FACULTY OF ENGINEERING AND TECHNOLOGY

FINAL ASSESSMENT BIS3106 PROJECT MANAGEMENT

GROUP PROJECT

TITLE: LEGAL COMPLIANCE CHECKER

ACADEMIC SESSION: SEPTEMBER 2025

RELEASE DATE: 17th OCTOBER 2025 10:00AM

SUBMISSION DEADLINE: 5th DECEMBER 2025 10:00PM

INSTRUCTIONS TO CANDIDATES

- This assignment will contribute **50% to your final grade.**
- This is **a group project**. Each group **consists of ONLY 5 members**.

IMPORTANT

The University requires students to adhere to submission deadlines for any form of assessment. Penalties are applied in relation to unauthorized late submission of work.

- Coursework submitted after the deadline but within 1 week will be accepted for a maximum mark of 40%.
- Work handed in following the extension of 1 week after the original deadline will be regarded as non-submission and marked zero.

Students' declaration:

We;

1. Jordan Chay Ming Hong, 23009376, Jordan
2. Jaeden Ting Yiyong, 23009798, Jaeden
3. Nathan Aldyth Prananta Ginting, 22099865, Nathan
4. Lim Jin Xian, 22055529, JinXian

received the assignment and read the comments.

Academic Honesty Acknowledgement

"We (names stated above) verify that this paper contains entirely my own work. I have not consulted with any outside person or materials other than what was specified (an interviewee, for example) in the assignment or the syllabus requirements. Further, I have not copied or inadvertently copied ideas, sentences, or paragraphs from another student. I realize the penalties *(refer to page 1c, 5.5, Appendix 2, page 44 of the student handbook diploma and undergraduate programme)* for any kind of copying or collaboration on any assignment."

1) Name: Jordan Chay Ming Hong (Jordan / 24/11/2025)
2) Name: Nathan Aldyth Prananta Ginting (Nathan / 24/11/2025)
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4) Name: Lim Jin Xian (JinXian / 24/11/2025)

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1.0 Introduction

1.1 Project Background

In current business environment, regulatory compliance has become a core operation. According to research, it was found that 70% of businesses struggle with compliance due to increasingly complex legal language, now this business operation has resulted in approximately $14.8 billion in annual losses due to regulatory non-compliance penalties. Small and Medium Enterprises (SMEs) often lack the financial resources to retain dedicated legal counsel, leaving them vulnerable to significant legal risks.

To address this issue, our group has decided to create a solution for this which is a Legal Compliance checker for Small, Medium Enterprises (SMEs). The main goal of this project is to make legal checking more accessible for this size of enterprises. Our uniqueness lies within our cost to run a full analysis. Our platform aims to be a bridge between these complex regulations such as GDPR (EU), PDPA (MY/SG), as well as the Employment Act 1955. This creates a sense where this project focuses on developing a functional web-based prototype that demonstrates how Artificial Intelligence can reduce document review time by 90% and consultation costs by up to 60%.

1.2 Project Objectives

The primary goal of this project is to deliver a fully functional "Minimum Viable Product" (MVP) of the Legal compliance checker which we are going to call “Legal Guard” which is to be developed within the 12-week academic timeline. Following the SMART objectives such as:

1. **Develop a High-Fidelity Prototype:** To design and deploy a responsive React 18 Single Page Application (SPA) capable of processing PDF and DOCX uploads under 20MB by Week 5 (November 21st, 2025)
2. **Integrate AI Intelligence:** To successfully implement IBM Watson x.ai (Granite Models) to achieve a "plain English" summarization accuracy suitable for non-legal professionals
3. **Compliance Logic:** Develop compliance engine that checks documents against specific jurisdictions (MY, SG, EU, US) and generate risk score (0-100)
4. **Validate User Experience:** To ensure the platform achieves a sub-2-second response time for initial document parsing to maximize user retention during the client pitch demonstration

2.0 Kick Off Meeting

Project Name: LegalGuard Regtech: AI-powered Compliance Platform

Meeting Objective: To officially launch the project by confirming the technical vision (AI-based compliance), defining individual team roles, reviewing the assignment constraints, and establishing the Agile development workflow to meet the December deadline

Agenda

- **Introduction of Attendees:**
  - **Project Manager**
  - **Full-stack Engineer**
  - **UI/UX Designer**
  - **QA and UAT Specialists**
- **Review of Project Background**
  - **Discussion of the business problem**: $14.8 billion lost annually due to non-compliance.
  - **Review of the solution**: A web-based "Regtech" platform using IBM Watson x.ai to assist in legal expertise for SMEs
- **Review of project-related documents (business case and project charter)**
  - Review of all planned deliverables (Report, Prototype, Pitch) are covered
  - Confirmation of the Project Charter: Deliver a Minimum Viable Product (MVP)
- **Discussion of project organizational structure**
  - **Human Resource allocation :** Assignment of technical leads and documentation responsibilities
- **Discussion of project scope, time, and cost goals**
  - **Scope:** In-scope includes PDF/DOCX analysis, Risk Scoring, and 4 jurisdictions (GDPR, PDPA MY/SG, CCPA). Out-of-scope includes native mobile apps and payment processing**.**
  - **Cost/Resources:** Budget is limited to open-source tools (React, FastAPI) and the academic timeline (12 weeks)

- **Establishment of Communication Protocol**
    - **Defined Strategy**: Discord for daily updates; GitHub for code reviews
- **Review of Technical Standards & Requirements**
    - **Tech Stack**: React 18, Python FastAPI, IBM Granite Models.
    - **Metric**: System must process a 5MB PDF in under 10 seconds
- **Discussion of Risks**:
    - **Risk:** "In-Depth Legal Research" (WBS 2.1) taking too long
    - **Mitigation**: Limit scope to "Employment Contracts" only if time runs out
- **List of action items from meeting:**

Action Item	Description	Owner	Due Date
Establish Compliance Domains	Identify specific clauses for GDPR/PDPA	PM / Legal Lead	22 Oct 2025
Define Technical Requirements & Metrics	Confirm IBM Watson API limits	Tech Lead	22 Oct 2025
Create WBS & Schedule	Finalize Gantt Chart in MS Project	PM / Legal Lead	24 Oct 2025
Define Risk Management Strategies	Draft Risk Matrix for Report	Core Team	24 Oct 2025
Set Up Development Environment	Initialize GitHub & Cloud Access	Tech Lead	23 Oct 2025
Design Database Schema	Map JSON structure for compliance rules	Tech Lead	25 Oct 2025
Develop User Interface Wireframes	Sketch Dashboard & Upload Form	Frontend Engineer	25 Oct 2025
Prepare Content for System Input	Data entry of regulatory text for AI training	QA / Tech Writer	26 Oct 2025

Date and time of next meeting:

- Wednesday, 22nd October 2025 at 10:00 AM (via Discord)

Meeting Objective:

- Review initial GitHub setup and approve the WBS draft before report compilation.

Meeting Adjourned: 12:00 PM

3.0 Project Charter & Scope

The Project Charter outlined below recognizes the existence and the development of the Legal Compliance Checker project, also known as the LegalGuard project.

Category	Details
Company	Legal Guard
Project Name	Legal Guard RegTech: AI-Powered Compliance Platform
Project Description	Development of a web-based "RegTech" application that utilizes IBM Watson or Google's Gemini artificial intelligence to analyze legal documents, identify compliance risks, and provide plain-language summaries for Small and Medium Enterprises (SMEs)
Project Manager	Nathan Aldyth Prananta G.
Core Team Roles	1. Jordan Chay Ming Hong 2. Jaeden Ting YiYong 3. Jin Xian Lim
Project Vision	To democratize legal expertise by delivering an automated, accessible, and accurate compliance checker that empowers business owners to understand their legal risks without expensive counsel
Objectives	1. Develop a functional Minimum Viable Product (MVP) capable of parsing PDF/DOCX files. 2. Integrate IBM Watson x.ai (Granite Models) or Google's Gemini Models to automate clause summarization. 3. Implement a risk-scoring logic engine for four specific jurisdictions (GDPR, PDPA MY/SG, CCPA). 4. Deliver the final prototype and project report by the December 5th academic deadline.
Business Case	Regulatory non-compliance costs businesses approximately $14.8 billion annually. While large enterprises have dedicated legal teams, SMEs often struggle with complex legal language. Legal Guard RegTech bridges this gap by offering an immediate AI-driven analysis tool that reduces document review time by 90%, making legal safety accessible to the underserved SME market

<table>
<tr><td>Project Scope</td><td colspan="4">In-Scope:
React-based dashboard with drag-and-drop document upload.
Python FastAPI backend integrated with IBM Watson.
Real-time risk scoring (0-100) and exportable PDF reports.
Regulatory database for PDPA 2010 (MY), PDPA 2012 (SG), GDPR (EU), and CCPA (US)
Out-Of-Scope:
Native mobile applications (iOS/Android).
Payment gateway processing (Stripe/PayPal).
Binding legal advice or court representation services.
Criminal law or jurisdictions outside the identified four</td></tr>
<tr><td>Project Timeline</td><td colspan="4">Start Date: October 17th, 2025
End Date: January 9th, 2025
Duration: 12 Weeks</td></tr>
<tr><td colspan="5">Project Budget (MYR)</td></tr>
<tr><td>Category</td><td>Line Item</td><td>Rate/Hr.</td><td>Est. Hr.</td><td>Total</td></tr>
<tr><td>Human Capital</td><td>Full-stack Engineer</td><td>90.00</td><td>100</td><td>9,000.00</td></tr>
<tr><td></td><td>UI/UX Designer</td><td>65.00</td><td>70</td><td>4,550.00</td></tr>
<tr><td></td><td>Project Manager</td><td>70.00</td><td>70</td><td>4,900.00</td></tr>
<tr><td></td><td>QA and UAT Specialists</td><td>55.00</td><td>50</td><td>2,750.00</td></tr>
<tr><td>Infrastructure</td><td>Cloud Hosting</td><td>0.25</td><td>1,000</td><td>250.00</td></tr>
<tr><td></td><td>Databases (PostgreSQL)</td><td>0.30</td><td>1,000</td><td>300.00</td></tr>
<tr><td></td><td>AI Model (Gemini/IBM)</td><td>0.05/1k Token</td><td>10k</td><td>500.00</td></tr>
<tr><td>Operations</td><td>Software Tooling</td><td>1.50</td><td>200</td><td>300.00</td></tr>
<tr><td></td><td>Marketing and Assets</td><td>Flat Rate</td><td>N/A</td><td>200.00</td></tr>
<tr><td>Reserves</td><td>Contingency (10%)</td><td>N/A</td><td>N/A</td><td>1,010.00</td></tr>
<tr><td>GRAND TOTAL</td><td></td><td></td><td></td><td>23,760.00</td></tr>
<tr><td>Assumptions</td><td colspan="4">1. The LLM API service (IBM Granite/ Google Gemini) will remain active and accessible throughout development.
2. Public regulatory texts (PDPA/GDPR) are accurate for database</td></tr>
</table>

	population. **3.** All 4 team members will contribute equally to the 1-week sprints**.**
Constraints	1. No native mobile development is permitted due to time constraints. 2. AI Models are limited to IBM and Watsons due to cost. 3. Budget are set and fixed, therefore any budget increase is not expected. 4. User Interface strict on resource therefore no heavy animations.
Risks	1. **API Latency:** The implemented LLM API endpoints responses taking too long during the live demo. 2. **Scope Creep:** Adding too many legal jurisdictions delays core logic. 3. **Data Accuracy:** AI "hallucinations" providing incorrect legal summaries (Mitigation: Disclaimers)
Success Criteria	1. System must successfully upload a 5MB contract and return analysis within 10 seconds. 2. Interface must be intuitive for non-technical users. 3. Final report must adhere to APA formatting and include all required sections (WBS, Gantt, Risk Matrix) 4. Achieve a 99.9% uptime and reliability upon deployment 5. The LangChain RAG helps reduces the token usage by 20%
Identified Stakeholders	1. Internal Stakeholders • Project Manager • Development Team Representative 2. External Stakeholders • IBM Watsons Engineers Representative • Google Gemini Engineers Representative
Stakeholders Sign-off	
Project Manager	*Nathan Ginting*
Dev. Rep.	*Jordan Chay*
IBM Rep.	*Rodrigo Andrade*
Google's Rep.	*Hailey Cheng*

With this project charter, the Project Manager is given the authority to apply organizational resources to execute the project's development activities

4.0 Work Breakdown Structure (WBS)

4.1 Diagram View

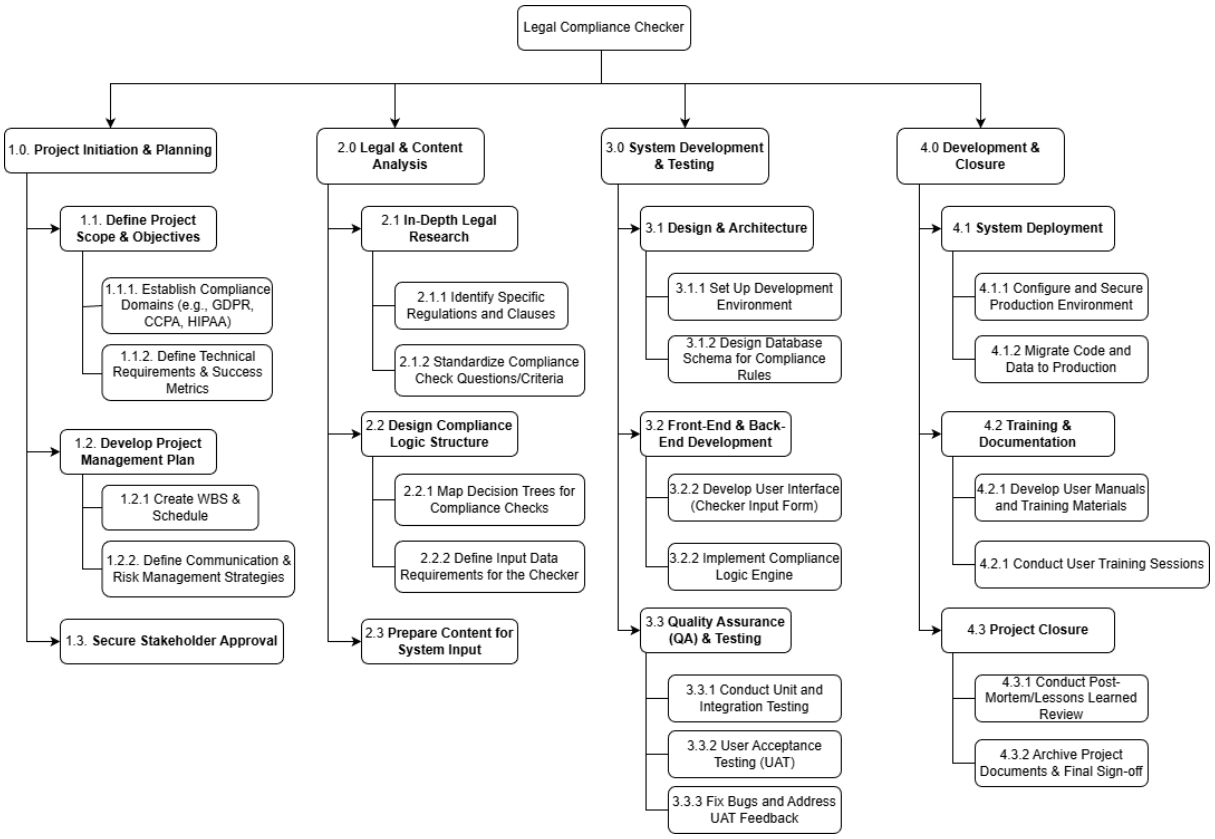


Figure 1: Work Breakdown Structure Diagram

4.2 Table View

1.0	**Project Initiation & Planning**			
ID	Task Name	Responsibility	Resources	Dependencies
1.1	**Define Project Scope & Objectives**	**Project Manager (PM)**	PM, Core Team	None
1.1.1	Establish Compliance Domains (e.g., GDPR, CCPA, HIPAA)	Legal Analyst	Legal Team	None
1.1.2	Define Technical Requirements & Success Metrics	PM, Tech Lead	Technical Team	1.1.1
1.2	**Develop Project Management Plan**	**Project Manager (PM)**	PM, Core Team	1.1
1.2.1	Create WBS & Schedule	PM	PM Tools	1.1
1.2.2	Define Communication & Risk Management Strategies	PM, Core Team	Project Charter	1.1

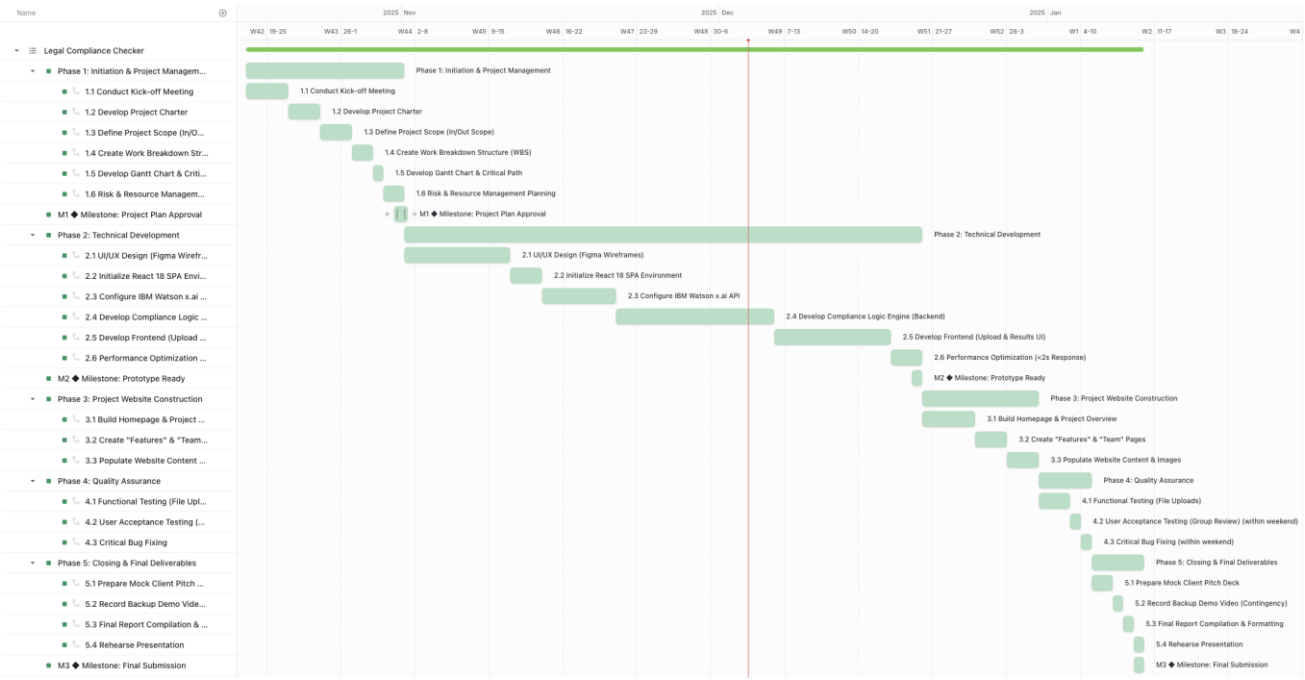
1.3	**Secure Stakeholder Approval**	**Project Manager (PM)**	Steering Committee	1.2
2.0	Legal & Content Analysis			
2.1	**In-Depth Legal Research**	**Legal Analyst**	Legal Databases, Subject Matter Experts (SMEs)	1.1.1
2.1.1	Identify Specific Regulations and Clauses	Legal Analyst	Legal Databases	2.1
2.1.2	Standardize Compliance Check Questions/Criteria	Legal Analyst, Business Analyst (BA)	Legal Templates	2.1.1
2.2	**Design Compliance Logic Structure**	**Business Analyst (BA)**	Flowchart Software, Legal Analyst	2.1.2
2.2.1	Map Decision Trees for Compliance Checks	BA	Legal Analyst Sign-off	2.2
2.2.2	Define Input Data Requirements for the Checker	BA, Tech Lead	System Requirements	2.2
2.3	**Prepare Content for System Input**	**Data Entry Specialist**	Legal Content Platform	2.2
3.0	System Development & Testing			
3.1	**Design & Architecture**	**Tech Lead**	Architecture Tools, Cloud Platform	1.1.2
3.1.1	Set Up Development Environment	Software Engineer	Cloud/Server Access	3.1
3.1.2	Design Database Schema for Compliance Rules	Tech Lead	Data Modeler	2.2.2
3.2	**Front-End & Back-End Development**	**Software Engineer**	Code Repository, IDE	3.1.2, 2.3
3.2.1	Develop User Interface (Checker Input Form)	Front-End Engineer	UI/UX Designer	3.2
3.2.2	Implement Compliance Logic Engine	Back-End Engineer	Legal Logic (2.2)	3.2
3.3	**Quality Assurance (QA) & Testing**	**QA Engineer**	Testing Tools, Test Data	3.2

3.3.1	Conduct Unit and Integration Testing	Software Engineer, QA Engineer	Test Cases	3.2.2
3.3.2	User Acceptance Testing (UAT)	QA Engineer, Legal Analyst	End-Users/SMEs	3.3.1
3.3.3	Fix Bugs and Address UAT Feedback	Software Engineer	Defect Tracking System	3.3.2
4.0	Deployment & Closure			
4.1	System Deployment	DevOps Engineer	Production Environment Access	3.3.3
4.1.1	Configure and Secure Production Environment	DevOps Engineer	Security Team	4.1
4.1.2	Migrate Code and Data to Production	DevOps Engineer	Deployment Pipeline	4.1.1
4.2	Training & Documentation	Technical Writer	Training Materials, Knowledge Base	4.1.2
4.2.1	Develop User Manuals and Training Materials	Technical Writer	Software Screenshots	4.2
4.2.2	Conduct User Training Sessions	Trainer	End-Users	4.2.1
4.3	**Project Closure**	**Project Manager (PM)**	Project Archives	4.2.2
4.3.1	Conduct Post-Mortem/Lessons Learned Review	PM, Core Team	Survey Tools	4.3
4.3.2	Archive Project Documents & Final Sign-off	PM	Stakeholders	4.3.1

5.0 Gantt Chart

The project schedule was developed utilizing ClickUp project management tool to assist in precision tracking of deliverables against the 12-week timeframe. The schedule compromises the entire project including the whole project lifecycle, commencing with the Kick-off Meeting and concluding with the Final Presentation.

Gantt Chart Link (ClickUp): https://sharing.clickup.com/9005170008/g/8cbzzar-368/gantt



Sequencing and Dependencies

The project schedule utilizes waterfall methodology, especially in the cascading structure of each task bars. Each task is linked with “Finish-to-Start” dependencies, ensuring a logical flow where prerequisites must be completed before every subsequent phase begins.

- Planning First: Phase 1 (Initiation) guarantees that the Project Charter and Scope are well defined before any technical development of the actual software is started.
- Development Core: Phase 2 (Technical Development) is the longest phase of this entire project, allocating time blocks specifically for high-complexity tasks such as Configuring IBM Watson x.ai (Task 2.3) and Compliance Logic Development (Task 2.4).
- Parallel Execution: To ensure maximum efficiency within the short timeframe, Phase 3 (Website Construction) is scheduled to commence once the technical backend phase nears completion, which ensures marketing materials are prepared for the pitch

Critical Path Analysis

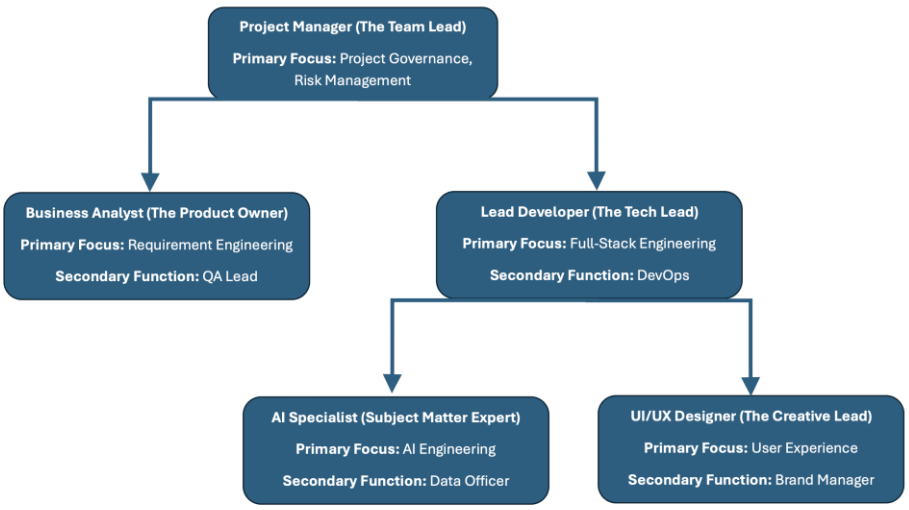
The Critical Path is the sequence of tasks which determines the shortest possible project duration and is represented by the continuous chain of dependencies which extends from Task 1.1 till Task 5.4

- Critical Tasks: The primary driver in this schedule is the Technical Development in Phase 2. Any delays in the Initialization of the React 18 Environment or Backend Development will directly impact the QA phase, jeopardizing the final submission deadline which is tight.
- Buffer Management: The schedule includes a short timeline for User Acceptance Testing (Task 4.2), leaving no wiggle room for major delays. This highlights the importance of the communication and most importantly Risk Management strategies that will be defined in the upcoming section.

Phase Breakdown

- Phase 1: Focuses on administrative setup and establishing a clear WBS
- Phase 2: The core execution phase for the prototype, involving various blocks for UI Design, AI integration, and Backend logic
- Phase 3: Specifically designated to the “Project Website” deliverable, ensuring features and team pages are populated
- Phase 4: A dedicated QA period which ensures the prototype achieves the response time objective before the pitch
- Phase 5: Final preparation which involves pitch deck creation and contingency video recording before the deadline on the 5th of December

6.0 Project Resources Management



6.1 Team Structure and Roles

The project is executed by a cross-functional team among 4 members. This structure replicates a real-world Agile development team which ensures clear ownership of deliverables are outlined in the Project Charter.

RACI Matrix Template

Project Tasks	Product Manager	Lead Developer	AI Specialist	UI/UX Designer	Business Analyst
Initiation and Planning Phase					
Conduct Kick-off Meeting	A/R	I	I	I	I
Develop Project Charter	A	I	I	I	R
Define Project Scope (In/Out Scope)	A	C	C	C	R
Create Work Breakdown Structure (WBS)	A/R	C	I	I	C
Develop Gantt Chart & Critical Path	A/R	C	I	I	I
Risk & Resource Management Planning	A	C	C	I	R
Technical Development					
UI/UX Design (Figma Wireframes)	I	C	I	A/R	C
Initialize React 18 SPA Environment	I	A/R	I	C	I
Configure IBM Watson x.ai API	I	C	A/R	I	I
Develop Compliance Logic Engine	I	A/R	C	I	C
Develop Frontend (Upload & Results UI)	I	A/R	I	R	I
Performance Optimization (<2s Response)	C	A/R	C	I	I
Website Prototype					
Build Homepage & Project Overview	I	I	I	A/R	C
Create "Features" & "Team" Pages	I	I	I	A/R	C
Populate Website Content & Images	C	I	I	R	A
Quality Assurance (QA)					
Functional Testing (File Uploads)	I	R	C	I	A
User Acceptance Testing (Group Review)	A	C	C	C	R
Critical Bug Fixing	I	A/R	R	I	C
Close & Final Deliverables					
Prepare Mock Client Pitch Deck	A	C	C	R	C
Record Backup Demo Video (Contingency	I	R	I	A	I
Final Report Compilation & Formatting	A/R	C	C	C	C
Rehearse Presentation (Mock Pitch)	A	R	R	R	R
Peer Evaluation Submission	R	R	R	R	R

Responsible
Accountable
Consulted
Informed

- Project Manager (PM)
    - Role: The main coordinator responsible for the project schedule and overall delivery
    - Responsibilities: Managing the Gantt chart in ClickUp, monitoring the Critical Path, leading weekly Kick-off meetings, and compiling the Final Report.
    - Key Deliverable: Project Management Plan & Final Report
- Lead Developer
    - Role: The technical lead which is responsible for the core architecture of the "Legal Guard" application
    - Responsibilities: Setting up the React 18 SPA environment, developing the backend compliance logic, and implementing the file parsing engine for PDF/DOCX uploads
    - Key Deliverable: Functional Prototype with Backend & Frontend logic
- AI Specialist
    - Role: The domain expert who focuses on the integration of the intelligent components.
    - Responsibilities: Configuring the IBM Watson x.ai (Granite Models) API, engineering prompts for plain-English summarization, and fine-tuning the AI confidence scoring thresholds
    - Key Deliverable: AI Summarization Engine & Risk Score Algorithm.
- UI/UX Designer
    - Role: Responsible for creation of visual identity and usability of the product
    - Responsibilities: Creating high-fidelity wireframes in Figma, designing the project website (Wix/Google Sites) to meet the design thinking criteria, whilst designing the Mock Client Pitch deck
    - Key Deliverable: Project Website & UI Wireframes
- Business Analyst / QA
    - Role: Bridges the gap between technical functions and business problem (SME compliance)
    - Responsibilities: Researching regulatory requirements (e.g., Malaysia Employment Act), writing content for the project website, performing UAT, and ensuring the solution resonates with the unique value proposition
    - Key Deliverable: Test Cases & Website Content

6.2 Resource Allocation Strategy

To ensure effectiveness in the utilization of resources across the 12-week timeline, the team's workload is distributed dynamically across three phases:

- Phase 1 (Planning): The Project Manager and Business Analyst carry the heaviest load which defines the scope and regulations.
- Phase 2 (Development): The Lead Developer and AI Specialist operate at maximum capacity during Weeks 3 till Week 5, whilst the Project Manager shifts to a support role to assist and remove and blockers.
- Phase 3 (Closing): The UI/UX Designer leaders the visual polish required for the pitch. All members are equally responsible for the final Mock Client Pitch rehearsal

7.0 Risk Management

This project utilizes a quantitative Risk Assessment Matrix. Each risk is evaluated based on the Probability (P) and Impact (I) on a scale of 1 (Low) to 5 (Critical). The Risk Score (R = P x I) prioritizes which issues require immediate action and attention.

7.1 Risk Identification

This section identifies the potential threats that can disrupt the successful delivery of the Legal Guard prototype and the final mock client pitch.

Risk Register Table

Risk ID	Risk Description	Probability	Impact	Score	Mitigation Strategy (Proactive)	Contingency Plan (Reactive)
R1	AI Accuracy & Hallucination: IBM Watson Granite model may invent non-existent regulations or misinterpret legal clauses.	4	5	20 (High)	Confidence Thresholds: Configure AI to only show results with >85% confidence score. Restrict output to "Summarization" only (not legal advice).	Manual Override: Presenter will use a "Hardcoded Golden Path" (pre-verified document) if live results are inaccurate.
R2	Parsing Failure: System fails to extract text from	3	4	12 (Med)	Input Validation: Restrict file uploads to text-based DOCX/PDFs	Fallback Feature: Enable a "Paste Text Here" box so users can

	complex PDFs (tables/images), causing the AI analysis to crash.				only. Use robust libraries (pdf.js).	manually input text if upload fails.
R3	Scope Creep (Timeline): 12-week window is insufficient to code compliance logic for all 4 jurisdictions (MY, SG, EU, US).	4	5	20 (High)	Scope Management: Develop logic only for Malaysia (Employment Act) for the prototype. Use UI placeholders for other regions.	Scope Reduction: If behind schedule by Week 5, reduce scope to processing one specific document type (e.g., Contracts).
R4	Demo Performance: Live demo lags (>2s) or API disconnects during the 12-minute Mock Client Pitch.	2	5	10 (Med)	Performance Testing: Cache API responses in the browser to ensure instant loading during the pitch.	Video Backup: Pre-record a full video walkthrough. If the app crashes, switch to video immediately.
R5	Data Privacy: Uploading mock client data to a public cloud model violates simulated GDPR/PDPA rules.	2	4	8 (Low)	Anonymization: Use strictly dummy data for all testing. Configure IBM Watson to "Zero Data Retention".	Data Purge: Execute a script to wipe the database session immediately after the demo.

7.2 Risk Mitigation & Contingency Strategies

To ensure the successful delivery of the Legal Guard prototype within the 12-week academic timeframe, the following strategies will be employed for the highest-priority risks with detailed explanation.

1. **Technical Risk Mitigation: AI Accuracy & Hallucination (R1)**
    - **Proactive Mitigation:** A "Confidence Scoring" mechanism will be implemented by the development team using the IBM Watson API. The system will then be programmed to filter out any results with a confidence score below a threshold of 85%. Furthermore, the user interface will explicitly label results as "AI Summaries" rather than "Legal Advice" which help manage user expectation and reduce and liability
    - **Contingency Plan:** In the event of persistent AI inaccuracies and hallucination during the development phase, the team will pivot into a "Hardcoded Golden Path" for the final presentation. This involves pre-selecting a specific document which is known to generate perfect results and using only that document for the live demonstration.
2. **Technical Risk Mitigation: PDF Parsing Complexities (R2)**
    - **Proactive Mitigation:** The system limits the "In-Scope" document formats to standard, text-based .DOCX and native PDFs. Image-based PDFs (scanned documents) are excluded from the scope to prevent the need for complex Optical Character Recognition (OCR) technology
    - **Contingency Plan:** A "Manual Text Fallback" feature will be added to the upload page. If the file parser fails to read a document, the user will be prompted to copy and paste the clause text directly into a text field, ensuring the AI analysis can still be completed
3. **Schedule Risk Mitigation: Scope Management (R3)**
    - **Proactive Mitigation:** To prevent "Scope Creep," the project strictly adheres to a Time-Boxed development approach. The team will focus exclusively on the Malaysia Employment Act 1995 for the functional prototype. Other jurisdictions (Singapore, EU, GDPR, US) will be represented as a "Coming Soon" feature on the User Interface (UI) to demonstrate the vision without incurring and stressing on development debt
    - **Contingency Plan:** The Project Manager monitors the Critical Path weekly. If the backend API integration is not complete by week 5, the project scope will

be descaled officially. The deliverables will shift from a fully dynamic upload system to a "static demo" where the system processes a pre-loaded file, ensuring a working visual model is available during the pitch.

4. **Operational Risk Mitigation: Mock Client Pitch Failure (R4)**
    - **Proactive Mitigation:** The team will conduct a "Technical Dress Rehearsal" 48 hours before the submission deadline. This includes testing the application on the specific hardware and Wi-Fi network that will be used during the presentation. API responses will be cached in the browser to ensure that the dashboard loads instantly, even if the internet connection is weak
    - **Contingency Plan:** A high-definition, narrated video walkthrough of the software will be recorded and embedded into the slide deck as a backup. If the live prototype fails to load within 5 seconds during the pitch, the presenter will immediately transition to the video backup without disrupting the presentation flow.
5. **Legal & Ethical Risk Mitigation: Data Privacy Violation (R5)**
    - **Proactive Mitigation:** The team adhered to a strict "Privacy by Design" policy. All the testing data will be synthetically generated using generic names and fictitious company entities to ensure not real Personally Identifiable Information (PII) is ever uploaded. Furthermore, the IBM Watson x.ai instance will be configured with "Zero Data Retention" policies enabled, ensuring that the model does not store or learn from the session data respectively
    - **Contingency Plan:** If a team member accidentally uploads a file containing real personal data during development, and Emergency Data Purge Script has been prepared. This script immediately calls the IBM Watson API to delete the specific session history and clears the cloud storage cache. The breach will be documented in the final report in order to demonstrate transparency and ethical responsibility

8.0 Conclusion

Our legal compliance checker project has demonstrated the viability of applying Generative AI to the law domain specifically documents regulatory compliance. By adhering to our proposed project plan, we are able to deliver a functional solution for the $14.8 billion compliance gap which is faced by Small, Medium, Enterprises (SMEs).

Our project has also achieved its goal of delivering an MVP (Minimum Viable Product). By using available AI models such as IBM Granite models as well as the Google Gemini models on top of a React user interface, we have achieved the technical objective of dynamic PDF/DOCX files parsing which can then generate risk scores. Despite our project's initial scope was to focus on 4 different jurisdictions, we ultimately have focused on developing a prototype which are based off the **Malaysia Employment Act 1955** which is aligned with our Risk Mitigation strategy to ensure high quality and a bug-free environment.

Our project's success can be attributed to our extensive usage of various project management principles. Where in this project we have implemented the following principles :

1. **Planning:** The hierarchical **Work Breakdown Structure (WBS)** ensured clear ownership of tasks among the 4-member team, preventing role ambiguity.
2. **Scheduling:** The critical-path focused **Gantt Chart** allowed the team to identify dependencies between the Backend API development and the Frontend UI, ensuring parallel execution to meet the December 5th deadline.
3. **Risk Control:** Our proactive **Risk Management** strategies specifically the implementation of confidence thresholds and caching mechanisms have safeguarded the project against technical failures during the upcoming live demonstration

In summary, our legal compliance checker project has transitioned from the planning phase to execution with a high degree of confidence. Our agreement upon technical architecture, resource allocation, and strict scope management ensures that the final deliverable will meet our defined requirements for speed, accuracy, and accessibility. By delivering our legal compliance project, we have proved that advanced compliance technology can be effectively scaled to protect the SME sector

Project Dashboard Can be found at: https://legal-guard-dashboard.nathangtg.com/

9.0 References

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