UTM

UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of Computing

Semester 1 / 20232024

SECP1513 Technology & Information System

Section 02

Academic Report

Lecturer: Dr. Aryati binti Bakri

Group 3

Group Members:

Cheryl Cheong Kah Voon	A23CS0060
Evelyn Goh Yuan Qi	A23CS0222
Joanne Ching Yin Xuan	A23CS0227
Lam Yoke Yu	A23CS0233
Lim Yu Han	A23CS0241

The Industry Talk

System development involves the creation and upkeep of information systems. The life cycle encompasses 6 phases namely, initial investigation, system analysis, system design, system development, system implementation and maintenance.

Credence focuses on analytics and cloud. The speaker shared about the analytics process in their company. We can extract meaningful insights and make informed decisions from data through analytics. From data to insights, the process includes data collection, data transformation, analytics and modelling, and prediction and visualisation.

Telekom Malaysia Berhad (TM) has launched Credence, a new cloud and digital services company focused on empowering enterprises and the public sector in their digital transformation journey. Credence offers differentiated data technology areas: Cloud Migration, DevOps and Analytics, Industry Solutions and SaaS and. Credence offers services from technical infrastructure to business insights, cloud computing, IT environment migration, managed services, SaaS, analytics and insights.

Various technologies and tools are used in Credence's system development process. PostgreSQL, ClickHouse and Druid are for database use. The visualisation tools are Tableau, PowerBI, Metabase and Superset. Meanwhile, the tools for ETL/ELT are Airflow and Spark. Lastly, they use SQL, Python and Bash Syntax as the main programming language at Credence.

Skills Required To Be A Data Engineer In The Future

Proficiency in Programming Language

Another skill that is required to be a data engineer in the future is proficiency in various programming languages. Based on Figure 5, Python has the most notable skills gap, despite it being one of the most prevalent skills in the jobseeker profiles. (Li et al., 2021). Data engineers can utilise Python, one of the most widely used programming languages, to write, construct automations, integrations, data visualisations, and analysis. Besides, data engineers frequently use SQL because it is simple to learn and utilise common English keywords. Additionally, they utilise it to process and store data in relational databases, which keep data organised into tables. Figure 5 shows that SQL programming is in the most demand, thus data engineers should improve their skills in this area.

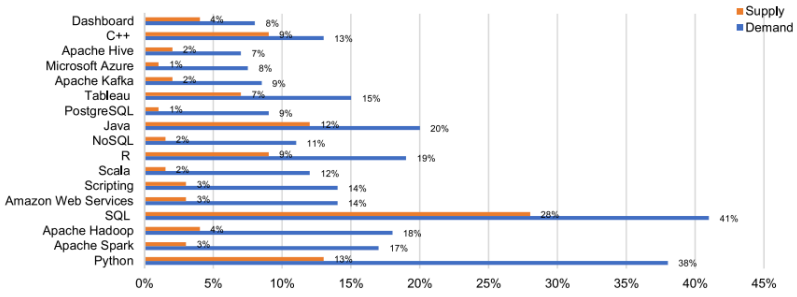

Fig. 5. Data Science-related skills demand, supply, and gaps.

Apply Ontology Engineering Techniques

One of the skills required to be a data engineer in the future is understanding how to apply ontology engineering techniques such as ACM Computing Classification System (CCS) and Data Science Ontology. It's similar to analysing a data-related vocabulary map. (Chuprina, Alexandrov and Alexandrov, 2016) For practical tasks, visual aids are also essential since they facilitate the application of data concepts. Thus, in order to make a significant contribution to the expanding area of data science, aspiring data engineers should possess strong programming and database design skills as well as ease with maps and other visual aids such as ONTOLIS, which is an flexible visual editor designed for domain experts and casual users (Ryabinin & Chuprina, 2015a, 2015b).

Reflection

CHERYL CHEONG KAH VOON. I gained some insight into how to work toward being a system developer over the next four years from this talk. I'll start by building a strong foundation for my career as a system developer. To enhance the knowledge I have acquired, I intend to actively engage in some activities arranged by the college. I'll build on this solid foundation while also pursuing my goal of becoming a professional system developer. I will, for instance, learn more about topics that I haven't yet been introduced to, such as different programming languages like Python and MySQL. I'll also improve my ability to solve problems by getting involved in some practical tasks. Our soft skills are another critical aspect that cannot be disregarded. To ensure that there are no misunderstandings, I will always work to enhance my communication abilities.

EVELYN GOH YUAN QI. Through this talk, I have learned about the meaning of analytics and the importance of analytics in a company. The speaker also gave us motivation to succeed such as we must always explore new things, work in teams and be confident in doing our work. To become a system developer in the next four years, I should improve my technical skills. For example, enhance my skills in programming languages like Java, Python, SQL and so on by doing more coding exercises. Besides, I should have a deep understanding in database systems as it is crucial in the field of system development. Next, the most important skill I must practise is soft skills. I should enhance my communication and problem solving skills because they are very critical when working in a collaborative development environment.

JOANNE CHING YIN XUAN. Through this talk I have a clear vision. Over the next four years, my main focus will be on continuous learning to become a skilled system developer. This involves constantly updating my skills and knowledge, keeping up with the latest programming languages and technologies. I recognize the importance of taking a proactive approach and actively participating in ongoing education and training. By doing so, I am ensuring that I have a versatile skill set that aligns with the ever-changing

landscape of system development. My dedication to learning demonstrates a forward-thinking mindset and puts me on the path to success.

LAM YOKE YU. The speaker mentioned that she will go all lengths to enhance her career. Her competitive mindset inspired me to work harder and to gain more practical experience during my university studies. Over the next four years, I plan to actively participate in technical clubs like AIROST, PERSAKA, and GDSC to engage in various technical projects and gain valuable insights. Through my involvement in this semester, I am being exposed to various languages, tools, libraries, and systems such as SQL, Javascript, ScikitLearn, Matplotlib, Node.js and React to name a few. Although I may not be entirely familiar with them yet, I believe this exposure will help me determine my career pathway. I plan to remain active in these clubs to continually refine my technical skills throughout my university journey.

LIM YU HAN. I've learned from this talk that the goal of systematic data analysis is to draw important conclusions about various topics. Additionally, analytics can be used in a variety of fields, including business and transportation. Ms. Qistina gave advice about never giving up and being open to learning new things because technology is continually evolving. In order to become a system developer, I need to concentrate on user experience. I have to improve UX and utilise design thinking methods in order to captivate users with an intuitive interface. Additionally, I need to focus on improving my full-stack programming abilities, which involve backend development (using MySQL and SQL) and frontend development (being skilled with HTML and CSS). With this, I can improve productivity in the workflow by reducing communication gaps, which fosters stronger teamwork and speeds up project completion.

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TIS Academic Report

by Yoke Yu Lam

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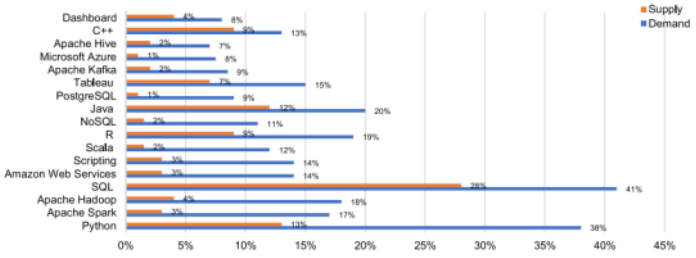

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