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The Interaction of Data science and IOT

The Interaction of data science and the internet of things is very crucial aspect in the modern era of modern technology helps in enabling the collection, processing, and utilization of the data from different interconnected devices and sensor. The vast network of interconnected devices and sensors, combined with data science, has opened up endless possibilities for businesses, industries and everyday life. and Data science plays important role in transforming raw iot data into valuable insights, automating processes, and making informed decisions. Data science itself multidisciplinary field combination of statistics, mathematics, computer science and domain-specific knowledge to extract meaningful patterns and insights from data. On other hand internet of thing refers to interconnected network of physical devices equipped with sensors, actuators, and connectivity, enabling them to collect and exchange data. when these two domains combine the result to change technology era.

Now Talking about Data generated by iot is as we know everything we know on earth is generating data like iot device used in homes, car even our bodies. The planet has 8.3 billion connected devices, which are more than the world's population. There is prediction that 75 billion of devices connect until 2025. outside the house, the objects like traffic light, ATM, GPS, satellites, airplanes cars, factories, by the year 2025, it estimate that 2500000 vehicles connected to the internet. and the data generated by iot devices if often noise and incomplete, and data science technique are needed to ensure the quality of the data through cleaning and imputation and data science is also essential for handling the massive amount of data generated by iot devices, requiring scalable data processing and analytics. There are several modes of iot-enabled data collection, including real-time, event-based, periodic, data gathering. The data generated by iot devices can be leveraged to gain insights automate processes, and make decision making for business purpose. The curiosity things about iot and data science is the volume of data in the world should reach 163 zetta bytes by the year of 2025. and an ordinary person will interact at least 4800 times a day with connected devices.

Data science plays a crucial role in internet of things by transforming raw iot data into valuable insights, automating processes, making business decision. It is the driving force behind iot applications, empowering data-driven decisions and enhancing efficiency. Data science for iot is a major upgrade of traditional data analytics, dealing with massive volumes of data that can reach entire zettabytes and enabling better predictive analytics methods. The interconnected nature of iot devices raises concerns about data privacy and security, and data science play a role in developing robust encryption and addressing these challenge. The innovation and the iot provides proof of data science's indispensable role in the modern world, and the iot industry has growing need data science talent therefore, data science and iot are interrelated, with data science being crucial to growth of iot.

Real-time system are a fundamental part of the IOT. These system are critical to ensuring reliability and security in environment where decisions must in a matter of milliseconds in a real time system, events are captured and processes in real-time, and the system response must be fast enough to ensure that time and performance requirements are met. Real time system are used in industrial automation, air traffic control, medical system, and many more. These devices have to respond to changes in the