UTM UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

Technology and Information System (SECP1513)

System Development @ **Credence (TM Subsidiary)**

ASSIGNMENT 3

REPORT ON INDUSTRIES TALK

credence

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Description Of System Development

In Credence's System Development Life Cycle (SDLC), the Planning Phase lays a critical foundation for effective project and product management. This initial stage involves meticulous tasks, including resource allocation, capacity planning, scheduling, cost estimation, and provisioning. Recently launched at EQ Hotel KL under the leadership of industry veteran Krish Datta, Credence strategically positions itself as a dedicated entity for technology and digital innovation. This phase responds to evolving enterprise needs in the digital landscape, emphasizing a commitment to empowering organizations through end-to-end solutions. Credence leverages local and international expertise, addressing customer demands through strategic connections in Financial Analytics, Sales and Marketing Analytics, Viewership Analytics, Operations Analytics, and Dynamic Pricing.

Transitioning into the Design Phase, Credence's focus sharpens on four key pillars: Cloud Services, Data and Analytics, Software Modernization, and Managed Services. The pivotal element, Cloud Services, aims to transform information into valuable insights, enhance operational efficiency, expedite decision-making, and ensure overall profitability through Credence Cloud Analytics. This comprehensive service covers the entire lifecycle of big data analytics, demonstrating a commitment to addressing business challenges comprehensively. The incorporation of the Open Application Module (OAM) further emphasizes adaptability and scalability, showcasing Credence's dedication to delivering comprehensive and forward-looking solutions.

Moving forward to the Implementation Phase, post-testing and user acceptance, Credence strategically aligns with cutting-edge technology solutions. Partnerships with Oracle for robust database management, Lemongrass for cloud optimization, Arteria for enhanced connectivity and data flow, Maventic for custom software development, and Darwinbox for modernizing human resource management reflect Credence's commitment to innovation, efficiency, and strategic alignment with business objectives. This orchestrated collaboration ensures a technologically advanced and tailored foundation, positioning the organization for success in a dynamic and competitive landscape. The integration of a strategic partner ecosystem underscores Credence's holistic approach, covering operational aspects and people-centric dimensions within the organization.

Entering the Testing Phase, the evaluation of created software becomes paramount. The testing team conducts assessments, including functional testing such as unit testing, code quality testing, integration testing, system testing, security testing, performance testing, acceptance testing, and nonfunctional testing. Identifying defects prompts notification to developers, and validated defects lead to resolutions and the production of new software versions. The implementation of automated testing, supported by continuous integration tools, ensures regular and reliable test execution, enhancing the overall efficiency of the SDLC. Finally, in the Maintenance Phase, the officially released software undergoes ongoing support and optimization in the production environment, emphasizing Credence's commitment to sustained technological excellence.

History of Credence (Powered By Telekom Malaysia)

In 6 July 2022, Telekom Malaysia Berhad (TM) had launched Credence, a new cloud and digital services company that focused on technology and digital innovation to expand the capabilities of enterprises and the public sector. The purpose of creating Credence is to help organisations to overcome problems of execution of digital transformation. Besides that, Credence also able to help their enterprise to navigate the process of moving from their intentions to actual implementation, and from raw information to valuable insights in the shortest amount of time, with minimal friction, and with a better control and predictability for greater efficiency and reliability.

The person that leads Credence until today is named Krish Datta. Krish Datta is the founder and chief executive officer of Credence. He is an experienced technology leader who joined TM in 2021. On the same day of the launch of Credence, Krish Datta announced that Credence will also work with VMware to deliver their first sovereign cloud service in Malaysia. Besides that, he also announced that AWS and Huawei will become key partners with Credence that enable them to offer many great options to enterprises for their growth needs.

Technologies and Tools used in Credence

In Credence, a ton of technology is implemented and utilized by their own company to ensure efficient and effective progress as well as standard operating procedures are met.

For Database structures and OLAP (Online Analytical Processing), PostgreSQL, ClickHouse, and Druid are used in this field to organize and store in a way that facilitates efficient retrieval, management and manipulation of that data. Database are fundamental to the functioning of many software applications, allowing for efficient storage, retrieval and management of data which are used in a wide range of domains, including web development, business applications, and scientific research.

Furthermore, Credence also used a wide variety of visualization tools such as Tableau, PowerBi, Metabase, and Superset. Two of the most popular and most used visualization tools in Credence are Tableau and PowerBi. From what we gathered from the speaker, Metabase and Superset are often recommended to customers who have a limited budget. Visualization tools are software applications or platforms that enable users to create graphical representations of data to better understand patterns, trends, and insights. These tools also help transform raw data into visual formats such as charts, graphs and dashboards, making it easier for individuals and organizations to interpret complex information.

Moreover, ETL (Extract, Transform, Load) and ELT(Extract, Load, Transform) are also utilized in Credence which are processes used in data integration and data warehousing. Both ETL & ELT are involved in extracting data from source and loading it into the target system but both differ in the order in which the transformation step occurs during the data integration process and then performing transformations within the target system itself. For instance, Credence commonly uses Airflow and Spark because both can orchestrate data and then later transform the data for storing in a database for AI developer use.

Last but not least, the most vital tech or tool at their disposal is the programming languages. Programming languages are essential as they are the formal systems designed to communicate instructions to a computer. There are numerous programming languages, each with its own syntax, semantics and purpose. The choice of a programming language often depends on the specific requirements of a project and the target platform. The most highly valued programming languages in Credence are SQL and Python. Bash Syntax was also mentioned by the speaker and it is mostly used when the data is on Cloud such as Microsoft Azure, AWS (Amazon Web Services) and VMware Cloud, for data pipeline and redirection on the backhand which can provide a powerful and flexible environment for scripting on Unix-like systems.

Skills are required to be data engineer in the future

A skilled data engineer should be proficient in SQL and consider it as an indispensable language in data. They are adept at using techniques such as correlated sub-queries and window functions to express different levels of complexity through SQL. In addition to the declarative nature of SQL, data engineers should be able to understand the database execution plan, understand how indexes work, and be familiar with the different join algorithms and distributed dimensions in the plan.

Data modeling is an essential skill, and engineers should demonstrate an inherent understanding of entity relationship modeling, normalization, and the subtle trade-offs associated with denormalization. In addition, mastering dimensional modeling and its related concepts helps them build data skillfully and efficiently.In ETL design, data engineers are tasked with producing efficient, resilient, and adaptable Extract, Transform, and Load processes. This skill is considered crucial, and the ability to elaborate on this topic underscores its importance in the data engineering field.

In the field of data engineering, a thorough understanding of the various tools, platforms, libraries, and resources is essential. Data engineers must be well-versed in the properties, use cases, and complexities of various databases, compute engines, stream processors, message queues, workflow choreographers, serialization formats, and related technologies. This knowledge is essential for making informed decisions when designing solutions. Skilled data engineers not only choose the most appropriate technologies, but also envision their seamless integration, demonstrating the ability to create a harmonious and effective ecosystem.

Reflection

Tan Zhi Ming This talk provides us with a nuanced perspective on the asynchronous dynamics of data engineering, aligning our insights with the evolving needs of the business. It emphasizes the imperative for continuous learning, collaborative teamwork, unwavering confidence, and tenacity in the face of challenges. Additionally, the conversation sheds light on the pivotal factors contributing to a positive work environment, offering valuable insights for making informed decisions when selecting future employment opportunities.Having absorbed the insights from this dialogue, I am motivated to proactively familiarize myself with essential tools such as PostgreSQL for databases and PowerBI for visualization in the Next 4 Year. Acquiring proficiency in these widely-used tools not only ensures a robust skill set but also positions me to seamlessly embark on my professional journey. The intent is to lay a solid foundation that will facilitate a swift and effective integration into the dynamic landscape of the job market.

Ng Yu Hin From what I gathered from the talk, one must be curious to explore the unknown, to enhance my skill set but also keep my work dynamic and innovative as this curiosity-driven mindset can enable me to stay ahead of industry trends that are constantly emerging new technologies and methodologies. Other than that, cooperation with others is another pivotal aspect that I need to master, as every single individual comes with varied perspectives, ideas, and approaches that can foster a positive and productive work environment. Moreover, confidence in one's abilities is about acknowledging the capacity to find the solutions and overcome the challenges which fuels personal growth. Last but not least, persistence is a defining factor in my future progress to persevere through difficulties which can strengthen my technical prowess. In conclusion, the path to becoming a system developer in the next 4 years is a multi-faceted journey that extends beyond technical proficiency. An unwavering eagerness to learn, the ability to collaborate, confidence in one's abilities, and a steadfast commitment to persevere are the pillars that support my future success in this dynamic field.

Elijah She Yu Sheng Over the next four years, my goal is to transform into a socially impactful system developer driven by my passion for coding. In the initial year, I plan to acquire proficiency in multiple programming languages, recognizing the need for continuous learning in the ever-evolving tech landscape. The second year will be dedicated to delving into database design and website development, expanding my skill set. By the third year, I aim to apply my coding skills in external projects, gaining practical experience and setting the stage for broader career opportunities. In the fourth year, my focus turns towards collaboration on original projects with friends, aiming not just for coding mastery but also to pioneer specialized areas within the domain. This strategic approach combines technical expertise with a commitment to societal impact, reflecting my vision of contributing meaningfully to the intersection of technology and positive change.

Chew Chiu Xian Through the talk, I had learnt many valuable knowledges that can help me in my future career. Firstly, we need to learn new things and discover new skills and knowledges. This is because it is not only can motivate ourselves to walk out of the comfort zone and explore the new things around us, it can also improve our critical thinking skills, which is crucial for the IT Careers nowadays. We also learn that it is important for us to work in a team and knowing our role in a team. This is because it will improve efficiency of task and projects completion. Lastly, we need to be confident to ourselves and never give up while facing any difficulties. In our life, we will be facing many difficulties and obstacles in our career, and even facing some defeats. Thus, we must bravely face them and overcome them. Even though we might be defeated by the obstacles, we must never give up and learn from our defeats to improve ourselves, thus we will be a better person in the future.

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