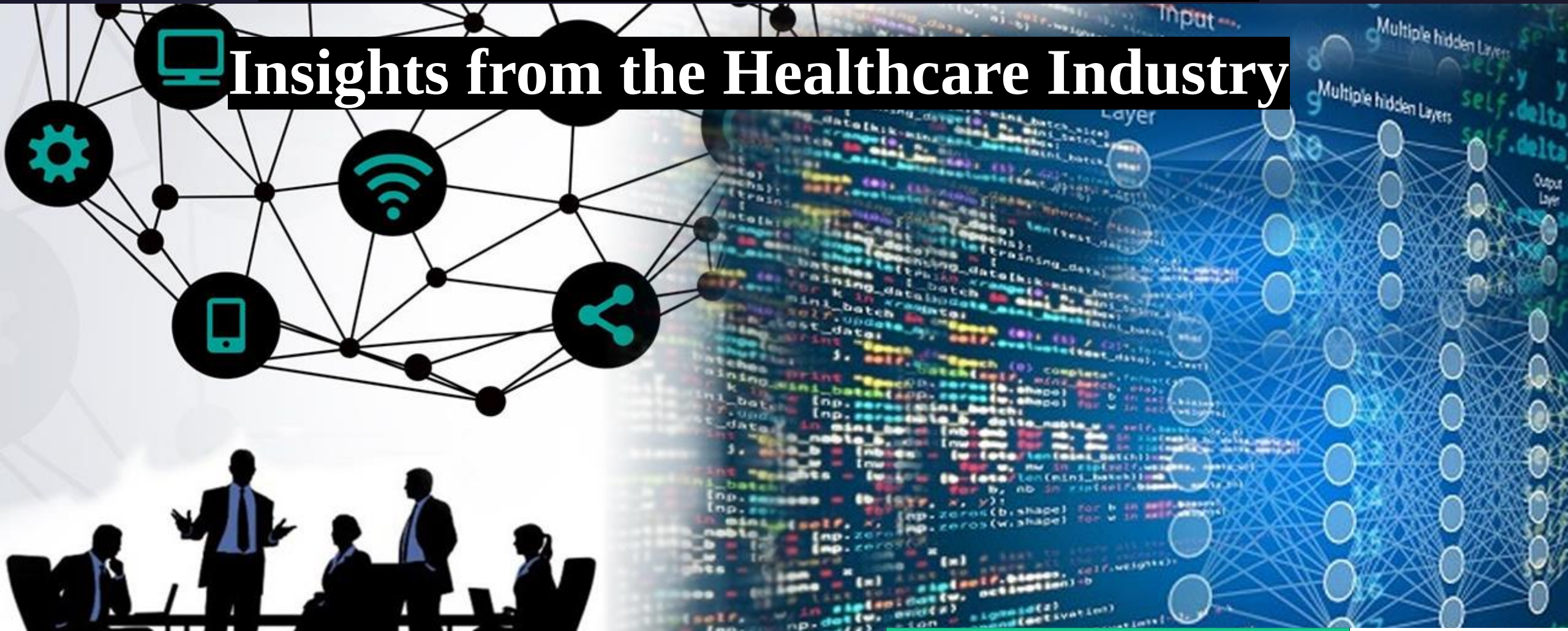
Professional Practice in IT

Insights from the Healthcare Industry



Masum Billah

Head of Data Science
Tuwharetoa Health

Tuwharetoa Health

Professional Practice in IT, Insights from the Healthcare Industry

- ❑ Importance of Professional Practice
- ❑ Core Technical Skills
- ❑ Career Path in IT
- ❑ Ethical Practices in IT
- ❑ Soft Skills for IT Professionals
- ❑ Real-World Application: In Healthcare
- ❑ Professional Development
- ❑ Your Career Path in DS
- ❑ Q&A

Professional Practice in IT, Insights from the Healthcare Industry

Importance of Professional Practice

- **What is professional practice in IT?**

The application of technical skills, ethical considerations, soft skills, and societal considerations in a real-world IT environment.

- **Why It Matters ?**

Professional practice in IT is vital for maintaining trust, managing risks, and ensuring compliance. It plays a key role in safeguarding the integrity of IT systems and the data they manage, ultimately supporting the broader goals of the organization and society.

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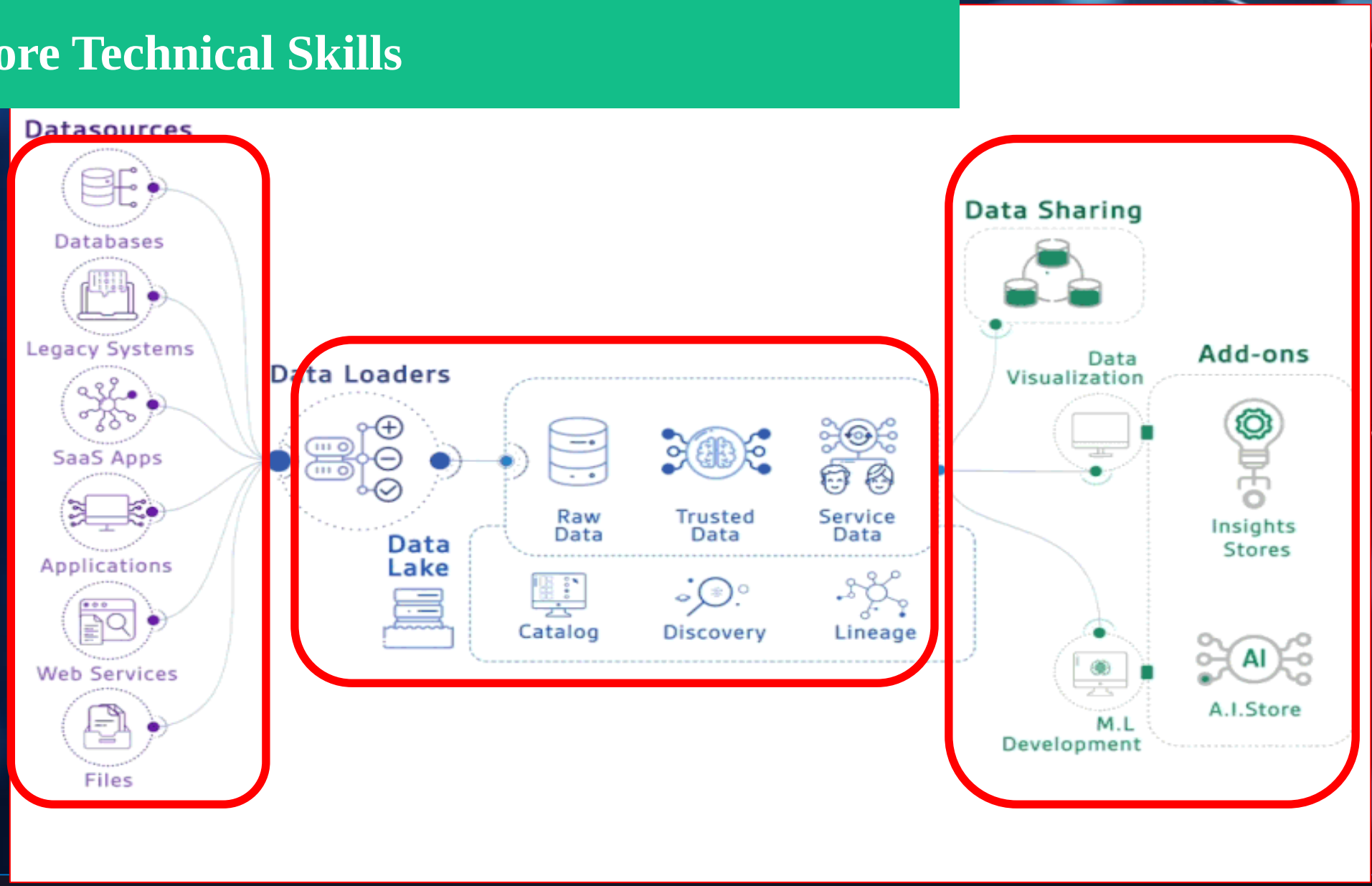
Core Technical Skills



- Data Scientist
- Data Engineer
- Data Analyst
- Data Architect
- Reporting Analyst
- Business Analyst
- Data Visualization Specialist
- ML Engineer
- Solution Architect
- Database developer
- AI Team……
- Head of Data Science/ Chapter lead/ Director of Data Science……

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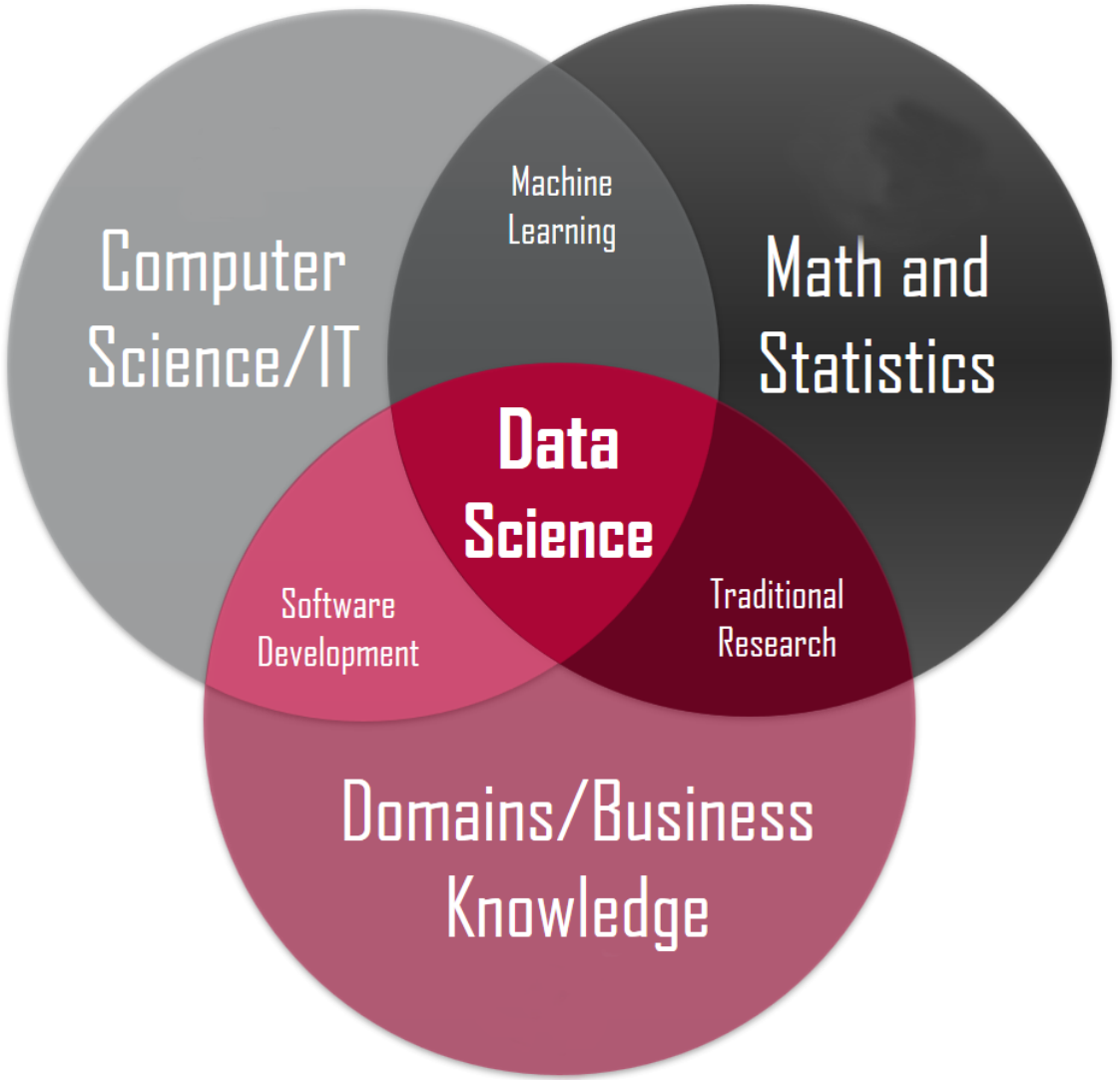
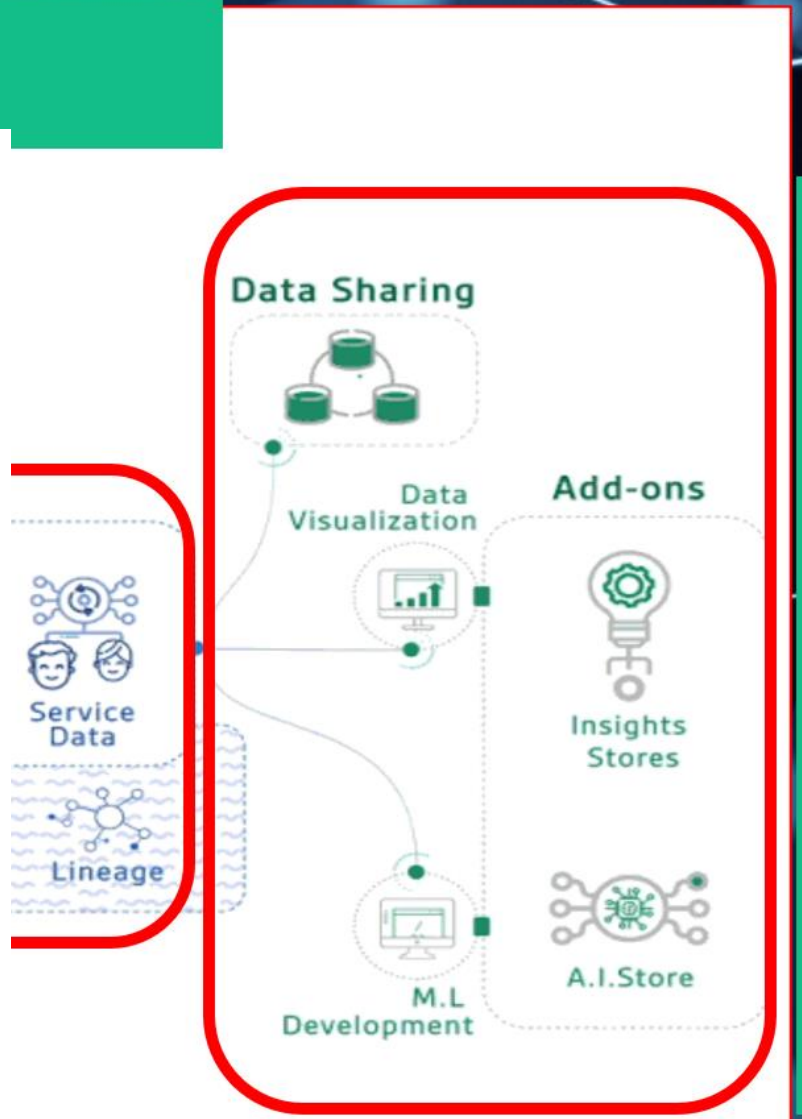
Core Technical Skills





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Core Technical Skills

Python, R, pySpark,

API

Git, GitHub, Bitbucket, Jira, Kaggle, Stack Overflow

SSIS, SSAS, SSRS, T-SQL

Azure, AWS, Snowflake..

SQL, No SQL, My SQL, PostgreSQL Graph, MongoDB

ELT, Hadoop, Spark, DevOps

Power BI, Tableau, SAP…

RDBMS schemas, Data Warehouses, Data Lake.

ML libraries such as Tensorflow, PyTorch, NumPy, and Pandas, NLP

EDA, Statistical Analysis, Modeling & Interpretation

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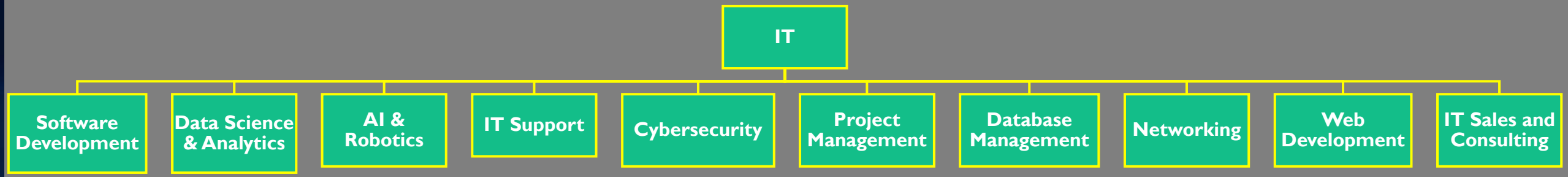
Career Path in IT



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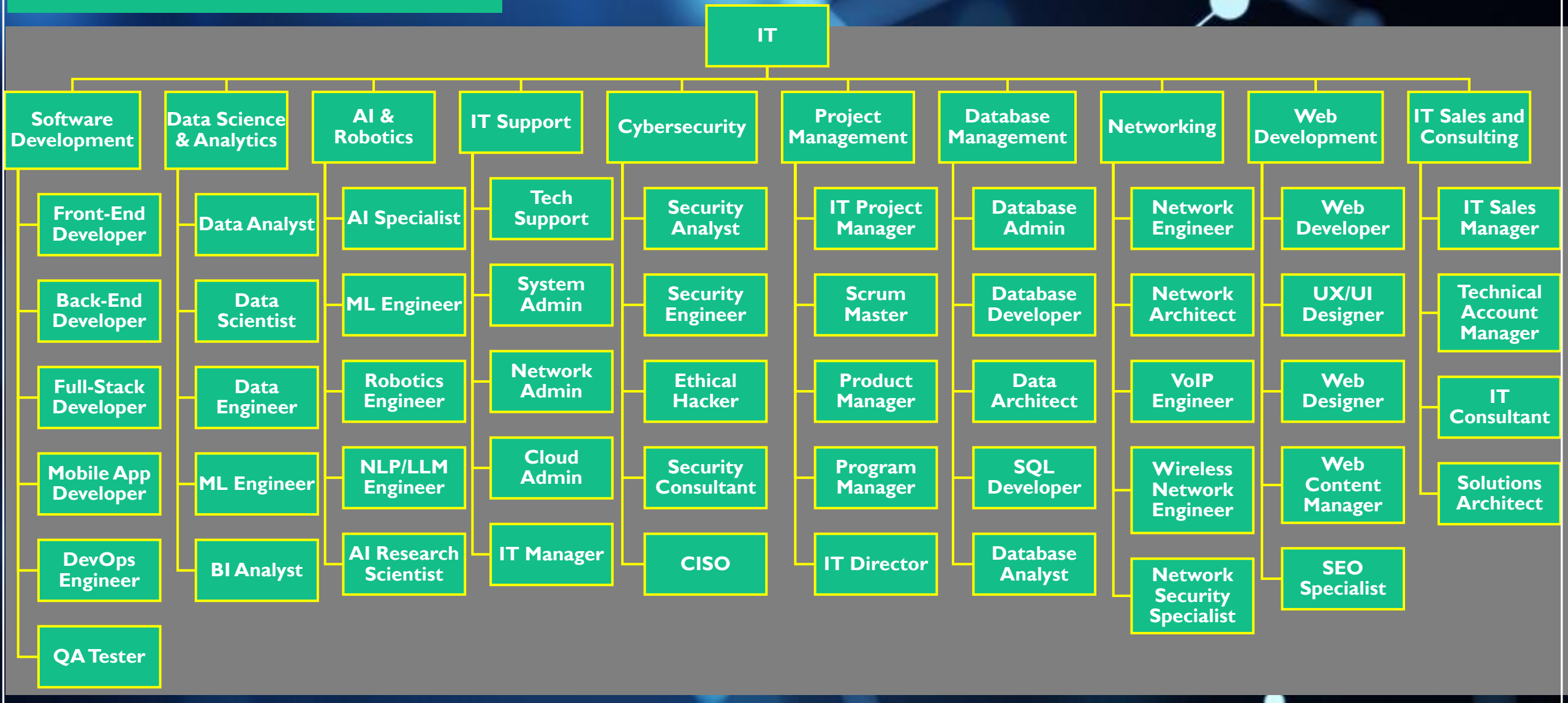
Career Path in IT



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Ethical Practices in IT

- **Data Privacy & Security:** Importance of handling data responsibly, especially in healthcare.
- **Compliance:** Understanding laws like GDPR, HIPAA, and other data protection regulations.
- **Ethical Decision-Making:** Case studies on ethical dilemmas in IT, discussing consequences of unethical practices.

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Soft Skills for IT Professionals

- **Communication:** Conveying complex technical concepts to non-technical stakeholders.
- **Collaboration:** Working effectively within diverse teams (mention multidisciplinary collaboration in healthcare).
- **Problem-Solving:** Approaching and solving real-world problems efficiently.

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Real-World Application: Healthcare IT

- **Case Study:** Development of Hauora ERP System.
- **Objective:** Streamlining operations, improving patient care, and meeting the needs of the Kopapa Māori sector and contractual obligation.
- **Challenges:** Limited resources, Innovation, Complex system architecture, Complex reporting requirements, and meeting tight deadlines.
- **Outcome:** Delivering this project successfully.

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Real-World Application: Healthcare IT

- No Software/Systems in the market that cater for a Kaupapa Māori approach
- No Systems in market that entertain clients being under multiple services
- No Systems in market that can create advanced analytics centred around Hauora
- No Systems in market have full footprint from referral to enrolment to discharge & any other action……
- No System in market can visualise this referral journey data for executive decisions
- No System in place that can measure organisation and team productivity/KPI and visualise …
- Current systems in market have little reliability in terms of Network Health…..
- Current Systems experience double-handling due to lack of automation therefore breaking process
- Current Systems UI and Architecture are cluttered and challenging to navigate even for tech literate users
- **Current System doesn't capture enough data to be a data-driven organisation**
- We do not own our own data
- Current processes around home visiting register are manual and sometimes broken

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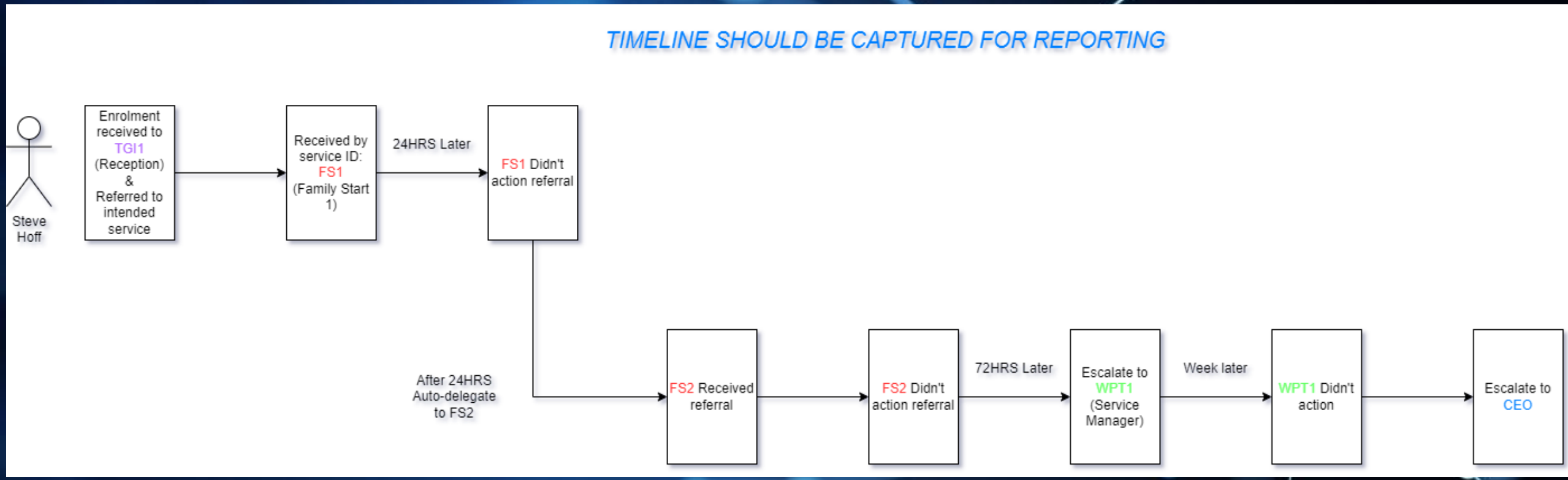
Real-World Application: Healthcare IT



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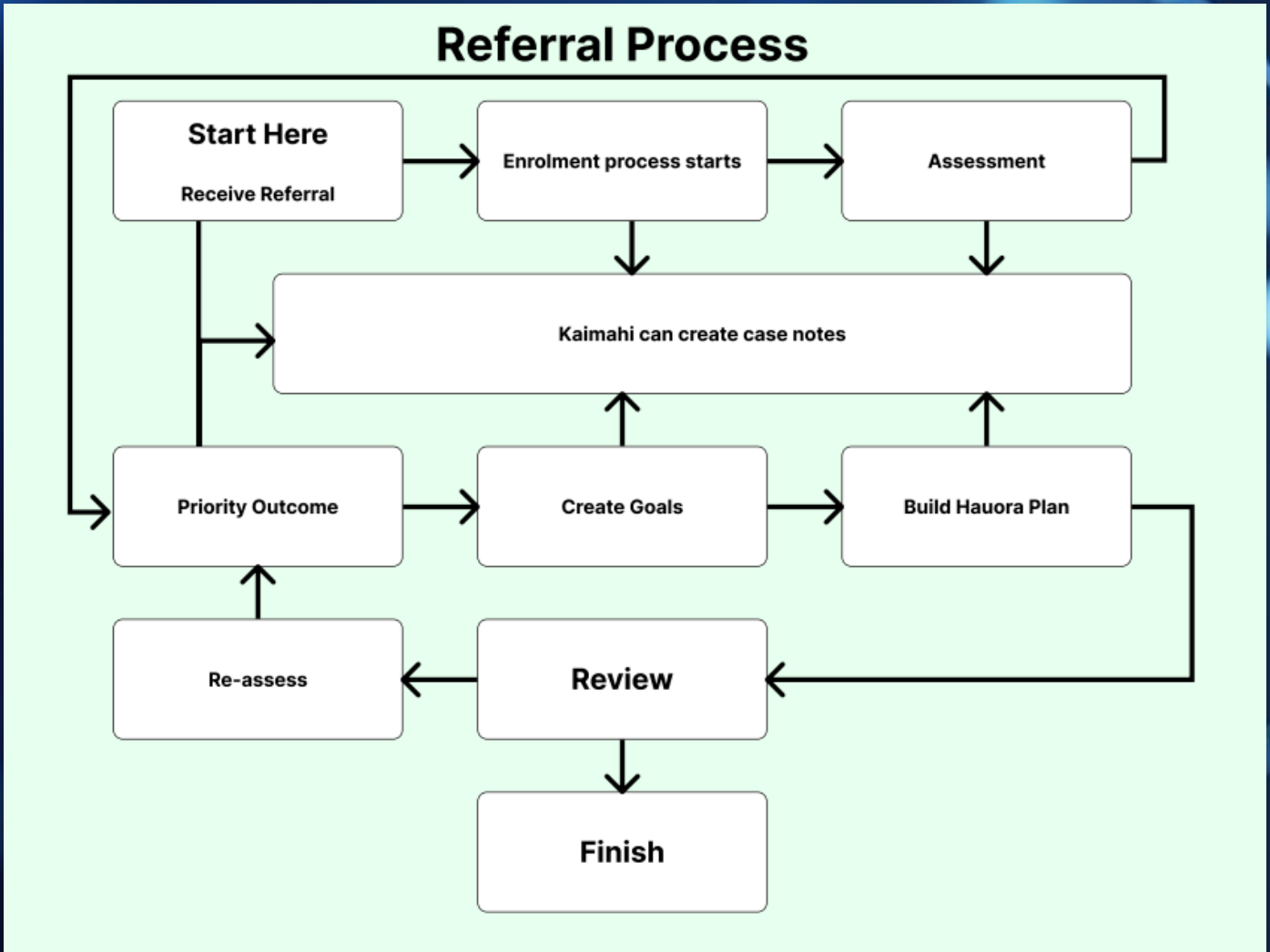
Real-World Application: Healthcare IT



Software Architecture
Database Architecture
Database Development
API Development
Backend Development
DevOps Engineer
Frontend Development
UX & UI Design
Designer
QA Tester
System Analysis & Documentation
End User Support & Training
Legacy Data Migration

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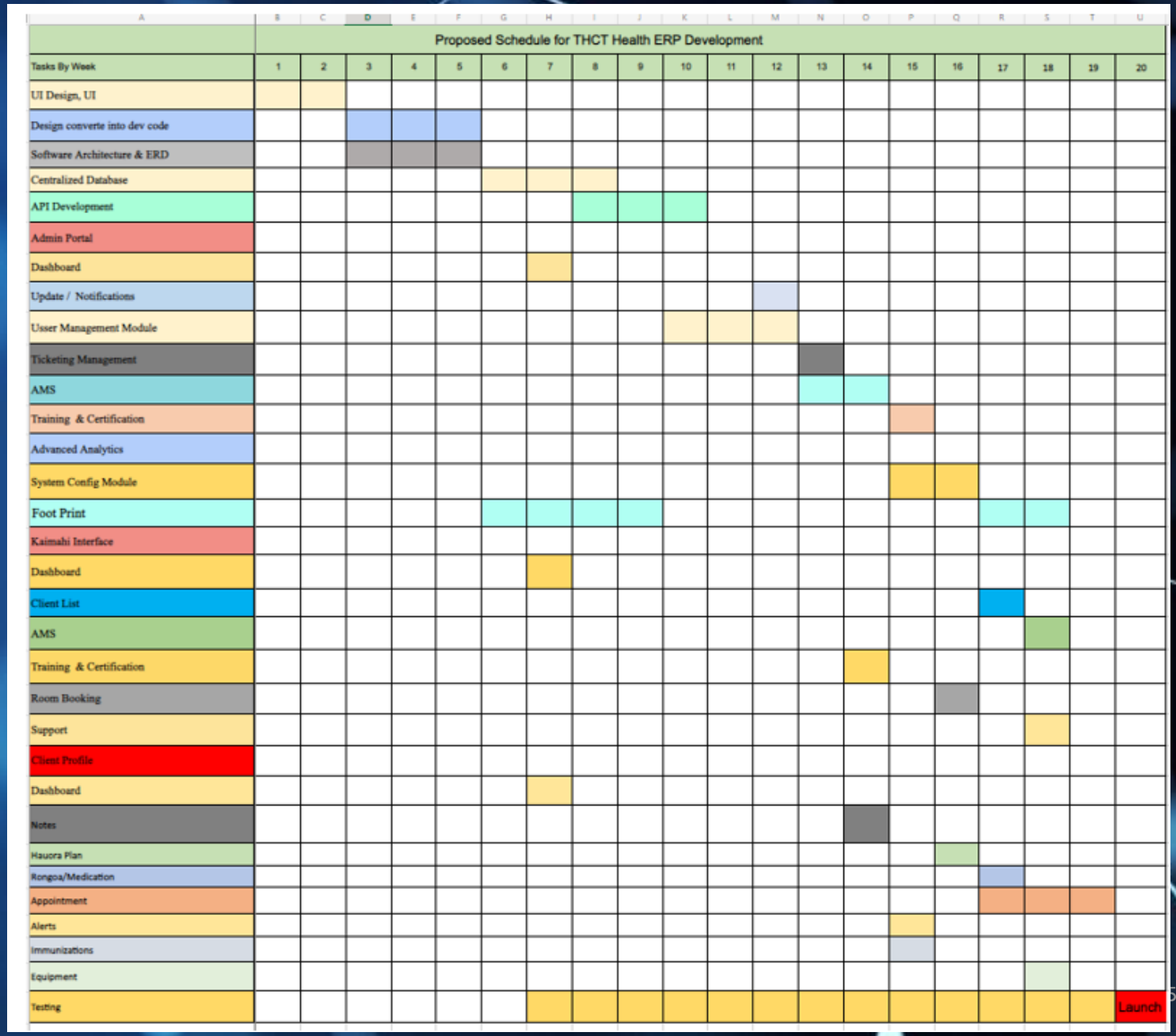
Real-World Application: Healthcare IT



Proposed Schedule for THCT Health ERP Development

Tasks By Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
UI Design, UI																				
Design converte into dev code																				
Software Architecture & ERD																				
Centralized Database																				
API Development																				
Admin Portal																				
Dashboard																				
Update / Notifications																				
Usser Management Module																				
Ticketing Management																				
AMS																				
Training & Certification																				
Advanced Analytics																				
System Config Module																				
Foot Print																				
Kaimahi Interface																				
Dashboard																				
Client List																				
AMS																				
Training & Certification																				
Room Booking																				
Support																				
Client Profile																				
Dashboard																				
Notes																				
Hauora Plan																				
Rongoa/Medication																				
Appointment																				
Alerts																				
Immunizations																				
Equipment																				
Testing																				Launch

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Challenges and Opportunities

- **Challenges**:
  - **Workforce Challenges:-** High Turnover Rates, Skill Gap, Leave and Absenteeism.
  - **Technical Challenges:-** Technical Debt, Legacy System & Data, Security, Complex Integrations…..
  - **Communication and Collaboration.**
  - **Regulatory and Compliance Issues.**

- **How to overcome ……..**

- **Opportunities**: every challenge is an opportunity …..especially in healthcare.

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Professional Development

- **Continual Learning:** Importance of certifications (e.g., Azure, Cloud, Google, AWS), staying updated with industry trends.
- **Networking:** Building relationships with peers, attending conferences, and joining professional IT communities.
- **Mentorship:** Seeking mentors and being open to mentoring others.

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My Career Path

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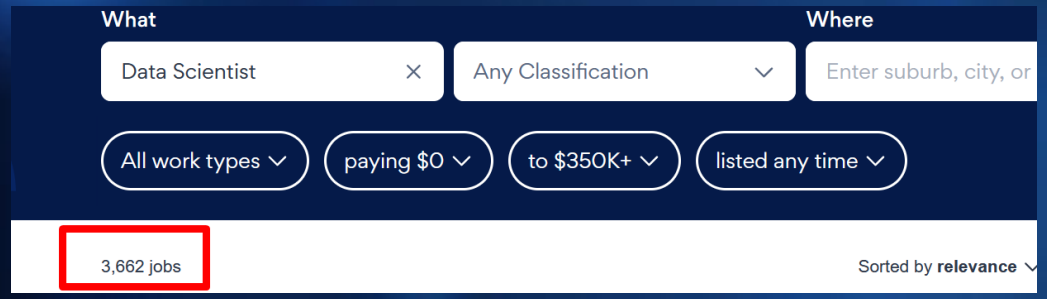
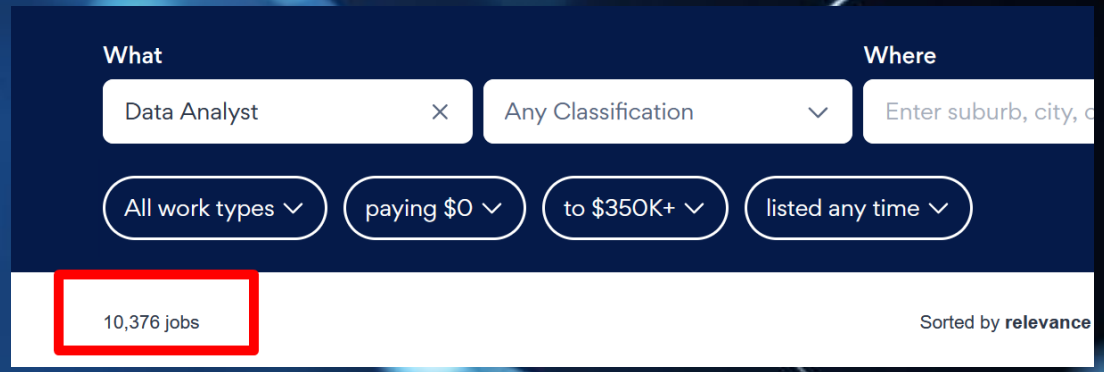
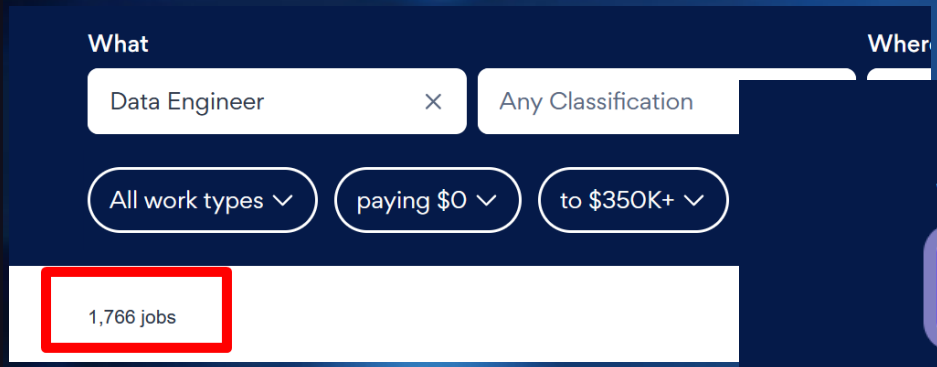
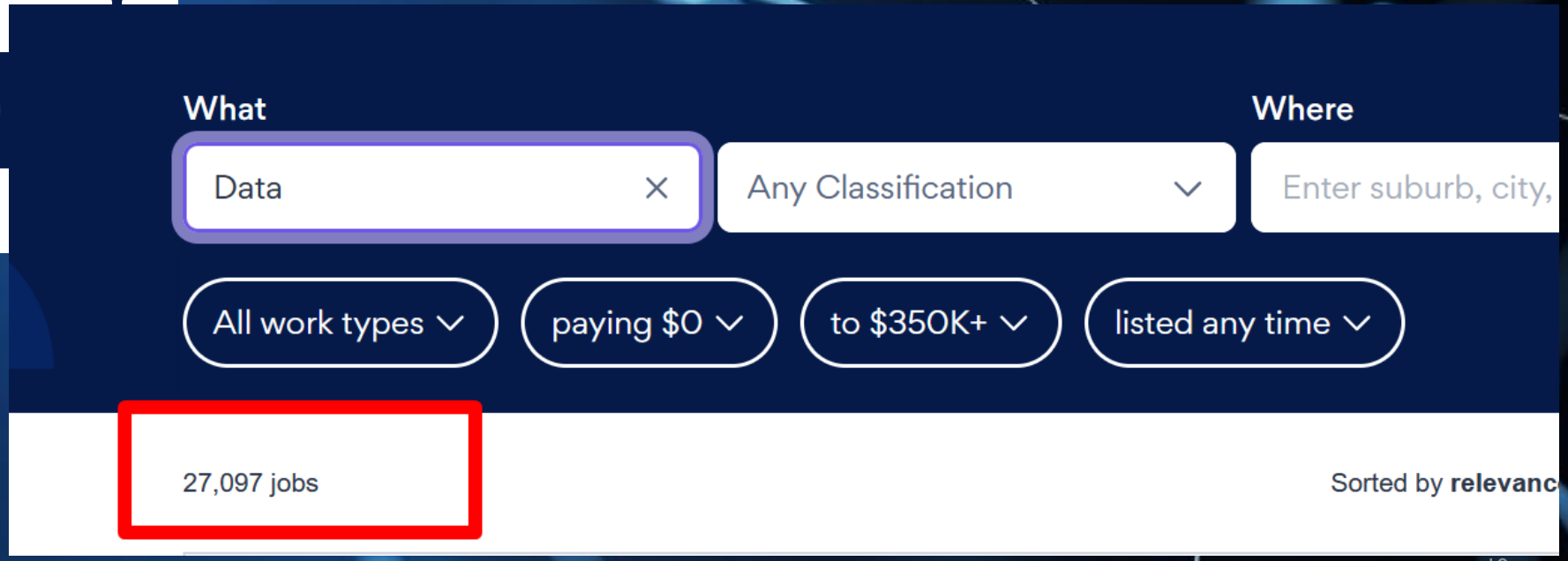
Market Gap









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Career Path in Data Science

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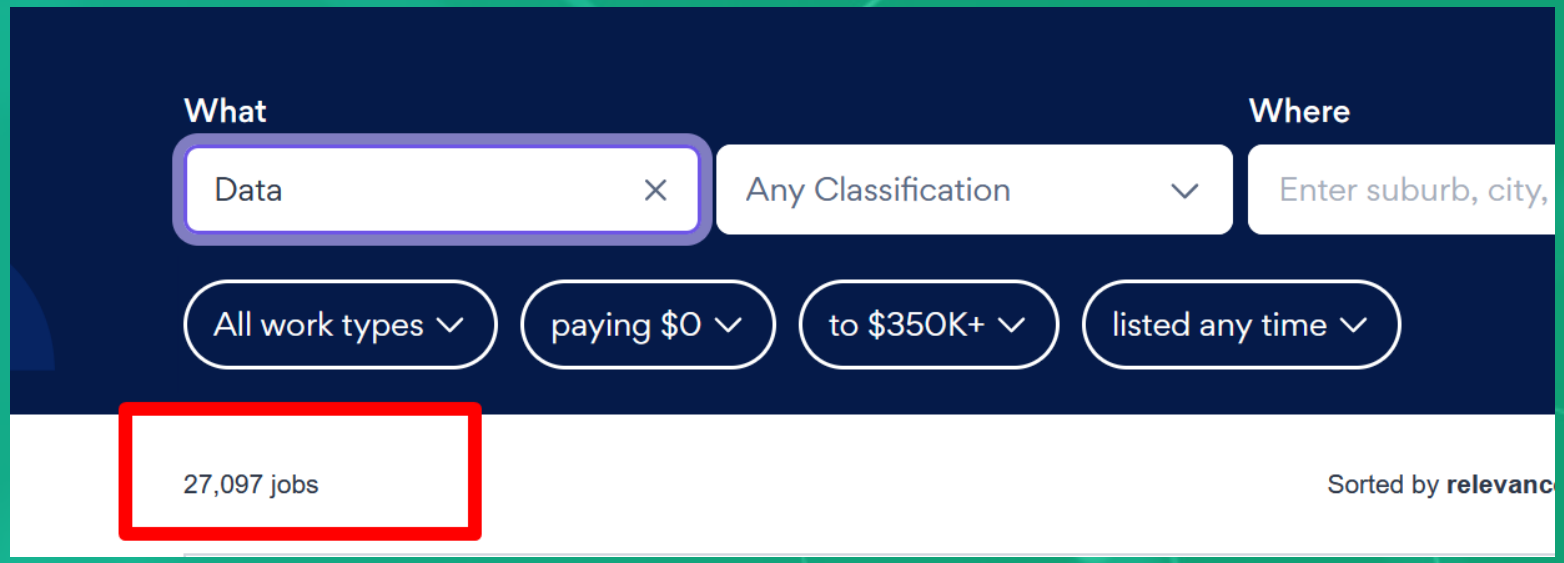

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What tools and technology I need to master to work as Data Scientist?

- Programming Languages: Python or R……
- Data Manipulation and Analysis: Pandas, NumPy
- Data Visualization: Matplotlib, Seaborn, Plotly
- ML Frameworks: Scikit-learn, TensorFlow and Kera, PyTorch
- SQL and Databases: SQL (Structured Query Language), PostgreSQL or MySQL, MongoDB
- Big Data Tools: Apache Spark, Hadoop,
- Cloud Platforms: AWS / Google Cloud / Azure
- Data Wrangling and ETL Tools: Apache NiFi, Talend, Apache Airflow
- Data Visualization Tools: Tableau, Power BI

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Thank you for your Time

Q & A

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