INTRODUCTION

The **PETRONAS Digital Young Graduate Program** is an **18-24 month** initiative aimed at developing the potential and talents of graduates through comprehensive training, coaching, mentoring, instructor-led courses, and self-learning opportunities. **Upon completing the program, participants will be placed within the PETRONAS Digital** talent structure, aligned with their career goals.

Criteria of a candidate :

- Passion of learning
- Full of curiosity
- Proposed teamwork and diversity spirit
- Make contribution to energy industry and communities

WHAT WILL YOU GAIN ?

STRUCTURED UPSKILLING
Participants will received role-based learning pathway align with their career goal

BUILDING LEADERSHIP
Participants undergo Petronas Leadership Center to become a all-rounded professionals

LEARNING BUDDY
Participant is paired with a buddy that supervise, guide & mentor them

IMMERSION IN DIGITAL PROJECTS
Participants will be assigned with global projects to gain hands-on experiences

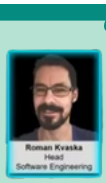
PERFORMANCE COACHING
Manager will coach participants to enhance their performance

ENERGY INDUSTRY KNOWLEDGE
Example: energy value chain & role of digital technologies

EXECUTIVE SUMMARY

- The Employment Value Proposition of YDP emphasizes trust and respect for individuals from multicultural backgrounds, fostering an inclusive and supportive environment.
- Participants have the opportunity to grow their expertise, skills, and experience by working on diverse global projects.
- Their contributions are highly valued and recognized through meaningful rewards.
- By attracting more young talent, YDP aims to build a dynamic community of individuals committed to contributing to the energy sector while developing critical skills and capabilities throughout their participation in the program.

3 Roles offered : Software Engineer(SE), Data Engineer(DE), Data Scientist(DS)



Roman Kvaska
Head of Software Engineering Petronas Digital

<CODE/> Software Engineer

Why Software Engineering?
- **High demand**: Software development jobs are needed everywhere.
- **Flexibility**: You can work from almost anywhere.
- **Growing field**: The software industry continues to expand.
- **Good pay**: It's one of the highest-paying professions.

What is Software Engineering?
- Designing, developing, implementing, and fixing software that adds value to businesses.
- Requires understanding computer fundamentals and how systems operate.
- Involves writing and understanding code (software fundamentals).
- Uses programming languages, frameworks, databases, servers, and other tools to turn ideas into real products.
- Applies computer science and engineering principles to create software solutions.
- Creates different types of interfaces: desktop applications, mobile apps, websites, games, robots, etc.
- Combines all these elements to create user-friendly, functional software.

Software Engineering Training: 3 Key Areas

1. **Software Engineering (12 months)**
   - Learn Application Architecture and Development.
   - Understand software standards, best practices, and patterns.
   - Study Cybersecurity for software safety.
   - Manage Data effectively.
   - Work on Cloud Development for online systems.
   - Learn Agile Development for flexible workflows.
2. **QA Engineering (4 months)**
   - Gain skills in Manual & Automated Testing.
3. **DevOps Engineering (4 months)**
   - Experience integration from development to deployment.

Skill requirement :
- analytical thinking & problem-solving skills (make proper decision)
- programming skills
- productivity skills (structure, faster manner)
- understanding of product/software development process (SDLC)
- Life-long learning

SDLC
- process for planning, creating, testing, and deploying software

1. Requirement analysis
2. Design
3. Implementation
4. Testing
5. Evaluation & monitoring

Emerging Technologies
- **Robotics**: Using robots to make equipment checks safer and more efficient.
- **Mixed Reality**: Smart glasses help frontliners do their tasks safely and easily.
- **Digital Twin**: Helps predict and solve problems before they happen.
- **IoT Applications**: Real-time monitoring connects data centers across Malaysia.

Expectation for a Software Engineer in Petronas Digital

1) Associate Software Engineer
2) Software Engineer
3) Senior Software Engineer
4) Principal Software Engineer
5) Solution Architect/ Manager of Software Engineer
6) Enterprise Architect/ Senior Manager of Software Engineer
7) Director of Software Engineer
8) Senior Director of Software Engineer
9) VP of Software Engineer
10) CTO

Starting from associate software engineer and eventually grown in a role that leading from the industry expert. The career path is straightforward which moving from associate software engineer up to CTO positions.

James Tan Hua Jin
Software Engineering Petronas Digital

Ernie Yap Kian Em

Personal Storytelling

Software Engineering Executive, Petronas Digital
- **Education**: Data Analytics graduate, Asia Pacific University (APU).
- **Career**: Joined Petronas in October 2020; transitioned from data analytics to software engineering through on-the-job learning.

Daily Tasks
- Coding, collaborating with developers, and peer code reviews.
- Meetings like daily standups to align teams.
- Balances technical work with leadership and client communication.

Key Insights
- Lifelong Learning: Adapts to new skills and technologies to stay relevant.
- Proactiveness: Embraces new initiatives, learns constantly, and networks widely.

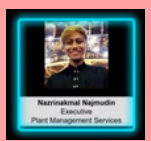
Support from Petronas Digital
- Provides training and certification to enhance skills and marketability.

Rewards of the Role
- Passion and continuous learning ensure job security and career growth.
- More skills mean higher marketability, better pay, and broader opportunities.
- A positive loop of engagement and reward fuels long-term fulfillment.

Data Engineer

All key roles in data engineering are interconnected including:
- **Data Analysts**: Analyze and identify patterns in data.
- **Data Engineers**: Manage data integration and ETL/ELT processes.
- **Business Intelligence Engineers**: Provide insights for decision-making.
- **Data Modelers**: Design and manage data models.
- **Data Architects**: Ensure quality in data architecture.
- **Big Data Engineers**: Build pipelines for large datasets.
- **Data Quality Engineers**: Validate data accuracy and integrity.

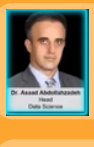
Mr. Khairul, Head of Data Platform Services at PETRONAS, highlighted the growing importance of data as a key asset in the digital era. PETRONAS uses an enterprise data hub to manage and transform data from various sources for business needs.
- Data engineering is practice designing and building systems for collecting, storing, and analyzing data at scale.
- Supports skills development with training programs, certifications, online learning platforms (e.g., Microsoft ESI, AWS Digital Skilling), assesments and hands-on projects.



Insights from Mr. Nazrinakmal (YGP Graduate):

1. **Current Role:**
   - Serves as a Data Management Lead and SCRUM Master after career growth through the YGP program.
2. **Responsibilities of Data Analysts:**
   - Understand business data.
   - Engage with data sources.
   - Document requirements clearly.
   - Collaborate with data engineers to ensure data quality.
3. **Career Advice:**
   - Utilize available resources effectively.
   - Stay open to continuous learning and improvement.
   - Confidently propose ideas for improvement, even in complex technical roles

Data Scientist



Dr. Asaad, Head of the Data Science Department, explained that data science stands apart from fields like data engineering and software engineering. It focuses on the "science" of data and its application to solve business problems. Data science connects digital insights with business needs, requiring a strong understanding of business logic.

Key Activities of a Data Scientist:
- Refining data to enhance its value and impact
- Converting raw data into data products with measurable business outcomes
- Understanding business objectives
- Analyzing available data and its alignment with goals
- Processing data using predictive and prescriptive models
- Extracting actionable insights to optimize operations

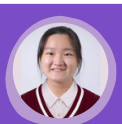
Skillset Needed:
- **Foundational Knowledge**: Math, statistics, and probability
- **Programming**: Python, R, Java, SQL, and Linux
- **Advanced Techniques**: Machine learning, optimization, computer vision, text analysis
- **Business Acumen**: Deep understanding of industry-specific challenges

Mr. Farhan, an Executive Data Scientist shared his journey of transitioning from petroleum engineering to data science, driven by a desire to create tools that enhance daily life. He also shared insights into his daily workflow, along with key aspects of the work culture in the Data Science team at PETRONAS

EXPERT ADVICE

1. Ensure data science aligns with your interests
2. Be prepared for hard work and commitment
3. Focus on quantitative thinking, analytical skills
4. Staying updated with tools and technologies
5. Take introductory courses to evaluate your passion for the field

Group Members



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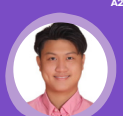

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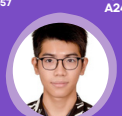

Looi Yu Xiang
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Reflection

After watching the recap video of the PETRONAS career talk, we gained valuable insights into the well-known multinational oil and gas company. We were introduced to PETRONAS Digital's Young Graduate Programme (YGP), a unique opportunity to explore potential careers after graduation. There were three IT-related roles highlighted: Software Engineer, Data Engineer, and Data Scientist. Each job was clearly explained by the head of its department. For example, to become a Software Engineer, we need strong analytical thinking and problem-solving skills. This role is crucial for designing and maintaining software solutions that drive efficiency and innovation within the industry. As a Data Engineer, understanding business data and managing data processes is essential. They are responsible for analyzing and detecting patterns in business data to make more informed and strategic decisions. For a Data Scientist, foundational knowledge in math, statistics, and probability is vital. They play a key role in deriving insights from complex datasets to optimize business operations. Moreover, advice from YGP graduates emphasized continuous learning, equipping ourselves with skills for better opportunities, and being prepared for hard work and commitment. In a nutshell, this talk provided meaningful insights into the importance of these roles in advancing technology and solving challenges in the industry.