SECP1513

TECHNOLOGY AND INFORMATION SYSTEM

SECTION 02

ASSIGNMENT 3

INDUSTRY TALK SYSTEM DEVELOPMENT

@ CREDENCE (TM SUBSIDIARY)

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System Development @ Credence (TM Subsidiary)

Description of system development

The system development model is a project management tool widely used to create information systems or software products. This intricate model comprises various complex models employed in software development. System development is a comprehensive methodology that encompasses different processes to achieve a high-quality software product. The model consists of seven steps in the system development life cycle, including planning, analysis, design, development, integration and testing, implementation, and maintenance.

History of Credence's system development

Credence is a company that specializes in technology and digital innovation, providing customers with end-to-end solutions ranging from infrastructure to insights. The company offers a broad range of capabilities, including tech infrastructure, cloud advisory, IT landscape migration, SAAS, managed services, as well as analytics and insights. Krish Datta, an accomplished technology leader, leads Credence, and is responsible for shaping its new digital services arm under TM. Credence is well-placed to advance Malaysia's digital transformation journey, thanks to its access to TM's established resources, infrastructure and strong links to enterprises and the public sector. Furthermore, Credence has key partnerships with VMware, AWS, and Huawei, providing a wide range of customized growth options to enterprises

Technology and tool use in Credence's system development

In the development of Credence's system, there are four main technologies they used the most, which are database/OLAP, visualization, ETL, and programming language. An overview of those four technologies in brief, Database tools are programs that manage and monitor databases, like PostgreSQL; visualization tools are software that renders information in a visual format for data analysis purposes, such as Power BI and Metabase; ETL moves transformed data between systems, like Airflow; and programming languages are a way to communicate with computers to meet demands, such as SQL and Python.

<u>Skills required to be data engineer in the future</u>

Data engineering is a rapidly developing area that is becoming more important each day as businesses continue to gather and analyse massive amounts of data. As data sets continue to grow in size, complexity, and variety, the role of data engineers will become increasingly critical to the success of organizations.

Interdisciplinary Proficiencies

The burgeoning demand for computer engineers in the future has gained notable attention from various media and employment analyses. However, it is imperative to said that the role of a computer engineer necessitates a profound interdisciplinary proficiency. In line with Van der Aalst's (2014) vision, future data engineers need interdisciplinary competencies. Integrating insights from various disciplines such as data science, business intelligence, industrial engineering, social science and information technology are essential for navigating the complex landscape of modern data engineering. By developing these skills, they will be able to approach problems from multiple perspectives and provide unique solutions tailored specifically to the needs of each project.

Adaptability and Continuous Learning

The dynamic nature of the field requires data engineers to be adaptable and committed to continuous learning. The success of individuals in this field hinges on their proactive engagement with evolving technologies. This aligns with the findings of Davenport, T. H., & Harris, J. (2007) in "Competing on Analytics: The New Science of Winning," fostering culture of learning is important for success in analytics-driven fields. Data engineers should strive to continuously expand their knowledge and always improve their skills through training programs, workshops, conferences, webinars or even online course which in turn leads to better decision-making and more effective use of data.

Adaptive Repository Management

Future data engineers must develop adaptive repository management skills. Data engineers want a new repository to store big data as data warehouse works on the concept of schema-on-write state that transforms the data before storage (Panwar and Bhatnagar, 2020, Data Lake architecture). This involves proficiency in navigating data lakes, understanding their architectures, and ensuring effective utilization for diverse data types and use cases. Effective repository management can help organizations derive insights from their huge amounts of accumulated datasets while also improving accessibility across an organization.

Reflection (How you will be a system developer in the next four years?)

Sabrina Heng Weng Qi: To become a system developer in next four year, I plan to continuously learn additional programming languages and remain life-long learning throughout my career. In addition, I recognize the value of acquiring theoretical knowledge about computing to support my ongoing development. I aspire to leverage the techniques I learn during my industry internship in my final year of university and expand my skill set for future employment opportunities.

Chau Ying Jia: It's crucial for me to enhance my coding skills across various programming languages and engage with open-source projects on platforms like GitHub, which are part of the soft skills I should have. I will make myself to have the opportunity to work on real-world projects either as part of my coursework or through internships. This practical experience is crucial for me fostering a deeper understanding on problem-solving techniques and to sharpen my skills.

Gui Kah Sin: In the next four years, I envision myself building a strong foundation in data management, processing, and analysis to become a remarkable system developer. I plan to complement my studies by learning programming languages that are commonly used in system development and understanding the fundamentals of designing and implementing data infrastructure and basic system architecture. In addition, I also intend to gain practical experience through projects by applying my knowledge to real-world scenarios to ensure I grasp the skills and not only remember them. Even if my career path takes a different turn, I still have the ability to contribute as an outstanding employee with the additional knowledge.

Poh Lok Yee: Lifelong learning is vital to stay relevant to the fast-paced changes in technology, especially in the field of computer science. I will always stay up to date with the latest developments in technology and focus on my degree studies to strengthen my foundation in programming and software development. Attending to the conferences and looking for entry-level jobs where I can connect with other experts and developers will be a part of my plan to gain more practical experience and theoretical knowledge.

Woo Cheng Shuan: I plan to continue learning for the next four years to stay updated with the latest technologies, programming languages, and frameworks relevant to system development. I will also maintain a strong portfolio showcasing my projects as proof of my skills and capabilities to potential employers or collaborators. Furthermore, since teamwork is a critical element of any profession, I will enhance my communication, problem-solving, and teamwork skills.

Reference

Van der Aalst, W. M. P. (2014). Data scientist: The engineer of the future. In *Enterprise Interoperability VI* (pp. 13–26). Springer International Publishing.

Panwar, A., & Bhatnagar, V. (2020, January 1). Data Lake Architecture. *International Journal of Organizational and Collective Intelligence*, *10*(1), 63–75. https://doi.org/10.4018/ijoci.2020010104

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Credence, TM's new cloud and digital services company, to empower enterprises' digital capabilities – from infrastructure to insights | Telekom Malaysia. (n.d.). https://tm.com.my/index.php/news/tm-launch-credence