

**FEASIBILITY STUDY REPORT**

*PakCouncel AI*

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**M Ahmedzaib Qamar (22K-4820)**

**Supervisor : Ms. Fizza Aqeel**

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| **RECOMMENDATIONS**  (to be filled in by requestor) |

The document was prepared by:

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| Assigned Feasibility Study Report ID | F25-258 |
| FSR Meeting No | 2nd |

## 1.0 GENERAL INFORMATION

## 1.1 Purpose

*The purpose of this Feasibility Study is to evaluate the viability of developing an PakCouncel AI that assists individuals in understanding and navigating legal matters within Pakistan. The system will provide multi-lingual, voice-enabled, and reference-backed legal support covering criminal law, taxation, family law, and business contracts.*

## 1.2 Scope

*The* ***PakCouncel AI*** *project aims to deliver a* ***web-based platform*** *that offers accessible, affordable, and reference-backed preliminary legal guidance within the context of Pakistan’s legal framework. The platform will utilize* ***Artificial Intelligence (AI), Natural Language Processing (NLP), and Retrieval-Augmented Generation (RAG)*** *to provide accurate, reliable, and structured legal information in a user-friendly manner.*

1.2.1 In Scope

* AI-based legal consultation with verified references.
* Multi-lingual support (English, Urdu, regional languages).
* Voice query handling for accessibility.
* Secure login and client confidentiality.
* Coverage of criminal, taxation, family, and business law domains.

1.2.2 Out Scope

* Providing formal legal representation in courts
* Handling of highly specialized areas such as constitutional or international law.
* Replacing licensed lawyers; the system is advisory only.

## 1.3 Project Overview

The **PakCouncel AI** project aims to provide a **web-based platform** that delivers accessible, affordable, and reference-backed preliminary legal guidance within Pakistan’s legal framework.

The platform will cover four major domains of law: **Criminal Law, Taxation & Excise, Family Law, and Business/Employment Contracts.** To maximize accessibility, it will include **multi-lingual support** (English, Urdu, and selected regional languages) along with **voice-enabled interaction** for users with limited literacy.

Responses generated by the system will be backed through **Retrieval-Augmented Generation (RAG)** techniques, ensuring reliability by citing statutes, case laws, and precedents. Security and confidentiality will be prioritized through secure login features and encrypted data handling.

The project will be delivered within a defined timeline, ensuring that objectives, resources, and outcomes remain aligned and achievable.

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| **Process Owner** | Final Year Project Committee |
| **Proposed Project Name** | PakCouncel AI |
| **Proposed Project Abbreviation** | PCAI |

## 1.4 Project References

#### These are official legal documents of Pakistan:

#### Constitution of Pakistan (basic rights, fundamental laws). <https://www.refworld.org/legal/legislation/natlegbod/1973/en/102484>

#### Pakistan Penal Code (PPC, 1860) → crimes & punishments. <https://na.gov.pk/uploads/documents/1333523681_951.pdf>

#### Code of Criminal Procedure (CrPC, 1898) → procedures for criminal cases. <https://www.fmu.gov.pk/docs/laws/Pakistan%20Penal%20Code.pdf>

#### Code of Civil Procedure (CPC, 1908) → procedures for civil disputes. <https://share.google/GhD3RBLUqd18N8qGF>

#### Family Laws (Muslim Family Laws Ordinance 1961, Dissolution of Muslim Marriages Act 1939, Guardian & Wards Act, Inheritance laws).

#### Contract Act 1872 → for business and agreements. <https://punjablaws.punjab.gov.pk/uploads/articles/Contract_Act_1872.doc.pdf>

#### Cybercrime Law (PECA 2016).

#### <https://molaw.gov.pk/>

## 2.0 MANAGEMENT SUMMARY

### 2.1 Environment

#### **2.1.1 Organizations Involved**

* **Project Sponsor:**  
  The initiative is sponsored by the **Final Year Project Committee / Faculty Supervisor** who provides academic oversight, guidance, and approval of deliverables.
* **Project Developers:**  
  The system is created by the **student project team** (Munawar Shereen, M. Ehtesham ul Hassan Malik, and M. Ahmedzaib Qamar), responsible for building, testing, and documenting the solution.
* **Project Users:**  
  The intended users include **students, researchers, and individuals seeking preliminary legal information** within Pakistan’s context. The platform is also suitable for general citizens requiring reference-backed legal guidance.
* **Implementation Environment (Computer Center / Network):**  
  The software will be hosted on **cloud-based infrastructure** with accessibility through the web. It will rely on:

 **Backend:** FastAPI and Python environment.

 **Frontend:** React framework for web interaction.

 **Databases:** Pinecone/Qdrant (vector DB) and MySQL (relational DB).

 **Network:** Secure, internet-based deployment accessible via browsers, with encryption protocols for user confidentiality.

**Project Information**

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| **Process Owner** | ***Final Year Project Committee*** |
| **Project Owner** | Group Leader: Munawar Shereen (22K-4809) with members M. Ehtesham ul Hassan Malik (22K-4828), M. Ahmedzaib Qamar (22K-4820) |
| **Project Type** | *In-house (student-led, supervised by faculty)* |

**Project Sponsor/ Director**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Name** | **K/C/D/I** | **Roles** |
| 1. | *Miss Fizza Aqeel* | **K** | **Provides academic oversight, approves deliverables, ensures compliance with standards.** |

**Functional Team Members**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Name** | **K/C/D/I** | **Roles** |
| 1. | *Munawar Shereen (22K-4809)* | **K** | Functional Project Manager Coordinates tasks, manages scope, leads communication. |
| 2. | **M. Ehtesham ul Hassan Malik (22K-4828)** | **C** | Functional Team Member Requirement gathering, documentation, testing |
| 3. | M. Ahmedzaib Qamar (22K-4820) | D | Functional Team Member UI/UX input, integration support, quality checks. |

**Proposed Technical Team Members**

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| --- | --- | --- | --- |
| **No.** | **Name** | **K/C/D/I** | **Roles** |
| 1. | **Munawar Shereen (22K-4809)** | **K** | Technical Project Manager Oversees technical decisions, ensures system performance and Frontend integration |
| 2. | **M. Ehtesham ul Hassan Malik (22K-4828)** | **C** | Technical Team Member  **Backend/API implementation, testing** |
| 3. | M. Ahmedzaib Qamar (22K-4820) | D | Technical Team Member  Documentation |

#### **2.1.2 Input/output**

* *Inputs: User queries (text or voice) in English/Urdu/regional languages.*
* *Outputs: Verified legal information with citations (laws, judgments, case references).*

#### **2.1.3 Processing**

* *Retrieval-Augmented Generation (RAG) pipeline with vector database.*
* *AI orchestration with LangChain, backend via FastAPI.*
* *Frontend interaction via React-based web portal.*

#### **2.1.4 Security**

* *Encrypted user data storage.*
* *Secure login/logout with session management.*
* *Data anonymization for sensitive cases.*

#### **2.1.5 System Interaction**

* Interacts with **legal databases and open-access statutes** for verified references.
* Uses **LangChain and vector databases** to process and organize queries.
* Provides interaction with users through a **web-based interface**.

#### **2.1.6 Physical Environment**

*[Describe the physical environment (batch processing environment, interactive online transactions, ad hoc reports, external and local communications).]*

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| --- | --- |
| **System environment or special conditions needed** | |
| Estimated Number of Users | 50+ in First year |
| Internet or Intranet or both Usage | Internet |
| Required storage?  (require documents/files to be stored (upload feature) ?) | Yes you can upload your document in your chats. |
| Database | Qdrant/Pinecone, relational DB: MySQL |
| Application Server | FastAPI backend with LangChain orchestration |
| Special features? *(Please describe)* | Voice , Authentic reference |

### 2.2 Current Functional Procedures

At present, legal consultation in Pakistan is primarily handled through **manual, face-to-face interactions with lawyers**. Individuals must physically approach legal professionals to explain their cases, which often requires time, effort, and financial resources. This process is heavily dependent on the client’s ability to clearly articulate their situation and afford the consultation fees.

While a few **digital tools** have emerged, they are limited in functionality. Most operate in **English only**, lack verified legal references, and provide general responses that are not tailored to Pakistan’s diverse legal framework. These tools therefore fail to meet the needs of the wider population, particularly those with limited literacy or limited proficiency in English.

### 2.3 Functional Objectives

* Provide affordable, accessible legal consultation.
* Support multi-lingual and voice queries.
* Ensure verified and reference-backed responses
* Enhance inclusivity for low-literacy users.

### 2.4 Assumptions and Constraints

Assumptions:

* Availability of digital legal datasets
* Acceptance of AI as an advisory tool by stakeholders

Constraints:

* Budget limitations as a student project.
* Legal disclaimers required to prevent liability.

**2.5** **Risk**

*[Determine the risk related to the project.]*

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| **Risk Register** | | | | |
| **Type of Risk**  \*delete whichever not relevant | **Risk Description** | **Mitigation Plan** | **Risk owner** | **Risk Timeline** |
| Human Resource | *Unequal contribution or reduced participation of team members.* | *Distribute clear responsibilities; conduct weekly progress reviews with faculty supervision.* | Functional Project Manager (Munawar Shereen) | *Throughout project (Sept 2025 – May 2026)* |
| Business Process | Scope creep due to addition of new features outside timeline. | Maintain scope baseline; defer additional features to post-project phase. | Functional Project Manager | Ongoing |
| Financial | Unexpected increase in costs (e.g., API usage or hosting fees). | Adopt phased MVP approach; adjust features to remain within budget. | Technical Project Manager | Development phase (Dec 2025 – Mar 2026) |
| Infrastructure/ Applications / Database | Performance issues with vector database or hosting environment. | Optimize queries, monitor system load, and use fallback database if required. | Technical Team Members | Development & Testing (Jan – Apr 2026) |
| Legal & Regulatory / Security & Privacy | Misinterpretation of legal advice or breach of data privacy. | Include disclaimers; encrypt and anonymize user data. | Functional PM & Legal Consultant | Ongoing |
| Third Party Supplier & Outsourcing | Dependence on AI APIs or libraries may lead to cost or availability issues | Use open-source alternatives; maintain backup models. | Technical Team Members | Development & Deployment (Dec 2025 – May 2026) |
| Others (please specify) | Limited availability of updated legal datasets. | Use open-access statutes; collaborate with supervisor for dataset validation. | Technical Project Manager | Early phase (Oct – Dec 2025) |

### 2.6 Methodology

*To evaluate the feasibility of the* ***PakCouncel AI*** *project and identify the most viable alternative, a combination of methods was employed:*

* ***Benchmarking:*** *Existing platforms such as Bahaq, YourMunshi, and NAZ Assist were reviewed to understand their features, strengths, and limitations. This established a baseline for comparison.*
* ***Requirement Analysis:*** *Stakeholder needs were collected through internal group discussions and academic guidance, focusing on affordability, inclusivity, and accuracy.*
* ***Gap Analysis:*** *Current manual consultations and existing digital tools were compared with proposed features (multi-lingual support, voice input, verified references) to highlight efficiency and accessibility improvements.*
* ***Modeling Approach:*** *The project adopts a* ***Retrieval-Augmented Generation (RAG) model*** *for evaluation and system response. This model was selected as it reduces AI hallucinations by combining large language model (LLM) capabilities with verified data retrieval, ensuring reliability of results.*
* ***Risk Assessment:*** *Potential risks in technical, financial, and regulatory areas were identified and paired with mitigation strategies.*
* ***Weighting and Prioritization:*** *Functional and non-functional requirements were prioritized using a qualitative scoring method to ensure the project remains feasible within scope, time, and budget.*

**2.7 Statement of Needs (Business Case)**

*The proposed automation in the form of the* ***PackCouncel AI*** *supports the University’s strategic direction by aligning with digital transformation and innovation goals. It contributes to enhancing research, fostering student innovation, and promoting practical applications of artificial intelligence in real-world problem domains such as law and social justice.*

2.7.1 State whether the proposed automation is part of the University Strategic Initiatives or any other related initiatives within the University.

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| --- | --- | --- | --- |
| **Strategic Planning Initiatives** (Please tick √ | | | **Remarks** |
| ATOP | √ |  | Supports academic excellence through applied research and innovation. |
| ICTSP | √ |  | Leverages AI, and automation to advance ICT integration within academic projects. |
| Others. Please Specify (e.g. Kulliyyah’s KPI) | √ |  | Strengthens departmental KPIs by fostering student-led research projects and producing impactful outcomes. |

2.7.2 Benefits and impact to the University

*The* ***PakCouncel AI*** *project offers several benefits and positive impacts to the University:*

* ***Innovation and Research Excellence:*** *Demonstrates the University’s leadership in applying Artificial Intelligence to practical, socially impactful domains such as legal access.*
* ***Skill Development:*** *Enhances students’ technical, analytical, and problem-solving skills through exposure to real-world challenges.*
* ***Reputation Building:*** *Positions the University as a pioneer in interdisciplinary research, bridging technology and law.*
* ***Community Engagement:*** *Provides a platform that supports access to justice, aligning with the University’s social responsibility and community service values.*

2.7.3 Please indicate the value added of the project to the University

*The project contributes significant value to the University in both academic and strategic terms:*

* ***Return on Investment (ROI):*** *Although self-financed, the project’s long-term potential for commercialization through a subscription-based model (Rs. 1,500–3,000 per user per month) demonstrates measurable ROI if extended beyond the academic scope.*
* ***Knowledge Contribution:*** *Adds to the University’s research portfolio in Artificial Intelligence.*
* ***Brand Value:*** *Enhances the University’s visibility and recognition in conferences, publications, and partnerships, contributing to long-term academic prestige.*

## 3.0 AUTOMATION INITIATIVES

### 3.1 Time and Resource Costs Required

*The* ***PakCouncel AI*** *project will be completed within an 8-month timeframe. The resource allocation includes three student members and one faculty supervisor, supported by a part-time legal consultant for validation. The timeline accounts for workload distribution, semester holidays, testing phases, and evaluation processes.*

*Resource costs include human effort (student time, faculty guidance), software tools, hosting services, and minimal external consultancy. With funding pooled by the group members, financial certainty is high, and risks related to procurement delays are minimized by prioritizing open-source tools where possible.*

**3.1.1 Project Timeline**

*[Please consider the workload of the team members, public holidays, training, procurement process, evaluation process, delivery period, installation etc. Please attached the Gantt Chart as Appendix A: Proposed Timeline]*

|  |  |  |
| --- | --- | --- |
| **No.** | **Task Name** | **Proposed Date** |
| 1. | Initiation Meeting | Oct 2025 |
| 2. | FSR Meeting | Oct 2025 |
| 3. | UTICTEC Meeting | Nov 2025 |
| 4. | Kick-off Meeting | Dec 2025 |
| 5. | Requirement Gathering & Finalization | Nov 2025 |
| 6. | System Architecture & Knowledge Base Prep | Nov 2025 |
| 7. | Backend Setup (FastAPI, Databases) | Jan 2026 |
| 8. | Frontend Setup (React Interface) | Jan 2026 |
| 9. | AI Integration (LangChain, RAG pipeline) | Feb – Mar 2026 |
| 10. | Multi-lingual & Voice Support Integration | Mar 2026 |
| 11. | Testing – Functional & Performance | Mar – Apr 2026 |
| 12. | Security & Privacy Validation | Apr 2026 |
| 13. | User Feedback Collection & Refinement | Apr 2026 |
| 14. | Documentation Preparation | Apr – May 2026 |
| 15. | Final Presentation Preparation | May 2026 |
| 16. | Final Evaluation (Committee) | May 2026 |
| **Total Months Needed:** | | 9 (Sep 2025 – May 2026) |

**3.1.2 Project Cost**

*The estimated cost of the* ***PakCouncel AI*** *project is* ***Rs. 23,000****, which has been* ***self-financed by the project team members****. The funding has been pooled equally at the start of the project to ensure certainty and timely availability of resources.*

***Source of Budget:*** *Self-financed contributions from group members.*

|  |  |  |  |
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| **Source of Budget** | | **:** | |
| **Bil** | **Items** | | **Budget Allocated** |
|  | Development Tools & Software (Python libraries, LangChain, DB tools) | | 15,000 |
|  | Hosting & Infrastructure (Server, storage, testing environment) | | 4,000 |
|  | Miscellaneous (printing, documentation, presentation, reports) | | 4,000 |
| **GRAND TOTAL** | | | **RS 23,000** |

**3.2 Existence of Similar Initiatives or System**

*There are currently* ***no AI-based legal consultation systems within the University****. External tools such as Bahaq, YourMunshi, and NAZ Assist exist, but they are limited to English, lack verified references, and do not provide voice-enabled interaction.*

*The proposed PakCouncel AI is therefore justified as a new system, as it:*

* *Focuses on Pakistan’s legal framework.*
* *Supports* ***multi-lingual and voice interaction****.*
* *Aligns with the University’s innovation and ICT strategies.*

*This makes it distinct from existing solutions and valuable for academic and community benefit.*

### 3.3 Impacts

The proposed **PakCouncel AI** system will bring several impacts across technical, organizational, and operational areas..

#### **3.3.1 Equipment Impacts**

* *No major hardware purchases required.*
* *Standard laptops and internet access are sufficient.*
* *Hosting will rely on existing cloud services rather than dedicated servers.*

#### **3.3.2 Software Impacts**

* *Introduction of new tools such as* ***LangChain****,* ***FastAPI****, and* ***vector databases (Pinecone/Qdrant)****.*
* *Minor configuration of existing environments to support LangChain orchestration and database connectivity.*

#### **3.3.3 Organizational Impacts**

* No structural changes required in the University.
* Project team members will gain new skills in AI, and database management.
* Faculty supervision ensures knowledge transfer and academic alignment.

#### **3.3.4 Operational Impacts**

* *Users will interact via a* ***web interface*** *with simple login/logout and query submission procedures.*
* *No changes required to current university operating center processes.*
* *Data entry is automated (via user queries) and stored securely*
* *Data retention will be limited to anonymized history for academic purposes.*

#### **3.3.5 Developmental Impacts**

* *Students will prepare and maintain the* ***legal knowledge base*** *using publicly available datasets.*
* *Computing resources (laptops) are required for testing and validation.*
* *Privacy is addressed by anonymizing user data during development and testing.*

#### **3.3.6 Site or Facility Impacts**

* No modifications to physical facilities or infrastructure are required.
* The system will be entirely web-based, eliminating the need for special installations.

#### **3.3.7 Security and Privacy Impacts**

* *All user interactions will be encrypted.*
* *Personal data will be anonymized and not shared externally.*
* *Legal disclaimers will clarify that the system is* ***for guidance only*** *and does not replace licensed legal professionals.*

### 3.4 Rationale for Recommendations

*The proposed* ***PakCouncel AI*** *system is recommended over alternative options (do nothing or relying on existing platforms) for the following reasons:*

* ***Addresses Identified Gaps:*** *Existing systems are limited to English, lack verified legal references, and do not support voice-based queries. The proposed system directly fills these gaps with* ***multi-lingual, reference-backed, and voice-enabled features***

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* ***Affordability and Accessibility:*** *Unlike manual lawyer consultations, which are costly and time-consuming, the system provides* ***affordable, quick, and inclusive access*** *to preliminary legal guidance.*
* ***Academic and Social Value:*** *It serves both as an educational platform for students and as a social contribution by promoting access to justice, particularly for underserved communities.*