NEWSLETTER

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Message from Head of the Department

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I take the privilege to welcome you to the Department of Computer Science & Engineering, Future Institute of Technology, Kokata, India..

Technology changes rapidly, especially in the field of computing, whereas the science, if it changes at all, does so much more gradually.

Our understanding is that persons who are clear and thorough about the fundamentals can adapt to rapid changes in technology relatively easily.

We want the education imparted to our students to be the basis of a life time of learning.

Ever since we started our journey way back in 2014, our department has produced hundreds of professionals and has established a name for itself in the country and abroad. They have consistently excelled in the highly competitive industrial environment, in top-ranking companies.

I attribute this success to the winning combination of a dedicated faculty team that works hard at imparting quality education to our students.

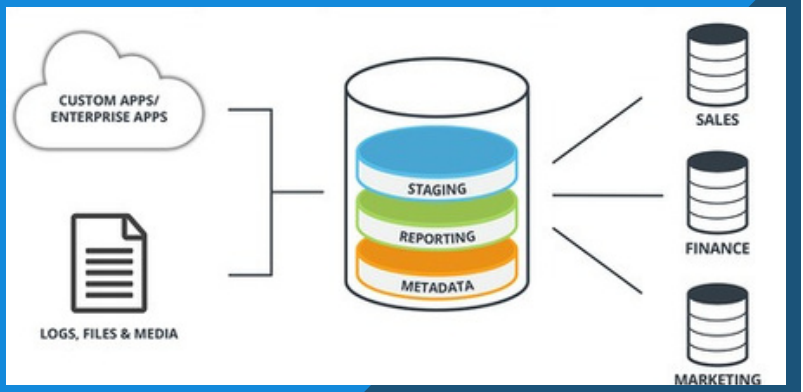
Learning is a continuous process and does not end with the acquisition of a degree, especially because steady and rapid advances in computing technologies shorten the life of tools and techniques prevalent today.

Therefore we do not aim to make our students walking manuals of any language or package. Instead, they are given a strong foundation in computer science and problem-solving techniques, and are made adaptable to changes.

We believe that this approach to teaching-learning, coupled with practical experience gained during Industrial Training in reputed organizations, equips our students to handle the challenges posed by the software industry.

Data Warehousing: Key Features, Application Areas, and Role in the IT Industry

Large volumes of structured and unstructured data from multiple sources are stored, arranged, and managed within an organization using the method and technology known as data warehousing. Data warehousing's main goal is to provide business intelligence (BI) and analytics activities a centralized, integrated, and historical view of the data. A typical data warehouse for a business organization with different departments called data marts, which include units such as sales, finance, and marketing, is given below.



The essential elements and traits of data warehousing are as follows:

·Data Sources: Transactional databases, spreadsheets, flat files, and external sources are just a few examples of the operational systems from which data warehousing collects information.

·Data Integration: The data is extracted, transformed, and loaded (ETL) into the data warehouse from numerous sources. To ensure quality and consistency, data is cleansed, standardized, and transformed during this procedure.

·Data Storage: The integrated data is organized and kept in the data warehouse.

·Data Storage: The combined data is stored in a structured format that is optimized for searching and analysis in the data warehouse. This storage often takes the form of tables that have been arranged into fact and dimension tables according to a star or snowflake schema.

·Data Access: Users can utilize business intelligence tools, reporting tools, or data visualization software to access data that has been stored in the data warehouse. Users using these tools can execute sophisticated searches and provide reports for analysis.

·Historical Data: Data warehousing frequently stores previous data, enabling analysts and decision-makers to do trend analysis and make knowledgeable judgments based on historical insights.

·Separation from Operational Systems: By separating the analytical workload from the operational workload via data warehousing, the impact of reporting and analysis on operational systems is reduced.

·Data Governance: Data warehousing places a strong emphasis on data governance, ensuring that data is reliable, accurate, and consistent.

·Scalability: Data warehouses are made to manage high data volumes and support expanding analytical requirements.

Organizations can learn a lot about their operations, clients, and market trends from data warehousing. It facilitates data-driven decision-making, pattern recognition, and process optimization. Data warehousing reduces the complexity of data administration and improves an organization's overall data analytical capabilities by centralizing data. Data warehouses frequently employ indexing, segmentation, and caching strategies to guarantee effective query performance.

-Arnab Hazra,asst prof.

Data Mining: Concepts, Features, and Applications

Discovering patterns, relationships, and usable information from massive data sets is a process known as data mining, often referred to as knowledge discovery in databases (KDD). It is an interdisciplinary field that incorporates methods from database administration, statistics, machine learning, and artificial intelligence.

Data mining's main objective is to draw out valuable facts and insights from huge, complicated datasets that might not be immediately obvious through straightforward data exploration. Data mining enables analysts and researchers to find hidden patterns, trends, relationships, and correlations within the data by using a variety of techniques and approaches.

There are several applications of data mining (given in Figure 2 above), including:

·Business intelligence: It is the act of finding chances for firms to improve their operations and decision-making by identifying market trends, consumer preferences, and market opportunities.
·Fraud detection: Finding suspect patterns or dishonest behaviour in financial transactions or insurance claims is known as fraud detection.
·Healthcare: Examining medical data to find patterns that can help with patient outcome prediction, diagnosis, and therapy.
·Recommender Systems: Systems that recommend goods, films, or information based on past usage patterns and user preferences.
·Marketing: Customer segmentation and behaviour analysis to develop focused marketing efforts.
·Risk analysis: identifying and reducing risks in a variety of industries, including manufacturing, insurance, and finance.

Data gathering, data preprocessing (cleaning and translating data into a suitable format), data exploration, model development (using multiple methods), model evaluation, and result interpretation are typical stages of the data mining process. Iterative in nature, the process involves analysts fine-tuning their methods as they learn from and comprehend the data.
While data mining can yield insightful information, it must be utilized ethically and responsibly, adhering to privacy and data protection rules and taking into account any potential biases and limits in the data and algorithms.

-Asish Pramanick,asst prof.