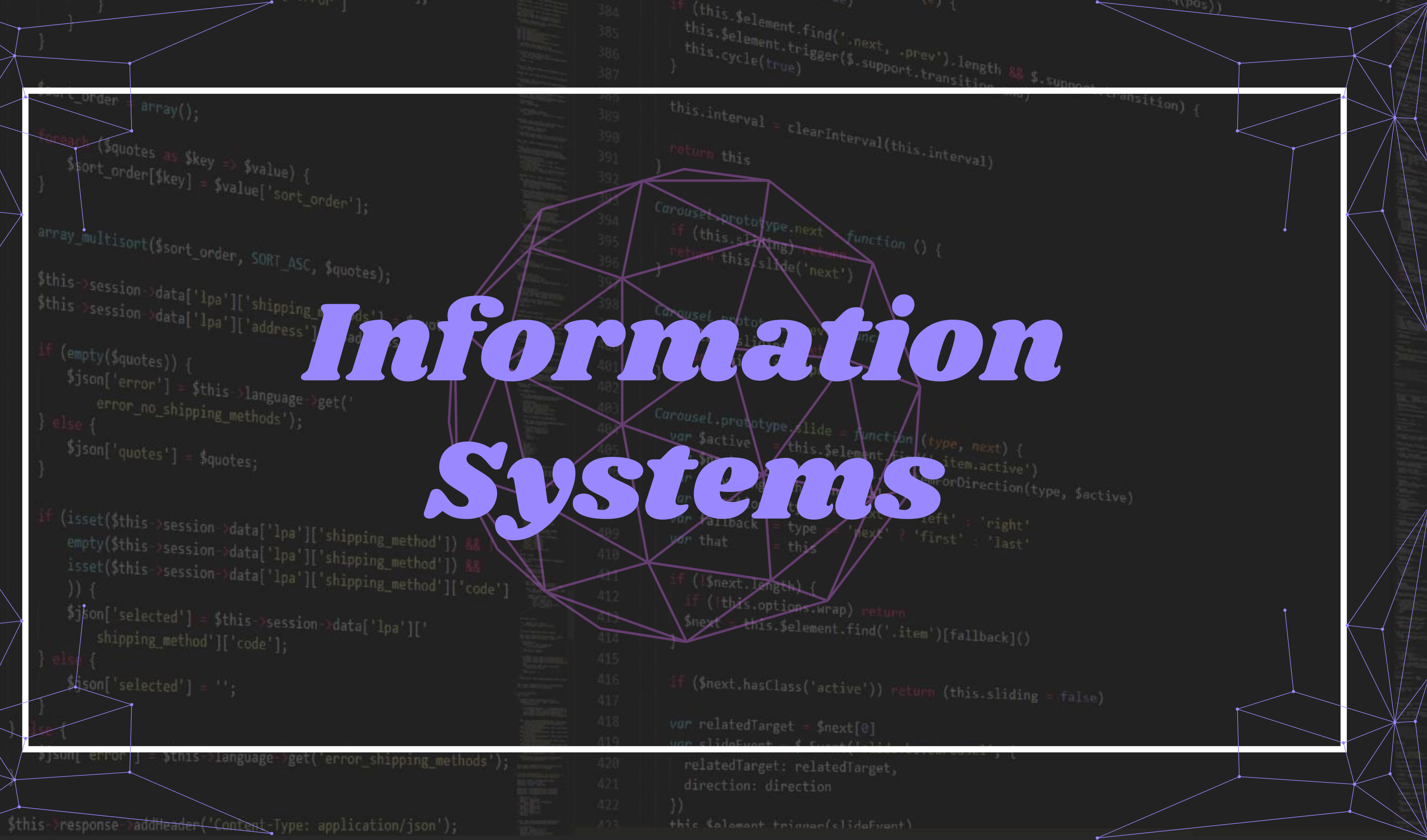


# ***Analysis/Reaction***

I am really amazed by how data and information work together. At first, data can just seem like a bunch of random numbers or facts. But if you dig deeper into it and understand it, it becomes incredibly useful. It helps us make better decisions, improve how things run, and come up with new ideas. It's amazing how understanding data can show us patterns and trends, which helps us manage risks and personalize experiences and turning it into information helps us understand it better. All in all I can see why Data and Information is very important in various fields.



# Information Systems





Information Systems (IS) are used to manage and process data to support decision-making and operations within organizations.

**Data** puts the "information" in information systems.

**Databases** and data warehouses store the qualitative and quantitative information (data) that users and software then retrieve, analyze, and manipulate.

## 5 Components of Information Systems

- Hardware

**Computers** are the physical hardware that make up information systems.

- Software

**Software** can be broken down into two types:

- System software, which allows you to manage the computer's files and overall interface (think operating systems like Windows 10).
- Application software, the programs that take care of specific tasks (think Google Sheets and Microsoft Outlook). System software creates a starting point from which application software can build.

Software can either be open-source or closed-source. Open-source software invites collaboration—users can modify its code to change how it operates. Closed-source software is proprietary, meaning the owner restricts the user's ability to modify it.



## 5 Components of Information Systems

- Data Sources

**Databases** and **data warehouses** store the qualitative and quantitative information (data) that users and software then retrieve, analyze, and manipulate.

Databases hold the information that the user regularly retrieves to complete essential operations, like saving a file's contents and accessing them. Data warehouses, on the other hand, store data collected from multiple sources over time to be analyzed and used to inform decisions.

- Telecommunications

**Telecommunications** is how computers share information with each other. Some connections are physical: coaxial and fiber-optic cables are physical wires used by telephone, internet, and cable providers to carry data.

Telecommunications makes it possible to access data via the cloud—without these systems in place, all data would have to be stored on one device.

## 5 Components of Information Systems

- Human Expertise or Human Resources

Automation is replacing a lot of tedious tasks with robots, but we haven't quite reached a Westworld-esque android takeover. Human experts capable of understanding and manipulating data are essential to any information systems strategy.





# ***Uses and Application***

Information Systems are vital across many fields, enhancing efficiency and decision-making. ERP systems streamline business operations, CRM systems boost customer relationships, and HRIS simplifies employee management. Health Information Systems ensure accurate patient data, GIS supports planning and navigation, and Educational IS facilitate online learning. Financial IS handle budgets and compliance, CMS makes content management easy, and Public Information Systems improve government services. These systems are essential tools that adapt to diverse needs and drive progress.





# ***Analysis/Reaction***

The work of Information Systems (IS) is really important in the world of technology, especially in business. Handling data can be quite challenging given the complexity and volume. However, when done right, these systems streamline operations, boost decision-making, and improve communication. They're essential not just for keeping businesses running smoothly, but also for driving progress in areas like healthcare and education. Essentially, they help turn data chaos into valuable insights that keep us moving forward. Which is why I am very impressed with the people who decide to take up IS.



# ***Different Types of Support Systems in Information Systems***



One of the most widely-used systems for classifying different Information Systems (IS) is known as the pyramid model. The pyramid model classifies information based on the tasks and responsibilities that are found in a hierarchical organization.

**Managers** residing at these three levels have different information needs and consequently utilize information systems that satisfy their specific information needs. Within these three levels are five types of information systems.

# 5 Types of Information Systems



## ***Operational Level***

- Transaction Processing System

Operational managers use **transaction processing systems** that can track and capture automated or semi-automated transactions between an employee and a customer, an employee and a supplier, or even between two employees of different departments within the same organization. The main job of a transaction processing system is to validate, sort, merge, calculate and update data from these transactional events and produce summary reports or lists from which decisions can be made.

Examples of transaction processing systems include:

- Payroll systems
- Order processing systems
- Reservation systems
- Systems for payments and fund transfers

- Process Control System

**Process control systems** are used to monitor and control physical processes. Unlike transaction processing systems, process control systems take their input data from sensors to generate reports that are analyzed by an operational manager to adjust the business process.

Examples of process control systems include:

- Assembly lines
- Petroleum refineries

## ***Middle Management***

- Management Information Systems

**Management Information Systems** are built on data provided by transaction processing systems. They extract their data from databases located in different departments to compile reports such as sales analysis, inventory level reports, or financial statements.

Examples of management information systems include

- Sales management systems
- Inventory control systems
- Budgeting systems
- Human resource management systems

- Decision Support Systems

**Decision support systems**, on the other hand, are interactive systems that can be seen to solve ill-structured or semi-structured problems.

Examples of decision support systems include

- Group decision support systems
- Computer-supported cooperative work systems
- Logistics systems
- Financial planning systems



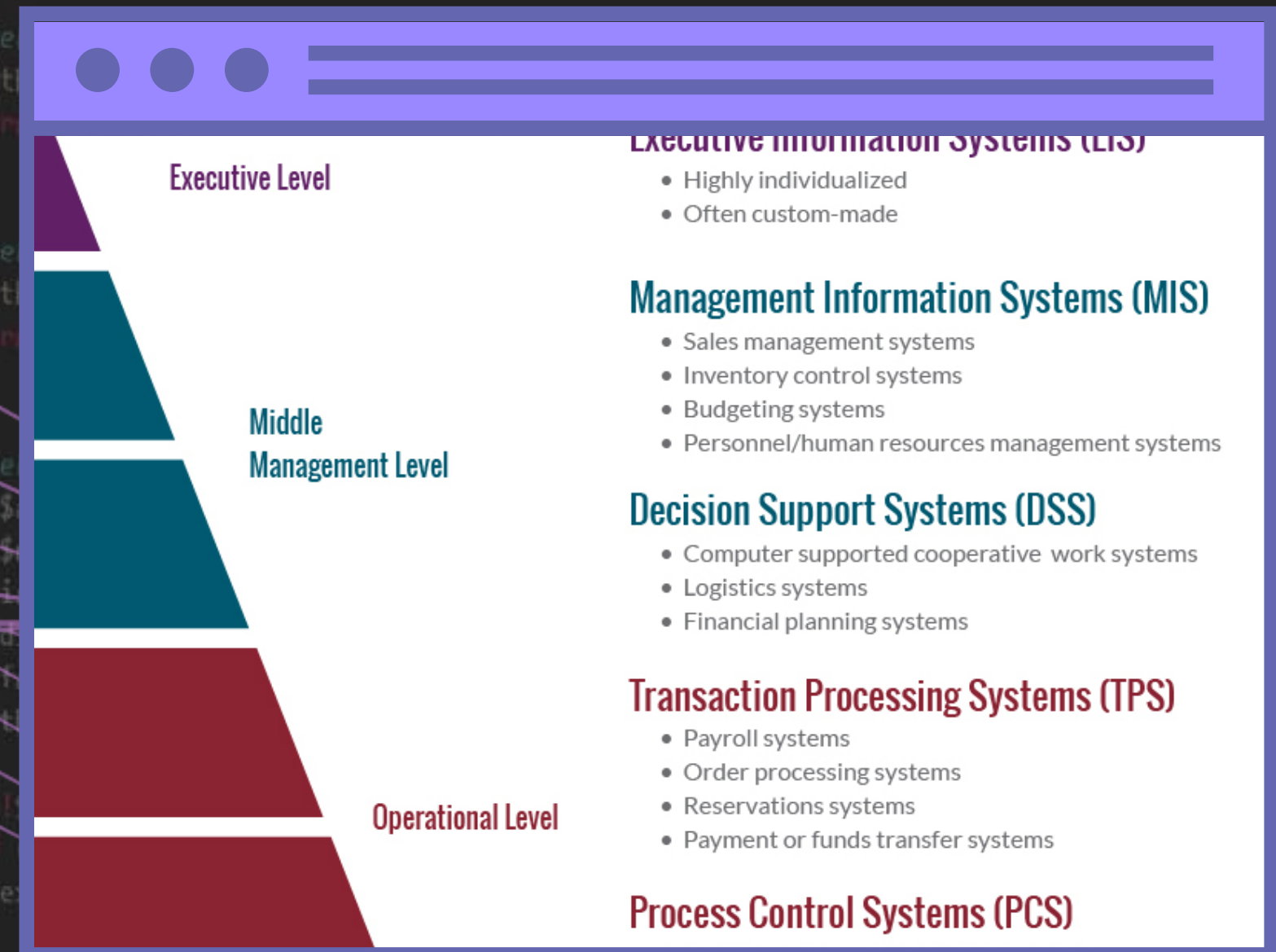
## ***Executive Level***

The top-most level is the senior executive level, also known as the C-suite level because management at this level is comprised of CEOs, COOs, CIOs, CFOs, etc.

- Executive Information Systems

**Executive information systems** help executives and other senior managers analyze the environment in which the organization operates to identify long-term trends and to plan appropriate courses of action. The information in such a system is often weakly structured and comes from both internal sources, such as its own databases or data warehouse, and external sources, such as data from customers, suppliers, or other governmental databases.

Executive information systems tend to be highly individualized and are often custom-made for a particular client group.





# ***Analysis/Reaction***

In my analysis, information systems's different support systems handle different processes and work together. Without this hierarchy, people would be disorganized and confused about what they are supposed to contribute, as data has so many possibilities to present. Each system, whether it's for managing finances, customer relationships, or employee records, provides crucial support and direction. In general, these systems turn the potential chaos of data into clear, actionable insights that guide us and keep things running smoothly.



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