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IBM(International Business Machine Corp)

IBM is an American multinational information technology company with operations over 170 countries.IBM produces and sells computer hardware, middleware, and software, and provides hosting and consulting services in areas ranging from mainframe computers to nanotechnology. IBM is also a major research organization, holding the record for most U.S.patents generated by a business as of 2020 for 27 consecutive years. Inventions by IBM include the automated teller machine (ATM), the floppy disk, the hard drive, the magnetic stripe card, the relational database, the SQL, the UPC bar code, and dynamic random access memory. The IBM mainframe, exemplified by the system, was the dominant computing platform during the 1960s and 1970s. IBM has a large and diverse portfolio of products and services. As of 2016, these offerings fall into the categories of cloud computing, Artificial Intelligence, commerce, data and analytics, internet of things, IT infrastructure mobile, and security.

Research has been a part of IBM since its founding, and its organized efforts trace their roots back to 1945 when the Watson Scientific Computing Laboratory was founded at Columbia University, converting a renovated fraternity house on Manhattan's West Side into IBM's first laboratory. Now, IBM Research constitutes the largest industrial research organization in the world, with 12 labs on 6 continents. IBM Research is headquartered at the Thomas J Watson in New York, and facilities include the Almaden lab in California, Austin lab in Texas, Australia lab in Melbourne, Brazil lab in Sao Paulo and Rio de Jarmio, China lab in Beijing and Shanghai, Ireland lab in Dublin, Haifa lab in Israel, India in Delhi and Bangalore, Tokyo lab, Zurich lab and Africa lab in Nairobi.

IBM has been an integral part of information technology. It has been contributing to technology for a long time. From IBM computers to any software solutions. One of the projects they have been working on calls, digital twin. Digital twins have one fundamental purpose: To model the behavior of real-world systems to enable people to make better business decisions that impact the real world. This can be direct, through decision support; for example, a digital twin can simulate a large number of scenarios that are possible in a Formula 1 race to determine whether a driver should be called in for a pit stop when the pace car comes onto the track. A project planning digital twin can be used to compare different lifecycle plans based on impact from other digital twins as they evolve to assist with contingency and resilience management to ensure the plan is achievable.he ability to digitally reflect sensor information from a real-world instance of an asset has become increasingly feasible over the last few years with the evolution of Industrial IoT solutions.

IBM is trying to translate a business problem into an AI and data science solution. The data scientist breaks the problem into a process flow that always includes an understanding of the business problem, and understanding the data that is required, and the types of artificial intelligence (AI) and data

science techniques that can solve the problem. Together, this information drives an iterative set of thought experiments, modeling techniques, and evaluation against the business goals. The focus must stay on the business. Bringing in technology too soon can guide the solution to technology, and the actual business problem might be forgotten or not fully answered. For example, a bank wants to optimize its loan underwriting procedures. Currently, it applies filters on loan applications that automatically reject the riskier ones. However, the bank is still approving too many applications that run into repayment issues. The goal is to create a predictive model to identify loans that might be bad loans. However, in the raw data, no one field indicates whether the loan is good or bad. A data scientist detects what a risky loan is or detects which loans ran into problems. Segment loans into different categories by using information such as the purpose of the loan. The loan amount, and the term of the loan Sort customers into different groups based on their demographic data. Discover patterns that cross all three types.

   With the IBM Watson Assistant, you can build conversational interfaces into any application, device, or channel. Most virtual assistants try to mimic human interactions, but Watson's Assistant is more. Watson Assistant knows when to search for an answer from a knowledge base, when to ask for clarity, and when to direct you to a human. The following video gives a high-level overview of the Watson Assistant service. Watson Assistant, which uses Watson AI machine learning (ML) and natural language understanding (NLU), is marketed to businesses that want to have the option of keeping the data that flows through their virtual assistant private. Unlike other vendors that aggregate the information their virtual assistants gather, IBM offers developers the choice of isolating the information their assistant gathers in a private cloud to protect proprietary insights gained through user interaction. Users can interact with the developer's application through a variety of interfaces, including voice and touch. Watson's Assistant can also act like an in-suite hotel concierge, providing suggestions and information about the local area as well as responding to individual questions. Upon request, Watson Assistant can connect to a hotel thermostat and change the room's temperature or be programmed to ask guests if they would like to turn lights off or close the drapes at a pre-identified time.

   Watson processed more than 18 million documents into 350,000 factoids that were further refined into 1,068 insights for 900+ nominees. That effort required a flexible and computationally intensive platform. Baughman and Wilkin walked attendees through the deployment that combined Docker containers and the Red Hat OpenShift on IBM Cloud platform to scale computational processing capabilities for batch processing. The entire AI pipeline was supported by 7 images running Node.js v12 and Python v3.7. The cluster itself had 6 workers, with 4 vCPUs and 16 GB RAM each. This configured cluster allowed IBM and the GRAMMYs to process all 900 nominees within 10 hours.

   Watson services are hosted in the IBM Bluemix cloud platform, and each service provides a REST API for interacting with the service. But while the REST APIs are the definitive way of accessing the WDC services, let's face it: using REST APIs directly in your favorite programming language can be a pain. So, to simplify using the WDC services in a Java environment.

   IBM Watson artificial intelligence (AI) has your back when you cannot sleep at night thinking about your ESPN Fantasy Football lineup selections. #FantasyFootballFace. ESPN Fantasy Football with

Watson has been designed to perpetually read, understand, and comprehend multimedia and text data. Our fantasy football insights constantly update fantasy football player insights in near real-time with the goal of no downtime. IBM Watson is always on, engaged in fantasy football analysis 24/7 to make you a better player, even when you rest. he AI system architecture follows a continuous availability (CA) architecture to achieve at least 5 9s of uptime or only 5 minutes of planned and unplanned outages per year. The back-end components that generate the fantasy football predictions, evidence, and trends are run in parallel over three different Out of Region (OoR) centers on the IBM Cloud.

Model stacking should always be accompanied by cross-validation to reduce overfitting models to training data. Model stacking seems like a simple technique to improve your results when you understand what happens inside the algorithm. However, there are many components interacting and keeping track of all of them can be challenging, especially when first learning this concept. For us to fully understand the algorithm, IBM created a step-by-step image and description.

Recources:

- https://developer.ibm.com/technologies/analytics/articles/
- https://en.wikipedia.org/wiki/IBM#Products_and_services
- https://developer.ibm.com/articles/introduction-watson-assistant/
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