**Slide 1: Title Slide**

Good afternoon, I’m Ho Ka Shing. Today I’ll be presenting my final year project: GDPR Compliance Checker – Automating Compliance Assessment Using NLP and Knowledge Graphs. This project is for the COMP3000HK module.

**(NEXT SLIDE)**

**Slide 2: Project Background and Motivation**

The General Data Protection Regulation, or GDPR, creates many challenges for organizations, especially small and medium-sized enterprises. Manual compliance checks are time-consuming, expensive, and need legal expertise. Many organizations can’t afford this, so there is a real need for automated solutions to make compliance easier, faster, and more reliable. This is the reason I decided to develop the GDPR Compliance Checker.

**(NEXT SLIDE)**

**Slide 3: Project Objectives**

My project has several main objectives:

* First, to automate GDPR compliance checking by using advanced natural language processing and knowledge graphs.
* Second, to focus on supporting the most important GDPR articles: 6, 13, 14, and 32.
* Third, to provide clear and actionable compliance reports.
* And finally, to make the tool easy to use through a simple and friendly web interface.  
  My aim is to help organizations save time and reduce compliance risks.

**(NEXT SLIDE)**

**Slide 4: Technology Choices and Methodology**

For technology, I use the HuggingFace T5 transformer model and spaCy for natural language processing.  
The compliance logic is handled by a rule engine, and I use a knowledge graph built with RDFLib and OWL for semantic analysis.  
The development process followed Agile methodology, which allowed me to adapt quickly and improve the system based on feedback.

**(NEXT SLIDE)**

**Slide 5: System Architecture Overview**

Here you can see the system architecture. Users upload documents through a Flask-based web interface. The document is then processed with the NLP engine—using T5 and spaCy—to extract important information related to GDPR.  
A rule validation engine checks this extracted information against GDPR requirements stored as JSON.  
The knowledge graph lets the system understand relationships and obligations in the documents.  
Finally, the system generates a compliance report in both JSON and HTML, which is shown to the user.

**(NEXT SLIDE)**

**Slide 6: Implementation Highlights**

During the implementation, I faced several challenges, such as the complex legal language in GDPR, converting legal rules into code, and making sure the system is scalable and reliable.  
I solved these problems by improving the NLP models, testing repeatedly, and collecting feedback from both academic supervisors and real users.  
Ensuring technical accuracy and robustness was a top priority.

**(NEXT SLIDE)**

**Slide 7: Evaluation and Results**

I evaluated my system using over 100 privacy-related documents.  
The results were strong: the tool achieved 90% precision, 87% recall, and an 89% F1-score, which shows it performs well in identifying and capturing compliance issues.  
User and expert feedback was also very positive, with an average rating of 4.7 out of 5 for user satisfaction.

**(NEXT SLIDE)**

**Slide 8: Ethical and Legal Considerations**

It’s important to clarify that this tool provides automated compliance assessment, but it does not replace professional legal advice.  
The tool is designed to respect GDPR principles, especially data minimization.  
Uploaded documents are processed only in memory and deleted right after analysis, so no user data is stored, which helps protect privacy and builds user trust.

**(NEXT SLIDE)**

**Slide 9: Strengths and Limitations**

The main strengths of my system are its flexible NLP models, robust rule validation, and a user-friendly interface.  
There are some limitations: currently, the system only works with English documents and requires manual uploads.  
For the future, I plan to add multilingual support, real-time API integration, and extend the coverage to more compliance frameworks.

**(NEXT SLIDE)**

**Slide 10: Project Contributions**

This project provides both practical and academic value.  
Practically, it automates a process that usually requires a lot of manual effort and reduces compliance costs for organizations.  
Academically, it is an example of how AI and semantic web technology can be applied to legal and regulatory problems.

**(NEXT SLIDE)**

**Slide 11: Personal Learning and Reflection**

Personally, I learned a lot about natural language processing, semantic web, and software development.  
I also improved my project management and problem-solving skills through Agile development and real-world feedback.  
This project has prepared me for a professional career in technology and compliance.

**(NEXT SLIDE)**

**Slide 12: Brief Demonstration**

Here’s how the system works:

* The user uploads a document through the web interface.
* The system uses NLP to extract GDPR-related information.
* It checks the rules for compliance and uses the knowledge graph to understand relationships.
* Finally, it generates a structured compliance report for the user.

**(NEXT SLIDE)**

**Slide 13: Conclusion and Future Work**

In summary, my project demonstrates that GDPR compliance can be automated successfully.  
For future work, I plan to add support for more languages, integrate API functionality for real-time processing, and cover additional regulations.  
This will make the system more useful, especially for companies that operate internationally.

**(NEXT SLIDE)**

**Slide 14: Q&A**

Thank you very much for your attention. I am happy to answer any questions you have.