

CHARTERED AI ENGINEER HANDBOOK

by



**AI Professionals
Association**

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INTRODUCTION

The Chartered AI Engineer (CAIE) is a professional qualification that recognises working professionals in AI-related engineering roles. It is awarded by the AI Professionals Association (AIP), a conformity assessment body that validates the technical competencies and work experiences of applicants.

There are four levels to the Chartered AI Engineer professional qualification:

1. Associate AI Engineer (Assoc AI Engineer)
2. Chartered AI Engineer Level 1 (CAIE 1)
3. Chartered AI Engineer Level 2 (CAIE 2)
4. Chartered AI Engineer Level 3 (CAIE 3)

This handbook provides information on how aspiring applicants can attain each level of the professional qualification, including the required competencies and experiences, the assessment framework, application process and renewal requirements.

ABOUT THE AI PROFESSIONALS ASSOCIATION

Founded in Singapore in July 2020, the AI Professionals Association (AIP) is the first grassroots-driven Association for engineers and professionals working in AI-related roles.

We aim to build an ecosystem that supports the growth and use of artificial intelligence (AI) to build a better society. To that end, the Association will drive an active and vibrant community of qualified engineers, technologists and practitioners to come together to learn, to collaborate and proactively harness the economic and scientific potential of AI for the betterment of humanity.

Through the strength of the community, AIP aims to gather and provide resources to individuals who are passionate about AI, to help them level up their AI capabilities and at the same time make a meaningful contribution to society. It also seeks to provide resources to organisations so that they can use AI ethically and with confidence.

For more information on AIP and its programmes, please visit <https://aip.org.sg/>

WHAT IS A CHARTERED AI ENGINEER?

A Chartered AI Engineer is an individual who has been assessed to have the technical competencies to build deployable AI solutions and put them into production.

Associate and Level 1 Chartered AI Engineers (CAIEs) are able to use their capabilities to build AI models/solutions or applications to address business problems. Those qualified at Levels 2 and above are also able to lead a team of AI engineers to design, develop and deploy multiple AI projects which unlock and deliver business value.

As the demand for skilled AI engineers grows, CAIEs are well positioned to provide the necessary technical and professional knowledge, skills and competencies to manage AI projects successfully from start to end.

AI CAREER PROFILES

The four qualification levels for AI engineers are aligned with the competency requirements of different AI career profiles.

| Qualification | Profile | Required Competencies Area |
|--------------------------------------|--|---|
| Associate AI Engineer | Students or working professionals who have the necessary technical skills and knowledge to start working on an AI project for a business organisation that has some data capabilities. | <ul style="list-style-type: none"> ● Programming proficiency ● Exploratory data analysis ● Data preparation ● Model design and development ● Machine learning (ML) pipeline setup |
| Chartered AI Engineer Level 1 | Working professionals who have the necessary technical skills to develop AI solutions. They are able to draw a relationship between an AI project and its relevance to business and design a solution to meet the deliverables. | <ul style="list-style-type: none"> ● Project management ● Exploratory data analysis ● Data preparation ● Model design and development ● Model deployment ● AI governance |
| Chartered AI Engineer Level 2 | Practising AI professionals who are team leads for AI engineers and also manage internal and external stakeholders. They are able to align project outcomes with business goals and set up appropriate processes to monitor the effectiveness of AI models that have been deployed. They also lead or are involved in the final solution architecture to ensure that the deployment is successful and delivers business value. | <ul style="list-style-type: none"> ● Project and team leadership ● Solution design and development ● Model deployment workflow ● ML operations ● AI governance ● Business communication |
| Chartered AI Engineer Level 3 | Accomplished AI professionals with at least six years of experience in AI-related roles, who have overseen the development and deployment of multiple complex large-scale AI projects in an organisation. They are able to architect the organisation's | <ul style="list-style-type: none"> ● AI enterprise architecture ● IP management ● Strategy formulation ● Thought leadership ● AI governance |

| | | |
|--|---|--|
| | infrastructure to incorporate AI solutions into the business. | |
|--|---|--|

PROFESSIONAL QUALIFICATION LEVELS

1. Associate AI Engineer

An Associate AI Engineer (Assoc AI Engineer) is an individual who has the necessary technical skills and knowledge to start working on an AI project for a business organisation that has some data capabilities.

1.1 Required technical knowledge and skills

Candidates need not have working experience in AI-related roles but must be proficient in programming, understand databases and are able to run basic SQL queries. The candidate should also have some knowledge of software engineering, AI cloud services, data engineering and data management.

1.3 Assessment

There are two parts to the Assoc AI Engineer assessment:

a) **Technical test**

The technical test is a home-based assessment that is emailed to the candidate's registered email address. Candidates have to adhere to all the instructions stated in the technical test document and submit their solution by the stipulated deadline. Late entries will not be entertained.

Candidates will be given a dataset and are required to submit a solution consisting of following sections:

- a. Exploratory data analysis
- b. End-to-end machine learning pipeline

The preferred programming language is Python or R. Instructions on packaging and submitting the deliverables are provided in the test document. Mock test sample is available for download on the webpage.

AIP will evaluate each candidate's submission based on a set of assessment rubrics. Candidates who pass the technical test will receive an email notification to attend an assessment interview in person.

AIP will run through plagiarism check for all submissions. Candidates caught cheating will be disqualified and no refund shall be given. AIP decision will be final.

b) Assessment Interview

During the assessment interview, candidates will need to do a simple presentation of their submitted codes to a panel comprising industry AI professionals and Chartered AI Engineers. They should be prepared to explain the concepts that they utilised in the technical test and will also be asked questions to ascertain their technical knowledge. For more details, please refer to the CAIE assessment rubrics in Annex A.

Candidates are required to bring their own laptops/computing devices for the interview.

1.4 Application process

The CAIE application form is available on AISG's website at <https://www.aip.org.sg>

Information on the opening and closing dates for applications will be announced through the AIP mailing list, website and social media channels.

Candidates will need to prepare and submit:

- a) An updated LinkedIn profile or curriculum vitae (CV)

A **non-refundable** application fee will be collected upon submission of the application. Candidates will receive an email confirmation if their registration is successful.

1.5 Application fee

There is a **non-refundable** application fee of S\$500 nett.

1.6 Professional qualification validity

Candidates who fulfil the requirements for Assoc AI Engineer will receive an electronic certificate issued by AIP. Additional charges apply if the candidate wishes to receive a hardcopy of the certificate.

Qualified engineers will be allowed to display their professional credentials and the CAIE logo on their business cards, email signature and other corporate marketing materials.

The qualification is valid for two years. Upon expiry, renewal is required for continued display of the accreditation. Please refer to the sections on **display of credentials** and **professional qualification renewal** for more details.

2. Chartered AI Engineer Level 1

A Chartered AI Engineer Level 1 (CAIE 1) is a practising professional who has the necessary technical skills to develop AI solutions. He or she is able to draw a relationship between an AI project and its relevance to the business, and design a solution to meet the deliverables.

2.1 Required technical competencies and experience

Candidates will need to have at least one year of working experience in an AI-related role, and must have deployed at least one AI solution and/or built an AI product that is being used by an organisation.

2.2 Assessment

There are two parts to the assessment process:

a) Technical report

Candidates have to submit a technical report describing an AI solution or product that they have deployed for their company or a client.

If the submission meets AIP's evaluation criteria, the candidate will receive an email invitation to attend an assessment interview in person.

b) Assessment interview

During the assessment interview, candidates will be asked to present and walk through the AI solution (or product) described in their technical report. The assessment panel will comprise industry AI professionals and Chartered AI Engineers.

Candidates will need to display a sound understanding of core AI concepts. Knowledge of AI governance frameworks will be an advantage. For more details, please refer to the CAIE Assessment Rubrics in Annex A.

Candidates are required to bring their own laptops/computing devices for the assessment interview.

2.3 Application process

The CAIE application form is available on AIP's website at <https://www.aip.org.sg>

Information on the opening and closing dates for applications will be announced through the AIP website and social media channels.

Candidates will need to prepare and submit:

- b) The technical report
- c) An updated LinkedIn profile or curriculum vitae (CV)

A **non-refundable** application fee will be collected upon submission of the application. Candidates will receive an email confirmation if their registration is successful.

2.4 Application fee

There is a **non-refundable** application fee of S\$750 nett.

2.5 Professional qualification validity

Candidates who fulfil the requirements for CAIE 1 will receive an electronic certificate issued by AIP. Additional charges apply if the candidate wishes to receive a hardcopy of the certificate.

Qualified engineers will be allowed to display their professional credentials and the AIP CAIE logo on their business cards, email signature and other corporate marketing materials.

The CAIE 1 qualification is valid for three years. Upon expiry, renewal is required for continued display of the accreditation. Please refer to the sections on **display of credentials** and **professional qualification renewal** for more details.

2.6 Additional information

CAIE-accredited professionals may be invited to become an assessor for the Chartered AI Engineer programme. Terms and conditions apply.

3. Chartered AI Engineer Level 2

A Chartered AI Engineer Level 2 (CAIE 2) is a practising AI professional who is a team lead for AI engineers and also manages internal and external stakeholders. He or she is able to align project outcomes with business goals and to set up appropriate processes to monitor the effectiveness of the AI models deployed into production. They also lead or are involved in the final solution architecture to ensure that the deployment is successful and delivers business value.

3.1 Required technical competencies and experience

Candidates will need to have at least three years of working experience in AI-related roles. This includes leading a team in deploying an AI solution of considerable project value.

3.2 Assessment

There are two parts to the assessment process:

a) **Technical report**

Candidates have to submit two technical reports describing separate AI solutions that they have deployed in the preceding three years. This could be for a commercial organisation or for an R&D/research initiative.

If the submission meets AIP's evaluation criteria, the candidate will receive an email invitation to attend an assessment interview in person.

a) **Assessment interview**

During the assessment interview, candidates will be asked to present and walk through the AI solutions (or products) described in their technical reports. The assessment panel will comprise industry AI professionals and Chartered AI Engineers.

Candidates will need to display a sound understanding of core AI concepts, in particular those used in their AI models (or products). Knowledge of AI governance frameworks will be an advantage.

Candidates are required to bring their own laptops/computing devices for the assessment interview.

3.3 Application process

The CAIE application form is available on AIP's website at <https://www.aip.org.sg>

Information on the opening and closing dates for applications will be announced through the AIP website and social media channels.

Candidates will need to prepare and submit:

- a) Two technical reports
- b) An updated LinkedIn profile or CV

A **non-refundable** application fee will be collected upon submission of the application. Candidates will receive an email confirmation if their registration is successful.

3.4 Application fee

There is a **non-refundable** application fee of S\$900 nett.

3.5 Professional qualification validity

Candidates who fulfil the requirements for CAIE 2 will receive an electronic certificate issued by AIP. Additional charges apply if the candidate wishes to receive a hardcopy of the certificate.

Qualified engineers will be allowed to display their professional credentials and the CAIE logo on their business cards, email signature and other corporate marketing materials.

The CAIE 2 qualification is valid for four years. Upon expiry, renewal is required for continued display of the accreditation. Please refer to the sections on **display of credentials** and **professional qualification renewal** for more details.

3.6 Additional information

CAIE-accredited professionals may be invited to become an assessor for the Chartered AI Engineer programme. Terms and conditions apply.

4. Chartered AI Engineer Level 3

A Chartered AI Engineer Level 3 (CAIE 3) is an accomplished AI professional whose skills and experience are widely recognised by his or her peers. He or she has overseen the development and production of multiple complex large-scale AI projects in an organisation, and is able to architect the organisation's infrastructure to incorporate AI solutions into the business.

Individuals at this level typically head AI/technology centres of excellence or similar functional units in a large organisation.

4.1 Required competencies and experience

Candidates will typically need to have more than six years of working experience in AI-related roles and hold a senior role in a commercial multinational corporation. They should also have a successful track record in leading companies' digital transformation.

4.2 Application process

CAIE 3 is a prestigious professional qualification awarded to individuals of stature in the field of AI. It is not open for application. Candidates have to be nominated by recognised leaders in AI as well as AIP's partner organisations.

Nominated individuals will be invited for a confirmation interview with the Recommendation Panel which consists of the AIP Advisory Council and Executive Committee.

4.3 Professional qualification validity

The CAIE 3 qualification will be valid as long as the recipient continues to support and actively contribute to the elevation of the AI profession and the growth of the AI ecosystem in Singapore.

Holders of the accreditation can display their professional credentials and the CAIE logo on their business cards, email signature and other corporate marketing materials.

4.4 Additional information

CAIE-accredited professionals may be invited to become an assessor for the Chartered AI Engineer programme. Terms and conditions apply.

APPEALS

Should a candidate wish to appeal against a professional qualification decision, the reasons for the appeal should be submitted in writing to application@aip.org.sg.

If a review of the candidate's assessment is required, an administrative fee will be levied. The fees are shown in the table below:

| Associate AI Engineer | Chartered AI Engineer Level 1 | Chartered AI Engineer Level 2 |
|------------------------------|--|--|
| \$300 | \$450 | \$540 |

Within 14 days of submitting the administration fee, the appellant will be notified of a review meeting date with the Appeals Review Committee (ARC). The ARC will consist of industry professionals and/or AIP Executive Committee members who were not involved in the appellant's original assessment.

The ARC will review the merits of the appeal together with the appellant. The results of the appeal will be sent to the appellant within 14 days of the date of the review meeting. All decisions made by the ARC will be final.

DISPLAY OF CREDENTIALS

All Chartered AI Engineers will be allowed to display their professional credentials and the CAIE logo on their business cards, email signature and other corporate marketing materials. Any display of the CAIE professional qualification logo must adhere to the style guide which will be sent to all successful candidates.

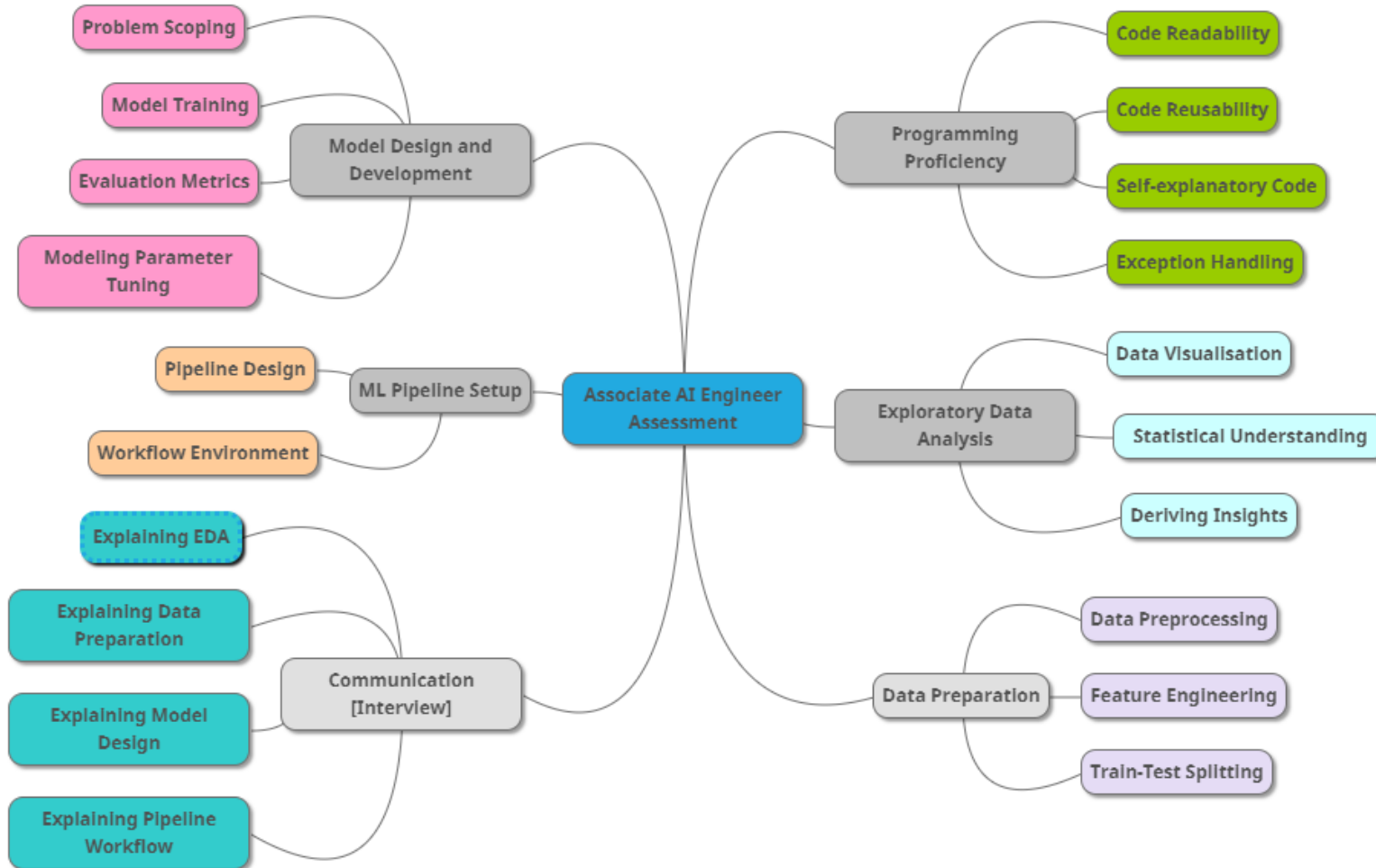
PROFESSIONAL QUALIFICATION RENEWAL

All Chartered AI Engineers and Associate AI Engineers, with the exception of CAIE 3, are required to renew their qualifications to ensure that their knowledge, skills and experience remain current. The requirements for renewal are detailed below:

| Qualification level | Renewal period | Required actions/documents |
|--------------------------------------|----------------|--|
| Associate AI Engineer | 2 years | <ul style="list-style-type: none"> ● Successful completion of the technical test and assessment interview ● Current AIP member ● Recertification fee: S\$350 |
| Chartered AI Engineer Level 1 | 3 years | <ul style="list-style-type: none"> ● A minimum of 75 CPD (Continuous Professional Development) hours recorded over 3 years, immediately preceding the award of CAIE status, (i.e. average of 25 CPD hours per year), together with accompanying verifiable documentation where applicable. ● Current AIP member ● Updated CV ● Recertification fee: S\$390 |
| Chartered AI Engineer Level 2 | 4 years | <ul style="list-style-type: none"> ● A technical report describing an AI solution or product that was deployed for a commercial project or an R&D/Research initiative after the previous qualification award date ● A minimum of 100 CPD hours recorded over 4 years, immediately preceding the award of CAIE status, (i.e. average of 25 CPD hours per year), together with accompanying verifiable documentation where applicable. ● Current AIP member ● Updated CV ● Recertification fee: S\$460 |
| Chartered AI Engineer Level 3 | NA | <ul style="list-style-type: none"> ● The CAIE 3 qualification is valid as long as the recipient continues to contribute to the elevation of the AI profession and the growth of the AI ecosystem in Singapore. |

ANNEX A1:

Assessment rubrics for Associate AI Engineer



| 1. Programming Proficiency Assessment | |
|---------------------------------------|--|
| Code readability | <ul style="list-style-type: none"> • Code is organised in a clean and readable format • Code layout style, such as indentation and maximum line length, is consistent with industry conventions such as PEP8 (https://www.python.org/dev/peps/pep-0008) |
| Code reusability | <ul style="list-style-type: none"> • Code is structured to minimise repeated code (e.g. using Functions) |
| Self-explanatory code | <ul style="list-style-type: none"> • Proper naming conventions for variables, functions, classes • Include documentation with in-line comments in source code • Intent of Functions and Classes is stated clearly |
| Exception handling | <ul style="list-style-type: none"> • Includes codes to catch and handle exceptions such as insufficient data, empty dataset, wrong data type etc |

| 2. Exploratory Data Analysis (EDA) Assessment | |
|---|---|
| Data visualisation | <ul style="list-style-type: none"> • Uses appropriate visualisation tools to show the relationship between variables |
| Statistical understanding | <ul style="list-style-type: none"> • Generates and provides good explanation of descriptive statistics (mean, median, mode, standard deviation, and variance) • Includes analysis of relationship between variables |
| Deriving insights | <ul style="list-style-type: none"> • Extracts and explains insights from the EDA |

| | |
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| | <ul style="list-style-type: none"> ● Links insights into a coherent story ● Engineers features based on the insights drawn |
|--|--|

| 3. Data Preparation Assessment | |
|--|---|
| Data preprocessing | <ul style="list-style-type: none"> ● Performs Missing Data Analysis and takes care of the missing data appropriately by removing data records with missing values or performing data imputation ● Performs Outliers Analysis and takes care of outliers appropriately by removing outlier records or replacing outliers data ● Performs data investigation to check for erroneous data and performs appropriate data preprocessing to correct the erroneous data |
| Feature engineering | <ul style="list-style-type: none"> ● Performs basic transformations on data; e.g. mathematical transformation and binning of numerical data; string replacement, substring extraction and concatenation of multiple strings for string data ● Performs basic feature engineering to improve model accuracy |
| Train-test - validate splitting | <ul style="list-style-type: none"> ● Performs basic train-test-validate data split for model building to ensure that the final model is not overfitted and model testing is unbiased |

| 4. Model Design and Development Assessment | |
|---|--|
| Problem scoping | <ul style="list-style-type: none"> ● Able to define modeling objective based on problem statement ● Able to list down appropriate assumptions and considerations related to the problem scoping |
| Model training | <ul style="list-style-type: none"> ● Displays good conceptual understanding of ML algorithms and models ● Builds an appropriate model for the task using an established ML framework |
| Evaluation metrics | <ul style="list-style-type: none"> ● Evaluates model performance using suitable metrics ● Able to explain the core concepts used in model selection, such as the trade-off between variance and bias |
| Modelling parameter tuning | <ul style="list-style-type: none"> ● Takes into account different modelling parameters and architectures for comparison |

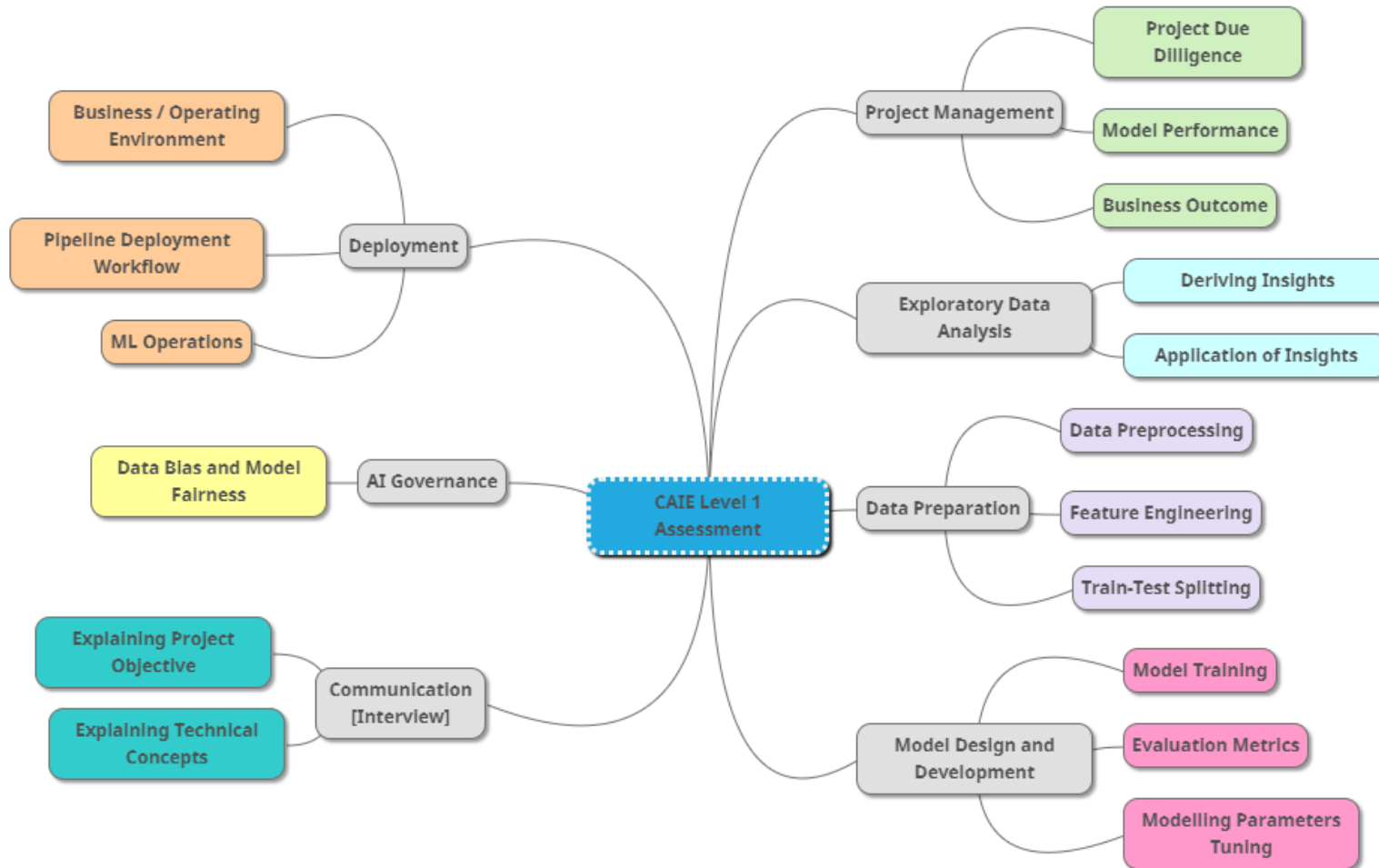
| 5. ML Pipeline Setup Assessment | |
|---------------------------------|--|
| Pipeline design | <ul style="list-style-type: none"> • Designs modular pipeline to ingest data, perform data cleaning and data transformation, train models, generate evaluation metrics and make inferences • Automates pipeline workflow • Functional pipeline runs successfully end-to-end • Includes a README file to describe how to run the pipeline |
| Workflow environment | <ul style="list-style-type: none"> • Sets up an ML workflow environment and file structure to facilitate pipeline • Includes a library versioning requirements file, e.g. “requirements.py” or “conda.yml” depending on the setup option |

| 6. Communication [during interview] | |
|-------------------------------------|--|
| Explaining EDA | <ul style="list-style-type: none"> • Able to draw insights using EDA • Able to collate insights into a coherent story and articulate it clearly |
| Explaining data preparation | <ul style="list-style-type: none"> • Able to justify the methods used to input missing values, correct erroneous data or handle outliers • Able to show how the new features help with model improvement • Able to explain the rationale for adopting the train-test-validate data split strategy |
| Explaining model design | <ul style="list-style-type: none"> • Able to explain how the solution addresses the problem statement • Able to clearly articulate the benefits and drawbacks of the ML solution |

| | |
|---|---|
| Explaining pipeline workflow | <ul style="list-style-type: none"> • Able to explain how the workflow is designed • Able to explain how to embed the evaluation of the solution developed in the workflow • Able to identify and address blockers that may arise in the workflow (data curation, model training and inferencing, deployment) |
|---|---|

ANNEX A2:

Assessment rubrics for Chartered AI Engineer Level 1



| 1. Project Management Assessment | |
|---|--|
| Project due diligence | <ul style="list-style-type: none"> ● Clearly articulates how the technical solution addresses the stated objective/business need ● Provides details of the benefits achieved from the deployment |
| Model performance | <ul style="list-style-type: none"> ● Continuously evaluates model performance according to a clear set of metrics ● If monitoring has not commenced, is able to explain how it can be enabled |
| Business outcomes | <ul style="list-style-type: none"> ● Understands who the end users are and is able to explain how the AI solution will benefit them ● Able to estimate the business impact of the AI solution |

| 2. Exploratory Data Analysis Assessment | |
|--|--|
| Deriving insights | <ul style="list-style-type: none"> ● Performs EDA with good domain understanding and derives useful data insights |
| Application of insights | <ul style="list-style-type: none"> ● EDA results in relevant data cleaning or feature engineering |

| 3. Data Preparation Assessment | |
|---------------------------------------|---|
| Data preprocessing | <ul style="list-style-type: none"> ● Makes appropriate choices of basic preprocessing techniques for outliers handling, missing data handling, erroneous data correction and other data transformation |

| | |
|-----------------------------|--|
| Feature engineering | <ul style="list-style-type: none"> ● Feature engineering/input preprocessing reflects an understanding of the algorithm and ability to link to insights from EDA |
| Train-test splitting | <ul style="list-style-type: none"> ● Performs train-test-validate data split for model building, linking it with insights from EDA to ensure that the final model is not overfitted and testing is unbiased ● Applies sampling method to ensure all classes are well represented in each dataset ● Ensures there is no data leakage with the train-test split approach used |

| 4. Model Design and Development Assessment | |
|---|--|
| Model training | <ul style="list-style-type: none"> ● Displays good conceptual understanding of ML algorithms and models ● Adequately and correctly presents the underpinning statistical or deep learning framework for the chosen algorithm ● Able to adapt current AI research to address problem statement |
| Evaluation metrics | <ul style="list-style-type: none"> ● Evaluates model performance using suitable metrics ● Able to explain the core concepts used in model selection, such as the trade-off between variance and bias ● Able to link metrics assessment back to business goals |
| Modelling parameters tuning | <ul style="list-style-type: none"> ● Takes into account different modelling parameters and architectures for comparison ● Fine-tunes the model to achieve metrics that are comparable to current state-of-the-art models ● Includes parameter tuning methodology and is able to explain the experiments conducted and draw conclusion from the tuning |

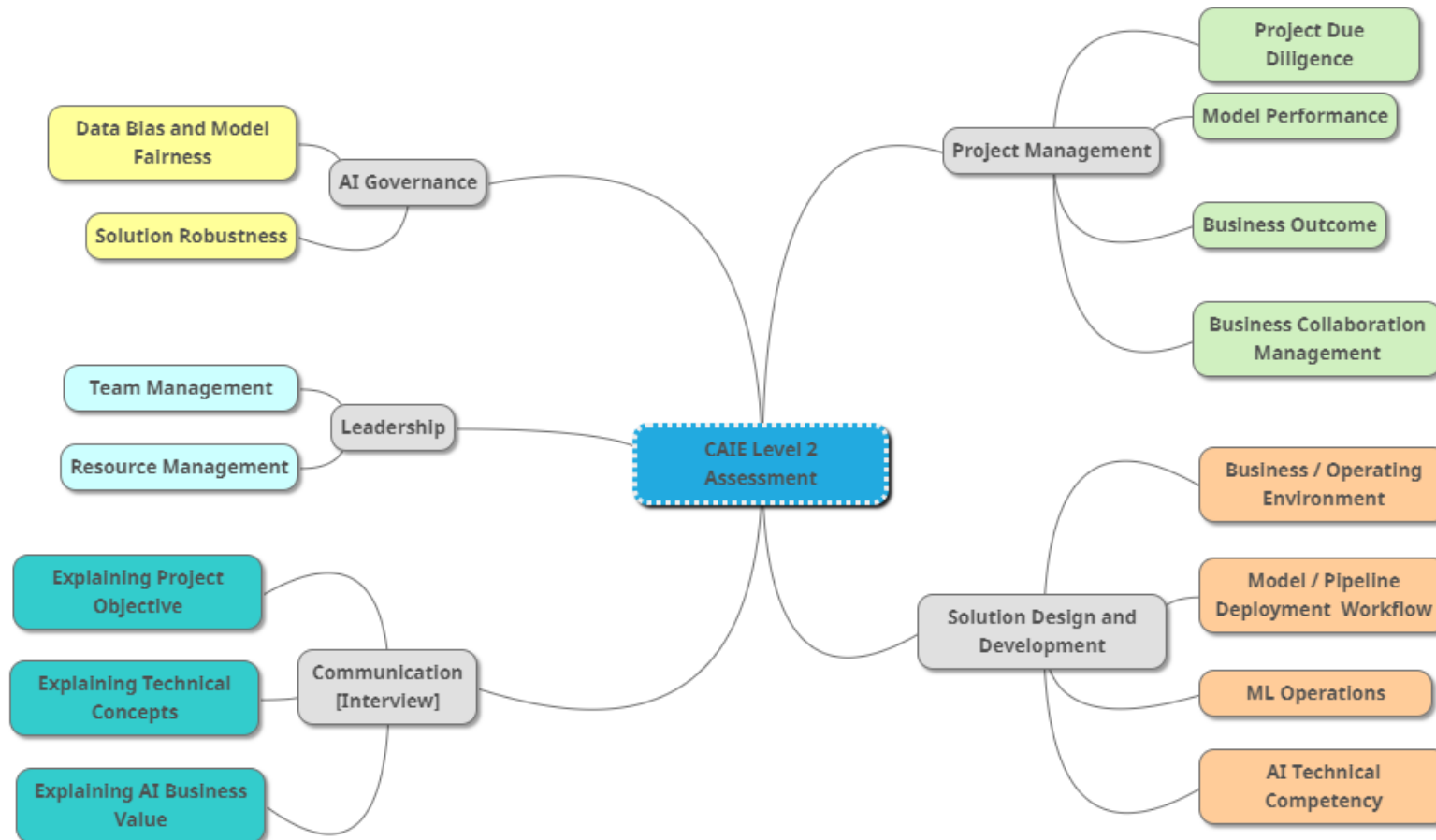
| 5. Deployment Assessment | |
|--|--|
| Business/ operating environment | <ul style="list-style-type: none"> ● Addresses business/operating environment considerations when developing the AI solution ● Able to describe the high-level architecture ● Project data is organised and versioned |
| Pipeline deployment workflow | <ul style="list-style-type: none"> ● Organises pipelines in a modularised fashion and adheres to software engineering best practices ● Automates or collaborates on the automation of pipelines for key tasks such as data ingestion, data preparation, model training, inferencing, metric evaluation and performance monitoring ● Sets up solution workflow environment and file structure to facilitate pipeline |
| ML operations | <ul style="list-style-type: none"> ● Understands how to set up a consistent infrastructure/platform to support ML development and deployment ● Able to gauge the need to scale data processing, model training and inferencing for the ML system, and to clarify how to scale where required ● Able to track system performance of ML deployments (using <u>at least one</u> identified metric/KPI) |

| 6. AI Governance Assessment | |
|------------------------------|--|
| Data bias and model fairness | <ul style="list-style-type: none"> • Able to explain assessments performed on the fairness of the ML models to mitigate data bias |

| 7. Communication [during interview] | |
|-------------------------------------|--|
| Explaining project objective | <ul style="list-style-type: none"> • Able to elaborate on the business objectives or goals of the project |
| Explaining technical concepts | <ul style="list-style-type: none"> • Able to explain the technical design and implementation of the project to a technical person |

ANNEX A3:

Assessment rubrics for Chartered AI Engineer Level 2



| 1. Project Management Assessment | |
|--|---|
| Project due diligence | <ul style="list-style-type: none"> ● Displays good understanding of the project development process ● The benefits achieved from the deployment are detailed clearly, together with objective evidence of success as well as considerations for future needs and/or scalability ● Assumptions behind project performance (including models) are well articulated, with built-in plans to discover and recover ● Able to manage data-to-insight latency to meet application requirements |
| Model performance | <ul style="list-style-type: none"> ● Continuously evaluates model performance according to a clear set of metrics ● Manages model performance issues consistently and makes plans for improvement |
| Business outcomes | <ul style="list-style-type: none"> ● Understands who the end users are ● Able to explain how the AI solution will benefit end users and manage end users' expectations ● Able to explain the business value and risks of the AI solution |
| Business collaboration management | <ul style="list-style-type: none"> ● Works effectively with business stakeholders to co-develop AI solutions and drive business adoption ● Able to educate business stakeholders and add value to the business proposition of the AI solution |

| 2. Solution Design and Development Assessment | |
|--|---|
| Business/ operating environment | <ul style="list-style-type: none"> • Understands and able to analyse business needs, and play back the requirements clearly to stakeholders to gain their confirmation • Able to design a solution that addresses the problem statement and reflects business and practical realities • Employs a user-centred approach to designing and developing the integrated AI solution, taking into account ease of use, human-in-the-loop processes, and change management |
| Model/pipeline deployment workflow | <ul style="list-style-type: none"> • Ensures that all stages of the model development process - including data pipeline engineering and data model design, model integration and test planning - are sound in terms of quality and efficiency • Implements controls to track and manage input data quality • Able to synthesise and integrate technologies for AI solution implementation, testing and deployment with knowledge of the trade-offs • Able to define and implement a management and security plan for project data |
| ML operations | <ul style="list-style-type: none"> • Able to clarify the budget for the ML system such as the cost of data collection and data processing • Able to clarify issues related to scaling ML system • Plans for change in the technology stack of ML system • Able to set up infrastructure-as-code and automation to support ML development and deployment workflows • Provides inputs for the procurement of ML infrastructure • Able to interpret the output and the anomalies of ML system to business leaders • Able to propose relevant metrics and track the performance of the ML system |

| | |
|----------------------------------|---|
| AI technical competencies | <ul style="list-style-type: none"> ● Demonstrates technical competencies needed to engineer a high-performance AI solution, such as computational modelling, computer vision, text analytics, self-learning systems etc. |
|----------------------------------|---|

| 3. AI Governance Assessment | |
|-------------------------------------|--|
| Data bias and model fairness | <ul style="list-style-type: none"> ● Able to explain the consequences of flawed data and model bias ● Able to explain the steps taken to reduce model bias during solution development ● Assesses the fairness of ML models to mitigate data bias |
| Solution robustness | <ul style="list-style-type: none"> ● Takes into account regulations that ensure the security and safety of users and systems throughout the lifecycle of the AI product |

| 4. Leadership Assessment | |
|---------------------------------|---|
| Team management | <ul style="list-style-type: none"> ● Provides a clear plan for, and evidence of, successful team coordination and management during project development ● Demonstrates conflict resolution capabilities |
| Resource management | <ul style="list-style-type: none"> ● Provides evidence of successful planning and management of resources and budgets for the team |

| 5. Communication [during interview] | |
|--|--|
| Explaining project objective | <ul style="list-style-type: none"> ● Able to elaborate on the business objectives or goals of the project |
| Explaining technical concepts | <ul style="list-style-type: none"> ● Able to explain the technical design and implementation of the project clearly to a non-technical person |
| Explaining AI business value | <ul style="list-style-type: none"> ● Able to summarise the benefits and limitations of the AI solution in solving business challenges |