



SNS COLLEGE OF ENGINEERING



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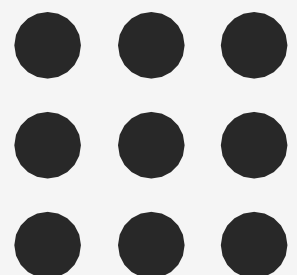
Department of Artificial Intelligence and Data Science

Course Name - Foundations of Data Science

III Year / VI Semester

Unit 1 - Introduction

Topic 8: Top Challenges facing Big Data





Challenges



1. Need For Synchronization Across Disparate Data Sources
2. Acute Shortage Of Professionals Who Understand Big Data Analysis
3. Getting Meaningful Insights Through The Use Of Big Data Analytics
4. Getting Voluminous Data Into The Big Data Platform
5. Uncertainty Of Data Management Landscape
6. Data Storage And Quality
7. Security And Privacy Of Data



Challenges

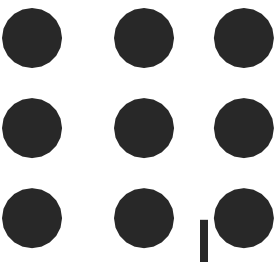


1. Need For Synchronization Across Disparate Data Sources

- As data sets are becoming bigger and more diverse, there is a big challenge to incorporate them into an analytical platform.
- If this is overlooked, it will create gaps and lead to wrong messages and insights

2. Acute Shortage Of Professionals Who Understand Big Data Analysis

- With the exponential rise of data, a huge demand for big data scientists and Big Data analysts has been created in the market.
- It is important for business organizations to hire a data scientist having skills that are varied as the job of a data scientist is multidisciplinary.
- Another major challenge faced by businesses is the shortage of professionals who understand Big Data analysis.
- There is a sharp shortage of data scientists in comparison to the massive amount of data being produced.



Challenges

3. Getting Meaningful Insights Through The Use Of Big Data Analytics

- It is imperative for business organizations to gain important insights from Big Data analytics, and also it is important that only the relevant department has access to this information.
- A big challenge faced by the companies in the Big Data analytics is mending this wide gap in an effective manner.

4. Getting Voluminous Data Into The Big Data Platform

- It is hardly surprising that data is growing with every passing day. This simply indicates that business organizations need to handle a large amount of data on daily basis.
- The amount and variety of data available these days can overwhelm any data engineer and that is why it is considered vital to make data accessibility easy and convenient for brand owners and managers.



Challenges



5. Uncertainty Of Data Management Landscape

- With the rise of Big Data, new technologies and companies are being developed every day.
- However, a big challenge faced by the companies in the Big Data analytics is to find out which technology will be best suited to them without the introduction of new problems and potential risks.

6. Data Storage And Quality

- With the tremendous growth of the companies and large business organizations, increases the amount of data produced.
- Popular data storage options like data lakes/ warehouses are commonly used to gather and store large quantities of unstructured and structured data in its native format.
- The real problem arises when a data lakes/ warehouse try to combine unstructured and inconsistent data from diverse sources, it encounters errors.
- Missing data, inconsistent data, logic conflicts, and duplicates data all result in data quality challenges.



Challenges



7. Security And Privacy Of Data

- The Big Data tools used for analysis and storage utilizes the data disparate sources.
- This eventually leads to a high risk of exposure of the data, making it vulnerable.
- Thus, the rise of voluminous amount of data increases privacy and security concerns.



Importance of Big Data Analytics

- Organizations can use big data analytics systems and software to make data-driven decisions that can improve business-related outcomes.
- The benefits may include
 - more effective marketing,
 - new revenue opportunities,
 - customer personalization and
 - improved operational efficiency.
- With an effective strategy, these benefits can provide competitive advantages over rivals.
- The analytical accuracy will lead a greater positive impact in terms of
 - Enhancing operational efficiencies,
 - reducing cost and time, and
 - originating new products, new services, and
 - optimizing existing services
 - Higher profits

Why Big Data Analytics Important

Cost reduction

Big data technologies such as Hadoop and cloud-based analytics bring significant cost advantages when it comes to storing large amounts of data – plus they can identify more efficient ways of doing business.

Faster, better decision making

With the speed of Hadoop and in-memory analytics, combined with the ability to analyze new sources of data, businesses are able to analyze information immediately – and make decisions based on what they've learned.

New products and services

With the ability to gauge customer needs and satisfaction through analytics comes the power to give customers what they want. Davenport points out that with big data analytics, more companies are creating new products to meet customers' needs.





THANK YOU