INDUSTRIAL TALK 1
PETRONAS

INTRODUCTION
We have a talk by Petronas Digital via Online. The talk was to finding talented student and introduce what the benefit they will give to fresh graduate when work for them. They give more detailed about Software Engineer, Data Engineer and Data Analysist what exact insight of their role would do in the job.

PETRONAS DIGITAL
Aadrin Azry
(CEO of Petronas Digital)
Petronas digital are a unique entity which is part of the Petronas Company. Instrumental with every single journey with *oil* and *gas* see in ecosystem in business which supported by digital.
Why digital?
Digital solution will enable us more safer, cleaner and cheaper
How to achieve?
Seeking individuals who have potential to hold the positions of Software Engineer, Data Scientist and Data Engineer

SOFTWARE ENGINEERING

WHY SOFTWARE ENGINEERING?
- software development jobs anticipated to increase 22% from 2020-2030
- In the future, software development will be based on the need to be versatile and able to operate from anywhere
- software enginis expanding in the scope
- one of the highest paid profession

WHAT IS SOFTWARE ENGINEERING
- a broad field that includes designing, developing, implementing and fixing software solutions that serve as a business asset
- needs to understand the fundamental of how computers work and how computing systems operate
- need to understand hardware and hardware architecture and also networking technology
- understand software fundamentals, why and how the code works and writes it
- use programming languages, frameworks, databases, servers and other technologies to turn an idea into a final product
- someone who applies computer science, engineering concepts to create software solutions
- create many interfaces such as desktop and web applications
- must know how to put all these together to make good product that is user-friendly

EMERGING TECHNOLOGIES
- robotics
- wearables/mixed reality
- digital twin & IoT
- plant & enterprise applications

SKILLS REQUIRED IN SOFTWARE ENGINEERING
- analytical thinking & problem solving skills
- programming skills
- productivity skills
- understanding of product/software development process (SDLC)
- life-long learning

EVOLUTION OF SOFTWARE ENGINEERING

90's century
- only call coder or programmer
- simply doing everything such as putting the hardware together, building the computer and so on even they don't understand

20XX
- technologies are evolving rapidly, operational models evolve rapidly, role evolved rapidly
- there are technologies, trends, tools, operation organization are adopting
- need to find a way how can be valuable to organizations and serve businesses the best way we can

202X
- today are talking about the role of software engineer, database engineer and data scientist

SUMMARY
From this industrial talk, our group members know more about our future planning of what we need to work on and achieve it. We have many information that won't be able to find through internet or book, it's all the professional experience and suggestions. Besides, we need to enhance our skill if we want to work in the specific field in the future and also the technologies that requires to know as it will give us more oppotunities to work smoothly or even higher stage in future.

GROUP MEMBERS' REFLECTIONS

Wong Ya Jing A24CS0211
From this industry talk, I had a deeper understanding of my future career. I was introduced to more specific job scope in this field. Thanks to this industry talk I had a more clearer vision and plan to achieve my goal.

Chia Thung Thung A24CS0060
The industry talk cleared my doubts about the job scope of being a software engineer and a data scientist. I learned how to prepare myself before entering the workplace. I also received professional advice from the expert with full of knowledge and experience which will help me perform well in my future career

Yeoh Keng Wei A24CS0316
This industry talk give me a clear goal about what I want to do in the future so that I need to work hard on it. I will listen to their advice and learn to become a success software engineer and make a better society with technologies.

Edwin Oo Ming Hao A24CS0245
The industry talk does a great job explaining the mix of skills needed for a career in data science, like curiosity, storytelling, math, and programming. It gives helpful advice for anyone wanting to succeed in this field.

Abralyn Hoo Weng Yan A24CS0218
In this PETRONAS industry talk, I learned that Data Engineering involves designing and building systems to collect, store, and analyze data. I also gained insights into different roles, such as Data Analysts who analyze data, and Data Engineers who integrate data. PETRONAS supports engineers by providing training and hands-on projects to improve their skills. This talk helped me understand the importance of data engineering in business decisions and growth.
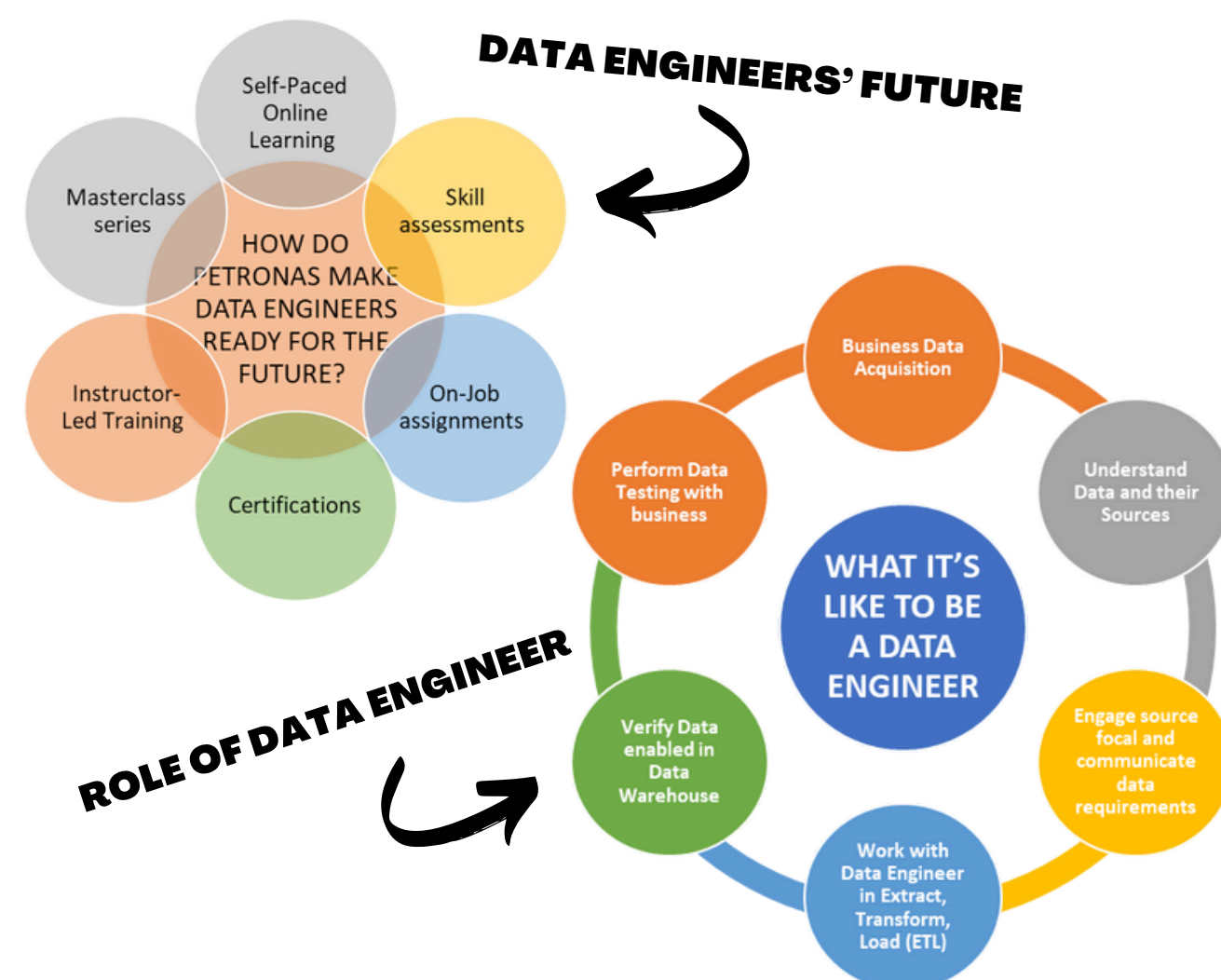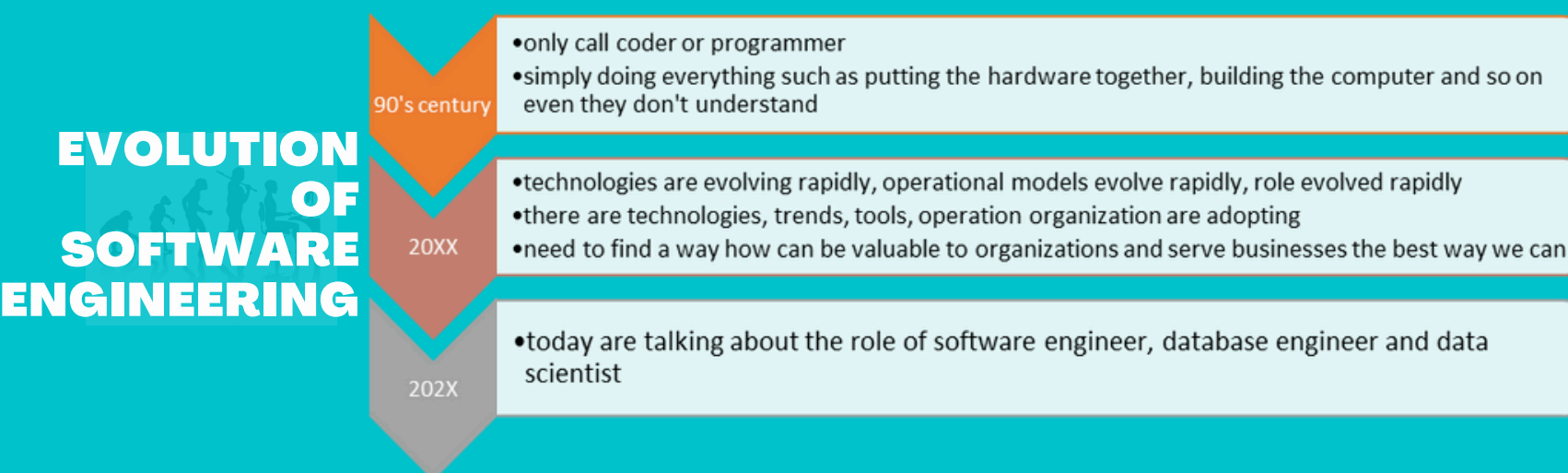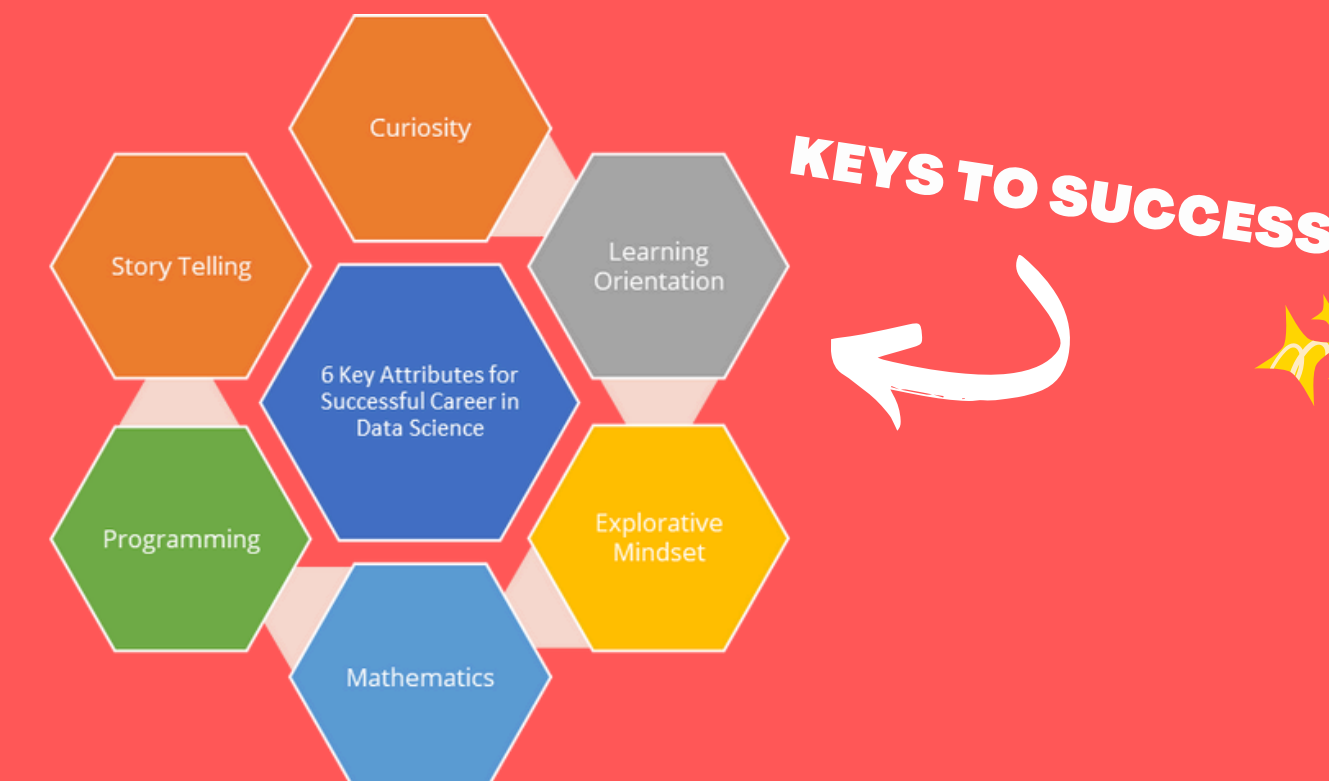
DATA ENGINEERING

WHAT IS DATA ENGINEERING?
- Data engineering is the practice designing and building systems for collecting, storing, and analyzing data at scale.

DATA ENGINEERING ROLES
1. **Data Analyst**
- Extract analyze, interpret and identifying pattern in data from various tables or reports.
2. **Data Engineer**
- Provide data integration, data ETL/ELT between multiple data layers in a standardize manner.
3. **Data Architect**
- Responsible in designing and quality assurance of data architecture
4. **Big Data Engineer**
- Develop and build of data pipelines that work with large data sets.
5. **Data Quality Engineer**
- Perform data validity, accuracy and integrity test across different component of data layers
6. **Data Modeler**
- Translate business needs into data model and manages the life cycle of the data model form requirements to design to implementation to maintenance.
7. **Business Intelligence Engineer**
- Turn data into crucial information and knowledge that can be used to make sound business decisions

DATA ENGINEERS' FUTURE — HOW DO PETRONAS MAKE DATA ENGINEERS READY FOR THE FUTURE? (Self-Paced Online Learning, Masterclass series, Skill assessments, Instructor-Led Training, On-Job assignments, Certifications)

ROLE OF DATA ENGINEER — WHAT IT'S LIKE TO BE A DATA ENGINEER (Business Data Acquisition, Understand Data and their Sources, Engage source focal and communicate data requirements, Work with Data Engineer in Extract, Transform, Load (ETL), Verify Data enabled in Data Warehouse, Perform Data Testing with business)

DATA SCIENTIST

DATA SCIENTIST APPLICATION
- Automated email filtering
- Object Detection
- Text Prediction

6 Key Attributes for Successful Career in Data Science — Curiosity, Story Telling, Programming, Mathematics, Explorative Mindset, Learning Orientation. KEYS TO SUCCESS

DATA SCIENTIST DEPARTMENT IN A GLANCE
- Members: 15 Experienced 20 Fully Trained 90 Young 20 Fresh
- Diversity: 30 education background 40%female, 60%male included 10% non Malaysian
- Knowledge and Skills: Math, Stats and Probability, Programming, Business Domain Knowledge
- Capability Development Programs: Data Science Academy, Digital Academy, PETRONAS learning centre

WHAT'S THE CULTURAL LIKE WORKING AS DATA SCIENTIST?
- Empowering: data scientist in charge on their own capability
- Upskilling: multiple resources available to help data scientist upskill themselves
- Growth Mindset: exposed to new problems and continuously learn new things