Iterative FYP

CSCI 4401/4402

FINAL YEAR PROJECT PROPOSAL

Al-Mizan Project: A Tawhidic Knowledge Graph Framework for the Unification of Islamic Digital Ecosystem

(For Individual Project)

STUDENT NAME (LEGAL/OFFICIAL) MATRIC NO

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Semester 1, XXXX/XXX (Academic Year)

(Remove Unnecessary Information [*Italicized Items*] before Printing Your Proposal)

PROPOSAL FOR FINAL YEAR PROJECT

1.1 INTRODUCTION

Select an application (Research or Development) to be developed for your FYP project. Describe the criteria or specifications of the application that you are planning to develop for your FYP.

For research project describe your research topic to be conducted for your FYP project together with the research hypothesis (refer to Probability and Statistics Course).

1.2 PROBLEM DESCRIPTION

This project is a thesis-driven development project. It argues that the most significant issue in the Islamic digital ecosystem is not a lack of information, but a **fundamental epistemological fragmentation**. The problem is therefore described in two layers: the external symptoms of this fragmentation and the deep, underlying ideological cause.

1.2.1 Specific Problems with the Existing Process: The Inefficiency of Academic Discovery

The core textual sources of Islam (Qur'an, Hadith, Tafsir) are currently presented in digital formats (websites, apps) that are "flat" and "siloed." This fragmentation is an epistemological failure that manifests in tangible, critical problems:

- **Epistemological Incoherence:** The current digital model fails to represent the deep, conceptual relationships *within* revelation. The thematic, linguistic, and legal connections between one *ayah*, a related *hadith*, and its commentary are invisible, forcing a user to manually build these connections. This is incompatible with the core Islamic philosophy of the **Unity of Knowledge (Tawhid)**.
- **Vulnerability to Misinformation:** With no authoritative, unified, and technologically-powered source of truth, users are highly vulnerable to "cut-and-paste" arguments that lack context. This enables an environment of **mass, technologically-powered deception** and doctrinal errors.
- **Barrier to Deep Knowledge:** The "flat file" model (a list of *ayahs* or *hadiths*) is a barrier to deep learning. It prevents a user from seeing the "invisible connections" and understanding the holistic structure of revelation, hindering the community's intellectual revival.

1.2.2 Underlying Research Questions

Our thesis is that the solution is a new foundational **"Tawhidic Knowledge Graph Framework."** This project is therefore guided by the following core research questions:

- **The Epistemological Question:** To what extent can a "Unified Knowledge Graph Framework" serve as a new architectural paradigm that can successfully model and digitally manifest the

deep, interconnected, and holistic nature of primary Islamic texts?

- **The Validation Question:** Can a proof-of-concept (POC) application, built by modeling a single *surah* and its related texts, serve as a verifiable **"Foundational Prototype"** (*Al-Asas*) that proves the viability of this framework for achieving **Source Integrity**?
- **The Strategic Question:** How can this framework be designed as Phase 1 of a long-term roadmap, architecturally capable of scaling into a global **"Public Platform"** (*Al-Hisn*)—an authoritative source for neutralizing ideological doubts?

1.3 PROJECT OBJECTIVE

At the end of this two-semester project, we will have designed, developed, and evaluated a functional proof-of-concept (POC) application. This application will serve as the "Foundational Prototype" to validate our core thesis: that a **Unified Knowledge Graph Framework** is a technologically and philosophically superior paradigm for an integrated knowledge ecosystem.

This will be achieved through the following primary objectives:

1. To **design** a formal Knowledge Graph ontology that models the deep, purpose-driven connections between revealed and acquired knowledge , as outlined in our core thesis.
2. To **implement** this ontology in a high-performance graph engine (e.g., Neo4j or SurrealDB) and build a secure, scalable backend API using Python (FastAPI).
3.
4.

This will be achieved through the following deliverables and processes:

Reports to be Produced:

As per the Kulliyyah's FYP guidelines, this project will produce three key documents:

1. An **Interim Report** at the end of FYP 1, detailing the completed requirement analysis, literature review, and system design.
2. A **Final Report (Thesis)** of approximately 10,000 words at the conclusion of FYP 2, providing a complete description of the project, its implementation, results, and an analysis of how it answers our research questions.
3. A **Technical Report**, written in a dual-column conference publication format, summarizing the project's technical contributions.

Processes to be Enhanced/Automated:

This project will develop an application that directly addresses the "Operational and Experiential Problems" identified in Section 2.2. Specifically, it will automate and enhance the following manual processes:

- **Information Aggregation:** The application will automate the process of gathering scattered information about faculty, their publications, and the courses they teach, presenting it in a single, coherent interface to solve the **Information Fragmentation** problem.
- **Contextual Cross-Referencing:** By modeling relationships in a graph, the system will automate the task of cross-referencing, allowing a user to see all related entities in one click, thus reducing the **Cognitive Friction** of manual searching.
- **Academic Discovery:** The core process to be enhanced is that of "Academic Resource Discovery." The application will automate the difficult and time-consuming task of finding a suitable supervisor by allowing users to perform a single, powerful query that would otherwise require hours of manual searching, directly addressing the **Inhibited Collaboration** problem.

Purpose of the Research (Answering the Research Questions):

Beyond being a development project, this work serves a crucial research purpose. The creation of the software artifact is the methodology by which we will answer the "Strategic and Philosophical Problems" framed as research questions in Section 2.2.

- The **design of the Knowledge Graph Ontology** will be our tangible attempt to answer the **Epistemological Question**.
- The **implementation of the API and database** will provide a practical answer to the **Architectural Question**.
- The **results from User Acceptance Testing** of the proof-of-concept application will be the evidence used to answer the **Validation Question**

1.4 PROJECT SCOPE

1.4.1 Scope

Describe the scope of the application that will be developed.

For research project describe your population.

1.4.2 Targeted User

List down your target users by age group, business, department, etc.

For research project describe your research sample.

1.4.3 Specific Platform

Discuss the infrastructure that you need for the development and execution of the application (software, hardware, network, etc.) Indicate if there is any specific requirement that the Kulliyyah does not have and inform the audience how are you planning to handle that limitation. What are your other solutions to fulfill the requirement of the project?

For research project discuss your methodology, a step-by-step on data collection, analysis and findings (refer to Probability and Statistics Course).

1.4.4 Features and Functionalities

Describe in details the proposed features and functionalities for your project. No point-form.

For research project discuss your expected outcome of your research.

1.5 CONSTRAINTS

Explain what do you foresee as the major constraints for your project development
e.g. budget, time, users' commitment, etc.

For research project explain your project limitations.

1.6 PROJECT STAGES

Discuss the major milestones of your project (Gantt Chart) i.e. what are they & by what specific dates (when) they will be produced.

For research project discuss your research plan.

1.7 SIGNIFICANCE OF THE PROJECT

Discuss the benefits of your project for each targeted user.

For research project discuss the benefits of your research to the public or specific population.

1.8 SUMMARY

Summarize the above discussion and its major points.

BMC

Business Model Canvas: Al-Mizan Digital

Designed For: The Global Islamic Education & Knowledge Sector
Designed by: Ammar Qasim
Date: [Current Date]
Version: 1.0 (Seed Stage)

Key Partners

- **Academic & Scholarly Partners:**
    - **IIUM:** Foundational partner for piloting, research, and validation.
    - **Scholarly Bodies & Ulama:** For content verification, lending authority and establishing the "Trust Moat."
    - **Islamic Libraries & Research Institutes:** As content and manuscript partners.
- **Technology & Infrastructure Partners:**
    - **Sovereign Cloud Providers:** To ensure data residency and sovereignty.
    - **Open-Source Communities:** For foundational technologies (Rust, Python, etc.).
- **Financial & Strategic Partners:**
    - **Mission-Aligned Investors/Donors:** For initial seed funding.
    - **Waqf (Endowment) Foundation:** For long-term mission protection and sustainability.

Key Activities

- **Knowledge Curation & Verification:** The core, continuous process of ingesting, structuring, and authenticating knowledge with our scholarly council.
- **Research & Development:** Continuously improving the Knowledge Graph ontology, API performance, and proprietary AI models.
- **Platform Development:** The full software lifecycle (design, build, test, deploy, maintain) for our applications and APIs.
- **Institutional Onboarding:** Developing and executing a seamless process for integrating new universities onto the platform.

Key Resources

- **Intellectual Property (The "Moat"):**
    - **The Knowledge Graph:** Our proprietary, non-replicable semantic graph.
    - **Proprietary Codebase & AI Models:** Our unique software and algorithms.
- **Human Resources:**
    - **The Core Technical Team:** Elite, mission-driven engineers and data scientists.
    - **The Scholarly Review Council:** The source of our academic and religious authority.
- **Intangible Resources:**
    - **The Al-Mizan Brand:** A symbol of absolute trust and authenticity.

Value Propositions

For Islamic Educational Institutions:
A verified Knowledge-as-a-Service (KaaS) platform that integrates revealed and acquired knowledge to:

- **De-risk Academia:** Mitigate the reputational risk of using unverified Islamic sources.
- **Accelerate Research:** Dramatically reduce the time required for source discovery and verification.
- **Embody Mission:** Tangibly translate the university's philosophical vision into its digital infrastructure.

This provides "Credibility as a Service," turning a core institutional pain point into a mark of distinction.

Customer Relationships

- **With Institutions (Universities):**
    - **Strategic Partnership & Co-Creation:** A high-touch, collaborative relationship. We are not a vendor; we are an embedded institutional partner.
- **With Developers (API Users):**
    - **Self-Service & Community Support:** Excellent documentation, tutorials, and community forums.
- **With Scholars:**
    - **Collaborative Partnership:** A relationship built on mutual respect and a shared mission.

Channels

- **Direct Sales & Business Development:** A dedicated team engaging directly with university leadership (Deans, Rectors, Heads of IT).
- **Thought Leadership:** Publishing whitepapers, academic articles, and presenting at EdTech and Islamic studies conferences to build authority.
- **FYP & Pilot Program:** Using the initial IIUM project as the primary case study and marketing tool.
- **Website & API Portal:** Professional digital presence for inbound leads and developer onboarding.

Customer Segments

- **Beachhead Market (Initial Focus):**
    - **Islamic Higher Education Institutions:** Universities and colleges with a mandate for knowledge integration (e.g., IIUM).
- **Secondary Segments:**
    - **Islamic Research Institutions & Think Tanks.**
    - **Premium K-12 Islamic Schools.**
- **Future Segments (Unicorn Vision):**
    - **Individual Learners & Researchers (B2C).**
    - **The Halal Industry (Finance & Certification).**
    - **Governments & NGOs.**

Cost Structure

- **Primary Driver: Talent-Intensive**
    - **Salaries & Compensation:** High costs for attracting and retaining elite, specialized technical and scholarly talent.
- **Key Costs:**

    - **Personnel:** Engineers, data scientists, project managers, scholarly liaisons.
    - **Infrastructure:** Cloud hosting, GPU clusters for AI training, database services.
    - **Research & Development:** A significant, ongoing investment in improving our core assets.
    - **Business Development & Marketing.**

Revenue Streams

- **Primary Stream (B2B):**
    - **Tiered SaaS Subscriptions:** Recurring annual fees from institutional clients, based on size (e.g., number of students/faculty) and feature tiers.
- **Secondary Streams:**
    - **Premium API Access:** Usage-based billing for high-volume commercial API clients.
    - **Professional Services:** Fees for custom integration, data migration, and training for large institutional clients.
- **Initial Capital:**
    - **Grants, Mission-Aligned Seed Investment, Philanthropic Donations.**

Steps

The Sequence of Focus

Execute your writing in this precise order. Do not deviate. Each step builds logically on the last.

Step 1: Define the "Why" (The Core Argument)

- **Focus exclusively on Section 2: Problem Description.**
    - **First, write 2.1 Background:** Describe the current state. "IIUM has i-Ta'leem, a student portal, and various websites. They function independently. This is the existing reality."
    - **Then, write 2.2 Problem Statement:** This is the most critical paragraph in your entire proposal. Articulate the *pain* and the *deep, underlying issue*. Use the refined, thesis-driven argument:
        - **The pain:** The current fragmentation makes academic discovery (like finding a supervisor) inefficient and difficult.
        - **The deep issue:** This fragmentation is not just a user-interface problem; it is an **epistemological mismatch**. The siloed data model is fundamentally opposed to the Tawhidic principle of the unity of knowledge that the university is built upon.
    - **Goal of this step:** To convince the reader that a significant, non-trivial problem exists that is worth solving.

Step 2: Define the "What" (The Proposed Solution)

- **Now, focus on Section 3: Project Objective.**
    - Your objectives are a direct answer to the problem you just defined.
    - "Because the problem is an epistemological mismatch that causes inefficient discovery, my objectives are:
        1. To design a Knowledge Graph ontology that reflects the Tawhidic principle of interconnectedness.
        2. To implement this model with a sample dataset.
        3. To build a proof-of-concept application that solves the 'find a supervisor' problem, thereby validating the superiority of this new model."
    - **Goal of this step:** To clearly state what you will produce.

Step 3: Define the "How" (The Boundaries and Plan)

- **Next, focus on Section 4: Project Scope.**
    - This is where you demonstrate realism and maturity. Based on your objectives, what are the strict boundaries?

    - "To achieve my objectives within the FYP timeline, I will limit the scope to data from only one or two Kulliyyahs. I will not integrate with live university systems. The application will focus only on the 'find a supervisor' use case."
    - Continue by filling out the technology stack and other details for Section 4.
- **Then, focus on Section 6: Project Stages.**
    - This is the timeline. Break down the work defined in your scope into a week-by-week plan for both semesters.

Step 4: Frame the Narrative (The Opening and Closing)

- **Now, write Section 1: Introduction.**
    - It is easiest to write the introduction last. It is a summary of the problem, objectives, and scope you have just detailed. It sets the stage for the argument you have already built.
- **Finally, write Section 7 (Significance) and Section 8 (Summary).**
    - These sections summarize and conclude the argument you have constructed.

Constelation

The Constellation of Project Artifacts

Category 1: The Academic Artifacts (For Legitimacy & Proof)

These documents serve to prove the academic and intellectual rigor of your work to the university and the wider scholarly world.

1. **The Final Thesis:**
    - **Purpose:** This is the **intellectual foundation stone** of the entire Digital Citadel. It is a scholarly document that formally presents your research, methodology, the software artifact you built, and the conclusions you drew.
    - **Audience:** Your academic supervisors, examiners, and future researchers who may build upon your work.
    - **Key Content:** The full, detailed argument for the "thesis-driven development" approach, including the literature review, the ontology design, the results of your user testing, and the answer to your research questions.
2. **Conference Paper / Journal Article:**
    - **Purpose:** To distill the key findings of your thesis into a concise format for publication and presentation to the international academic community. This is how you "showcase a better FYP" to the world.
    - **Audience:** Other academics in computer science, digital humanities, and Islamic studies.
    - **Potential Titles:** "A Tawhidic Knowledge Graph Ontology for Islamic Educational Resources" or "Case Study: A Thesis-Driven Approach to Developing Epistemologically-Aligned Software."

Category 2: The Technical Artifacts (For Development & Scalability)

These documents are the living blueprints and manuals for the software itself, ensuring that you and others can continue to build and maintain it.

1. **The Source Code Repository (Git):**
    - **Purpose:** This is the project's ultimate ground truth. It contains not just the final code, but the entire history of its development. A clean, well-commented repository is the hallmark of a professional engineer.
    - **Audience:** You, your partner, and any future developers who join the project.
2. **API Documentation (e.g., Swagger/OpenAPI):**
    - **Purpose:** A precise, interactive technical manual that explains how other software can communicate with your system. A well-documented API is the primary enabler for future expansion and collaboration.
    - **Audience:** Developers (both internal and potentially external in the future).
3. **Architectural Decision Records (ADRs):**
    - **Purpose:** A collection of short documents, each one recording a single significant architectural decision (e.g., "Why we chose a graph database over a relational one," "Why we chose FastAPI"). It explains the context, the decision, and the consequences. This is crucial for long-term maintainability.
    - **Audience:** The future technical lead of the project (which may be you in five years, having forgotten why you made a certain choice).

Category 3: The Strategic Artifacts (For Vision & Growth)

These documents are for managing the project as a long-term mission, not just an academic exercise.

1. **The Business Case / Pitch Deck:**
    - **Purpose:** To communicate the project's value proposition to non-technical stakeholders. This is the document you use to recruit team members, secure funding, or gain institutional support.
    - **Audience:** Potential collaborators, university leadership, future investors or donors.
2. **The Project Roadmap (Post-FYP):**
    - **Purpose:** This document takes the "checklist" of future modules (Fiqh Navigator, Tazkiyah Path, etc.) and organizes them into a strategic timeline. It shows what comes next after the FYP is complete.
    - **Audience:** The core project team, to maintain focus and direction.
3. **The Whitepaper:**
    - **Purpose:** A public-facing document that explains the *vision* and *paradigm* of the Digital Citadel. It is less formal than a thesis but more detailed than a pitch deck. It is a key tool for da'wah and for attracting a community around the project.
    - **Audience:** The global Muslim community, potential users, thinkers, and leaders.

Name

An excellent and timely question. The project title is the first thing your supervisor reads. It must be a perfect balance of academic professionalism and visionary ambition.

You should consider the name **now**. It is the banner under which you will submit the proposal.

The name you proposed in the AI-generated document ("IIUM Quantum Knowledge Nexus...") was a catastrophic failure. It was pretentious, technically meaningless, and academically unserious.

The name for your FYP must adhere to three principles:

1. **It must be Descriptive:** It must clearly and accurately describe what the project *is* from a technical perspective.
2. **It must be Academic:** It must use professional, standard terminology suitable for a computer science thesis.
3. **It must be Visionary (Subtly):** It should hint at the larger purpose and the "thesis-driven" nature of the work without resorting to grandiose or spiritual jargon.

Naming Convention Analysis

Let's break down a good title structure:

[Core Technology] + for + [Specific Application] + : A + [Strategic Purpose]

Candidate Titles

Based on this structure, here are three candidate titles. We will analyze each and select the optimal one.

Candidate A: Simple and Direct

> An Academic Discovery Engine for IIUM

- **Analysis:** Too simple. It describes the product but completely omits the core technical and philosophical innovation (the knowledge graph). It sounds like a standard, uninspired student project. **Verdict: Rejected.**

Candidate B: Technically Focused

> A Knowledge Graph-Based System for Academic Resource Discovery at IIUM

- **Analysis:** This is strong. It is professional, technically descriptive, and accurate. It clearly states the core technology and the application. It is a safe and respectable choice. **Verdict: Viable.**

Candidate C: The "Thesis-Driven" Title (Optimal)

> A Knowledge Graph-Based Framework for Academic Resource Discovery at IIUM: A Proof-of-Concept

- **Analysis:** This is the superior choice. It contains all the strengths of Candidate B, but adds a crucial strategic element: the phrase "A Proof-of-Concept."
- **Why is this phrase so powerful?**

1. **It Manages Expectations:** It explicitly tells your supervisor that you understand the scope is limited and that the goal is to *prove an idea*, not to build a production-ready system. This is a sign of maturity.
2. **It Signals a Thesis:** It frames your entire project as an *experiment*. You are not just building an app; you are building evidence to validate a thesis. This perfectly aligns with our "Thesis-Driven Development" strategy.
3. **It Creates a Visionary Frame:** It implies that this "Proof-of-Concept" is the first step towards something much larger, without having to use unprofessional, visionary language in the title itself.

Final Decision

The official name for your FYP will be:

A Knowledge Graph-Based Framework for Academic Resource Discovery at IIUM: A Proof-of-Concept

Naming for "Phase 1" (Your Internal Terminology)

You asked what name this "Phase 1" should be called. In your own project management and discussions, you can use a more mission-oriented name.

- **Internal Name: "Project Al-Asas: The Foundation Stone"**
- **Rationale:** "Al-Asas" (The Foundation) constantly reminds you and your team that your entire focus during the FYP is to build the first, perfect, foundational piece of the future Citadel. It keeps the grand vision alive while grounding you in the immediate task.

Directive:

1. Use the official, academic title for your proposal document and all formal communications.
2. Use the internal, mission-oriented name in your team discussions to maintain morale and focus.

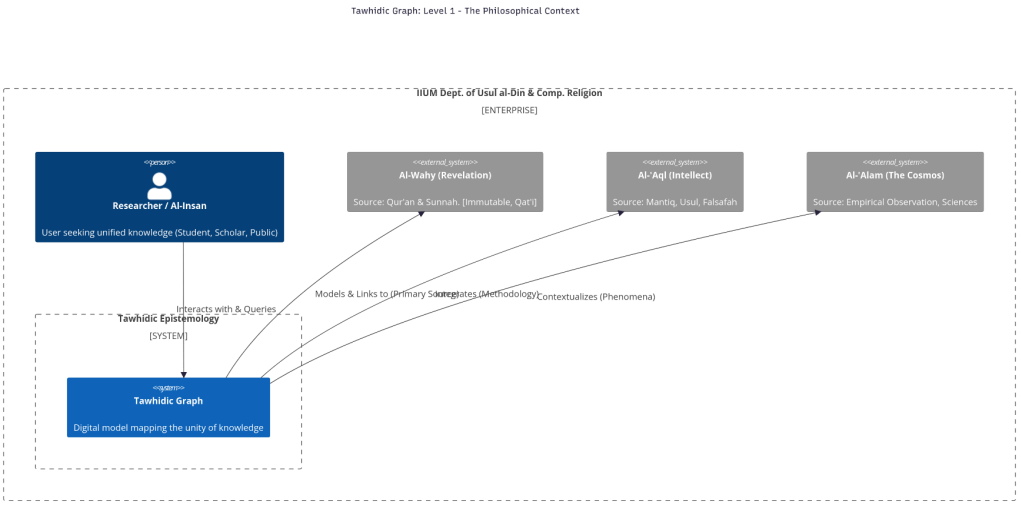
Now, with the project correctly named, we proceed to write **Section 1: Introduction**.

Resource

General Resource

1. Using AI to Extract Structured Insights from Seerah Texts | Greentech Apps Foundation
2. 🚀 Inside GTAF's AI Stack: How a Small Team Serves 13M+ Muslims Worldwide | Greentech Apps Foundation
3. https://www.researchgate.net/publication/393471907_Inside_GTAF's_AI_Stack_How_a_Small_Team_Serves_13M_Muslims_Worldwide#pf4
4.

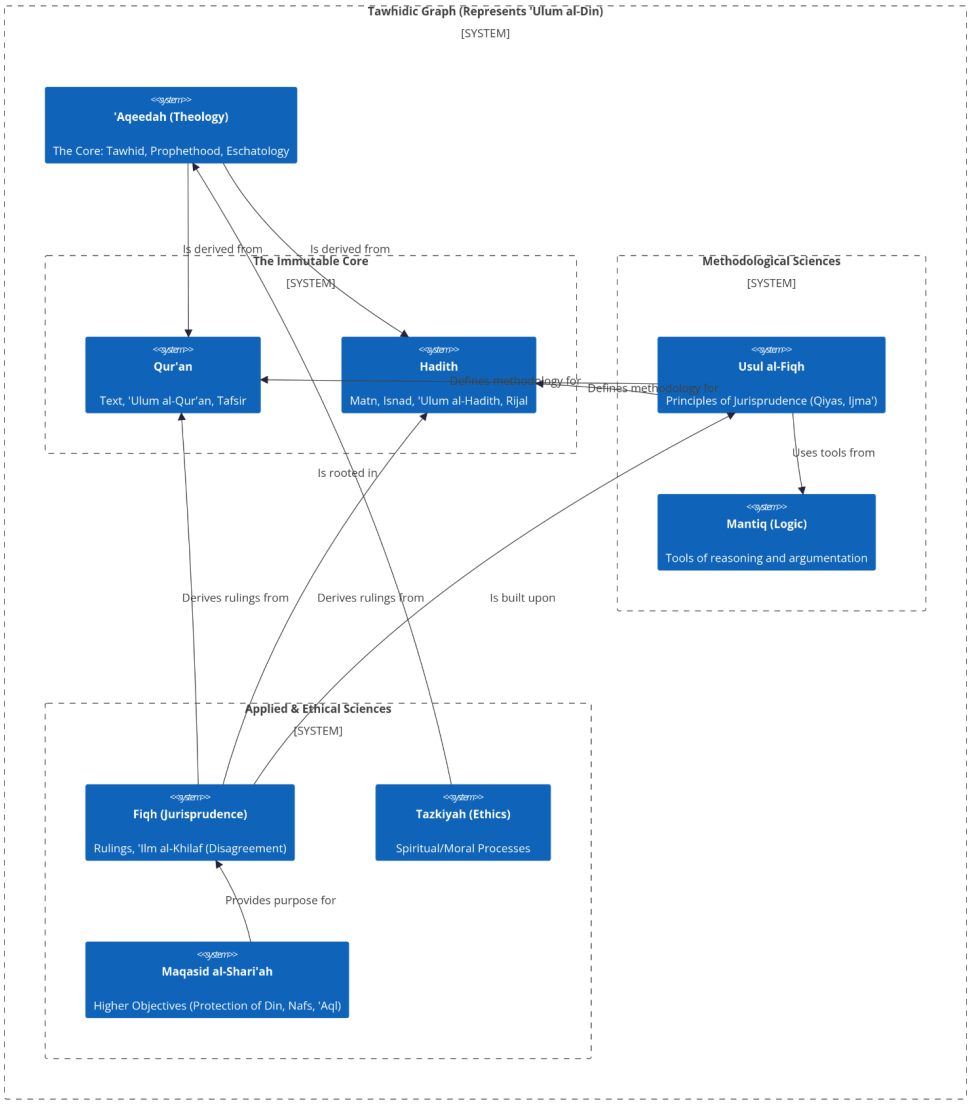
diagram




```
%% ------------------------------------------------------------------
%% SLIDE 1: C4-LEVEL 1 - THE PHILOSOPHICAL CONTEXT
%%
%% GOAL: To anchor the project in Tawhidic Epistemology.
%% This diagram speaks the HoD's language, framing the project as
%% an academic endeavor to implement the "Islamization of Knowledge"
%% by integrating Revelation (Wahy), Reason ('Aql), and the Cosmos ('Alam).
%% ------------------------------------------------------------------
C4Context
  title Tawhidic Graph: Level 1 - The Philosophical Context

  Enterprise_Boundary(iium, "IIUM Dept. of Usul al-Din & Comp. Religion") {
    Person(researcher, "Researcher / Al-Insan", "User seeking unified knowledge (Student, Scholar, Public)")

    System_Boundary(c1, "Tawhidic Epistemology") {
      System(tawhidic_graph, "Tawhidic Graph", "Digital model mapping the unity of knowledge")
    }

    System_Ext(wahy, "Al-Wahy (Revelation)", "Source: Qur'an & Sunnah. [Immutable, Qat'i]")
    System_Ext(aql, "Al-'Aql (Intellect)", "Source: Mantiq, Usul, Falsafah")
    System_Ext(alam, "Al-'Alam (The Cosmos)", "Source: Empirical Observation, Sciences")

    Rel(researcher, tawhidic_graph, "Interacts with & Queries")
    Rel(tawhidic_graph, wahy, "Models & Links to (Primary Source)")
    Rel(tawhidic_graph, aql, "Integrates (Methodology)")
    Rel(tawhidic_graph, alam, "Contextualizes (Phenomena)")
  }
```

Tab 8

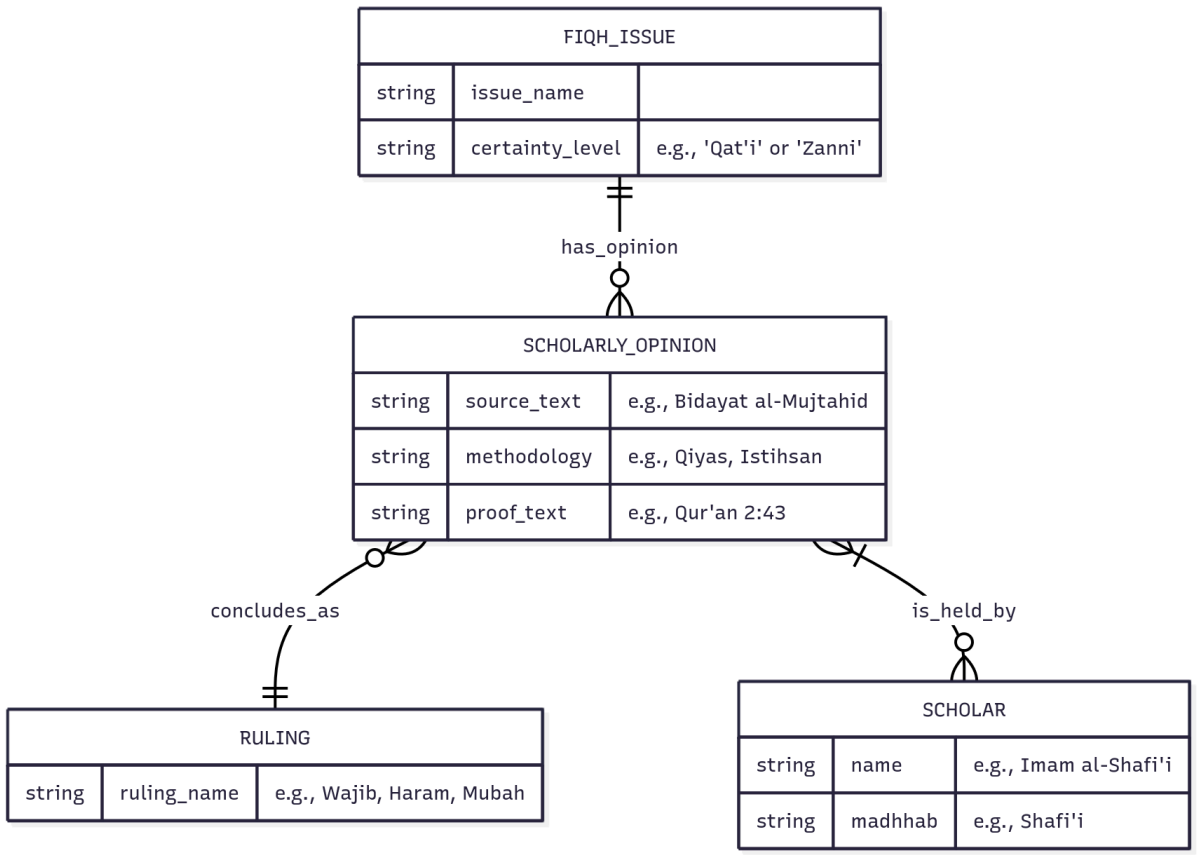
Tawhidic Graph: Level 2 - Internal Conceptual Domains




```
%% ------------------------------------------------------------------
%% SLIDE 2: C4-LEVEL 2 - THE CONCEPTUAL DOMAINS
%%
%% GOAL: To "zoom in" and show the internal architecture.
%% This demonstrates that we are not "flattening" all knowledge,
%% but respecting the classical classifications ('ulum) and showing
%% how they relate to each other within the unified graph.
%% ------------------------------------------------------------------
C4Container
  title Tawhidic Graph: Level 2 - Internal Conceptual Domains

  System_Boundary(c1, "Tawhidic Graph (Represents 'Ulum al-Din)") {

    System(aqeedah, "'Aqeedah (Theology)", "The Core: Tawhid, Prophethood, Eschatology")
```

```
  System_Boundary(sources, "The Immutable Core") {
    System(quran, "Qur'an", "Text, 'Ulum al-Qur'an, Tafsir")
    System(hadith, "Hadith", "Matn, Isnad, 'Ulum al-Hadith, Rijal")
  }

  System_Boundary(methodology, "Methodological Sciences") {
    System(usul, "Usul al-Fiqh", "Principles of Jurisprudence (Qiyas, Ijma')")
    System(mantiq, "Mantiq (Logic)", "Tools of reasoning and argumentation")
  }

  System_Boundary(application, "Applied & Ethical Sciences") {
    System(fiqh, "Fiqh (Jurisprudence)", "Rulings, 'Ilm al-Khilaf (Disagreement)")
    System(tazkiyah, "Tazkiyah (Ethics)", "Spiritual/Moral Processes")
    System(maqasid, "Maqasid al-Shari'ah", "Higher Objectives (Protection of Din, Nafs, 'Aql)")
  }

  Rel(aqeedah, quran, "Is derived from")
  Rel(aqeedah, hadith, "Is derived from")

  Rel(usul, quran, "Defines methodology for")
  Rel(usul, hadith, "Defines methodology for")
  Rel(usul, mantiq, "Uses tools from")

  Rel(fiqh, usul, "Is built upon")
  Rel(fiqh, quran, "Derives rulings from")
  Rel(fiqh, hadith, "Derives rulings from")

  Rel(tazkiyah, aqeedah, "Is rooted in")
  Rel(maqasid, fiqh, "Provides purpose for")
}
```

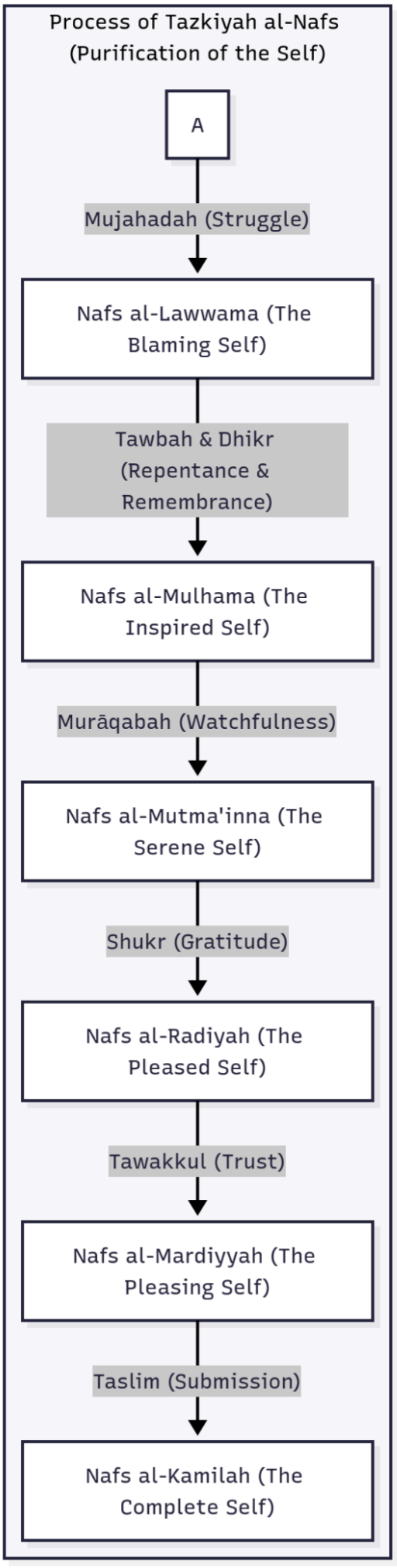
Tab 9




```
%% ------------------------------------------------------------------------
%% SLIDE 3: C4-LEVEL 3 - MODELING 'IKHTILAF' (DISAGREEMENT)
%% GOAL: To show *how* the graph solves the hardest problem:
%% modeling scholarly disagreement ('Ikhtilaf') without creating
%% false equivalence. This respects the distinction between
%% Qat'i (Definitive) and Zanni (Speculative) knowledge.
%% ------------------------------------------------------------------------

erDiagram
    FIQH_ISSUE {
        string issue_name
        string certainty_level "e.g., 'Qat'i' or 'Zanni'"
    }
    RULING {
        string ruling_name "e.g., Wajib, Haram, Mubah"
    }
    SCHOLARLY_OPINION {
        string source_text "e.g., Bidayat al-Mujtahid"
        string methodology "e.g., Qiyas, Istihsan"
        string proof_text "e.g., Qur'an 2:43"
    }
    SCHOLAR {
```

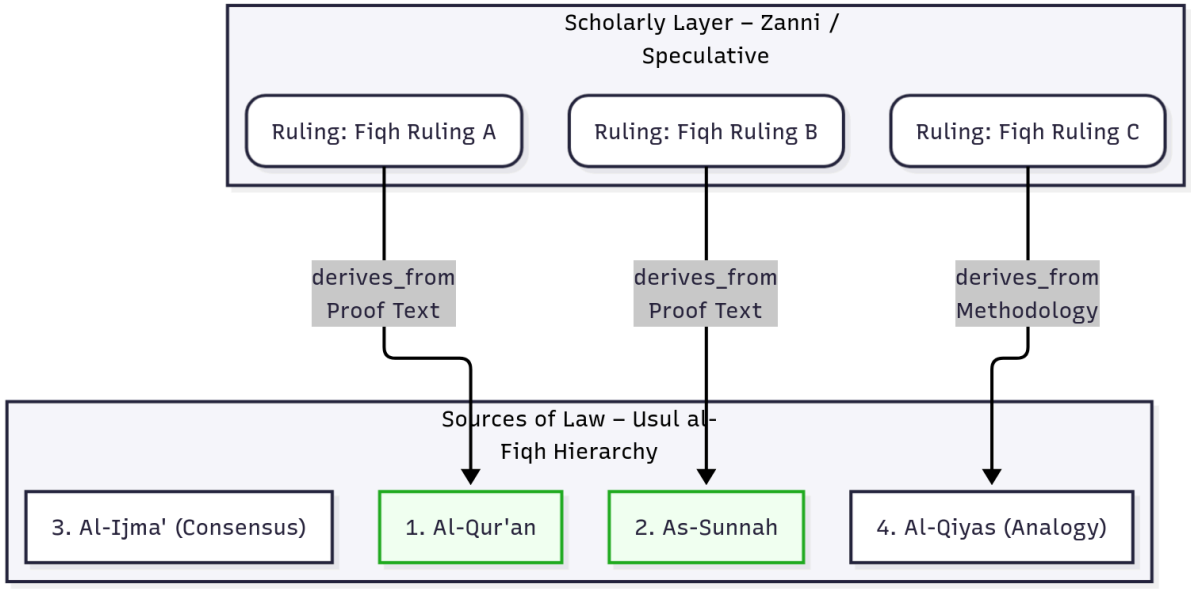
```
        string name "e.g., Imam al-Shafi'i"
        string madhhab "e.g., Shafi'i"
    }

    %% This is the key: The 'SCHOLARLY_OPINION' is the edge
(relationship)
    %% It connects an ISSUE to a RULING and contains all the metadata
    FIQH_ISSUE ||--o{ SCHOLARLY_OPINION : "has_opinion"
    SCHOLARLY_OPINION }o--|| RULING : "concludes_as"
    SCHOLARLY_OPINION }|--o{ SCHOLAR : "is_held_by"

    %% This model allows two different queries:
    %% 1. For a 'Qat'i' issue (e.g., "Ruling on Pork"):
    %%    It returns ONE opinion with certainty 'Qat'i'.
    %% 2. For a 'Zanni' issue (e.g., "Hands in Prayer"):
    %%    It returns MULTIPLE 'has_opinion' edges,
    %%    each with its own scholar, proof, and methodology.
```

Tab 10


Process of Tazkiyah al-Nafs
(Purification of the Self)
A
Mujahadah (Struggle)
Nafs al-Lawwama (The Blaming Self)
Tawbah & Dhikr (Repentance & Remembrance)
Nafs al-Mulhama (The Inspired Self)
Murāqabah (Watchfulness)
Nafs al-Mutma'inna (The Serene Self)
Shukr (Gratitude)
Nafs al-Radiyah (The Pleased Self)
Tawakkul (Trust)
Nafs al-Mardiyyah (The Pleasing Self)
Taslim (Submission)
Nafs al-Kamilah (The Complete Self)

```
---
config:
 layout: elk
---
flowchart TB
subgraph subGraph0["Process of Tazkiyah al-Nafs (Purification of the Self)"]
       B["Nafs al-Lawwama (The Blaming Self)"]
       A["A"]
       C["Nafs al-Mulhama (The Inspired Self)"]
       D@{ label: "Nafs al-Mutma'inna (The Serene Self)" }
       E["Nafs al-Radiyah (The Pleased Self)"]
       F["Nafs al-Mardiyyah (The Pleasing Self)"]
       G["Nafs al-Kamilah (The Complete Self)"]
 end
   A -- Mujahadah (Struggle) --> B
   B -- Tawbah & Dhikr (Repentance & Remembrance) --> C
   C -- Murāqabah (Watchfulness) --> D
   D -- Shukr (Gratitude) --> E
   E -- Tawakkul (Trust) --> F
   F -- Taslim (Submission) --> G
   D@{ shape: rect}
```

Tab 11




```
---
config:
 layout: elk
---
flowchart TB
subgraph ScholarlyLayer["Scholarly Layer – Zanni / Speculative"]
       R1("Ruling: Fiqh Ruling A")
       R2("Ruling: Fiqh Ruling B")
       R3("Ruling: Fiqh Ruling C")
 end
subgraph SourcesLayer["Sources of Law – Usul al-Fiqh Hierarchy"]
       S1@{ label: "1. Al-Qur'an" }
       S2["2. As-Sunnah"]
       S3@{ label: "3. Al-Ijma' (Consensus)" }
       S4["4. Al-Qiyas (Analogy)"]
 end
   R1 -- derives_from<br>Proof Text --> S1
   R2 -- derives_from<br>Proof Text --> S2
   R3 -- derives_from<br>Methodology --> S4
   S1@{ shape: rect}
   S3@{ shape: rect}
   style S1 fill:#f0fff0,stroke:#2a2,stroke-width:2px
   style S2 fill:#f0fff0,stroke:#2a2,stroke-width:2px
```

surrealdb

```
-- ============================================================
-- PHASE 1: THE TAWHIDIC GRAPH SCHEMA (SURREALQL)
-- ============================================================

-- ------------------------------------------------------------
-- A: DEFINE CORE NODES (The Entities / Tables)
-- ------------------------------------------------------------

-- STEP 1: The Immutable Core (Qat'i / Fard 'Ayn)

DEFINE TABLE verse SCHEMAFULL
   PERMISSIONS FOR select FULL FOR create, update, delete NONE;

DEFINE FIELD surah_id ON TABLE verse TYPE number;
DEFINE FIELD verse_id ON TABLE verse TYPE number;
DEFINE FIELD text_uthmani ON TABLE verse TYPE string;
DEFINE FIELD classification ON TABLE verse TYPE string ASSERT $value INSIDE ['Makki', 'Madani'];
DEFINE FIELD immutable_id ON TABLE verse TYPE string READONLY DEFAULT rand::uuid();

DEFINE TABLE hadith SCHEMAFULL
   PERMISSIONS FOR select FULL FOR create, update, delete NONE;

DEFINE FIELD collection ON TABLE hadith TYPE string;
DEFINE FIELD book ON TABLE hadith TYPE string;
DEFINE FIELD number ON TABLE hadith TYPE string;
DEFINE FIELD matn_ar ON TABLE hadith TYPE string;
DEFINE FIELD matn_en ON TABLE hadith TYPE string;
DEFINE FIELD immutable_id ON TABLE hadith TYPE string READONLY DEFAULT rand::uuid();

-- STEP 2: The Scholarly Layer (Zanni / Fard Kifayah)

DEFINE TABLE scholar SCHEMAFULL;
DEFINE FIELD name ON TABLE scholar TYPE string;
DEFINE FIELD madhhab ON TABLE scholar TYPE string;
DEFINE FIELD death_year_hijri ON TABLE scholar TYPE number;
DEFINE FIELD public_key ON TABLE scholar TYPE string;

DEFINE TABLE narrator SCHEMAFULL;
DEFINE FIELD name ON TABLE narrator TYPE string;
DEFINE FIELD birth_year_hijri ON TABLE narrator TYPE number;
DEFINE FIELD death_year_hijri ON TABLE narrator TYPE number;
DEFINE FIELD jarh_wa_tadil_status ON TABLE narrator TYPE string;

DEFINE TABLE fiqh_issue SCHEMAFULL;
DEFINE FIELD name ON TABLE fiqh_issue TYPE string;
DEFINE FIELD certainty_level ON TABLE fiqh_issue TYPE string ASSERT $value INSIDE ['Qat''i', 'Zanni'];
DEFINE FIELD obligation_level ON TABLE fiqh_issue TYPE string ASSERT $value INSIDE ['Fard ''Ayn',
'Fard Kifayah', 'Mandub', 'Mubah', 'Makruh', 'Haram'];

DEFINE TABLE ruling SCHEMAFULL;
DEFINE FIELD name ON TABLE ruling TYPE string;
```

```
DEFINE TABLE concept SCHEMAFULL;
DEFINE FIELD name ON TABLE concept TYPE string;
DEFINE FIELD definition ON TABLE concept TYPE string;

-- ------------------------------------------------------------
-- B: DEFINE GRAPH EDGES (The Relationships / 'Ilm al-Khilaf)
-- ------------------------------------------------------------

DEFINE TABLE holds_opinion SCHEMAFULL TYPE RELATION IN fiqh_issue OUT ruling ENFORCED;
DEFINE FIELD scholar ON TABLE holds_opinion TYPE record<scholar>;
DEFINE FIELD proof_text ON TABLE holds_opinion TYPE record<verse>|record<hadith>;
DEFINE FIELD methodology ON TABLE holds_opinion TYPE string;
DEFINE FIELD source_book ON TABLE holds_opinion TYPE string;
DEFINE FIELD validation_signature ON TABLE holds_opinion TYPE string;
DEFINE FIELD validation_timestamp ON TABLE holds_opinion TYPE datetime DEFAULT time::now();

DEFINE TABLE isnad SCHEMAFULL TYPE RELATION IN hadith OUT narrator ENFORCED;
DEFINE FIELD link_order ON TABLE isnad TYPE number;

DEFINE TABLE narrated_from SCHEMAFULL TYPE RELATION IN narrator OUT narrator ENFORCED;
DEFINE FIELD validation_source ON TABLE narrated_from TYPE string;

DEFINE TABLE interprets SCHEMAFULL TYPE RELATION IN scholar OUT verse ENFORCED;
DEFINE FIELD tafsir_text ON TABLE interprets TYPE string;
DEFINE FIELD source_book ON TABLE interprets TYPE string;

DEFINE TABLE abrogates SCHEMAFULL TYPE RELATION IN verse OUT verse ENFORCED;
DEFINE FIELD scholar ON TABLE abrogates TYPE record<scholar>;
DEFINE FIELD proof_text ON TABLE abrogates TYPE record<verse>|record<hadith>;
DEFINE FIELD validation_signature ON TABLE abrogates TYPE string;

-- ------------------------------------------------------------
-- C: DEFINE ADDITIONAL DOMAINS
-- ------------------------------------------------------------

DEFINE TABLE aqeedah_principle SCHEMAFULL;
DEFINE FIELD name ON TABLE aqeedah_principle TYPE string;
DEFINE FIELD description ON TABLE aqeedah_principle TYPE string;
DEFINE FIELD obligation_level ON TABLE aqeedah_principle TYPE string DEFAULT 'Fard ''Ayn';

DEFINE TABLE proves_principle TYPE RELATION IN verse OUT aqeedah_principle ENFORCED;

DEFINE TABLE historical_event SCHEMAFULL;
DEFINE FIELD name ON TABLE historical_event TYPE string;
DEFINE FIELD description ON TABLE historical_event TYPE string;
DEFINE FIELD year_hijri ON TABLE historical_event TYPE number;

DEFINE TABLE occasion_for TYPE RELATION IN historical_event OUT verse ENFORCED;
DEFINE FIELD source_book ON TABLE occasion_for TYPE string;
```

```
DEFINE TABLE argument SCHEMAFULL;
DEFINE FIELD name ON TABLE argument TYPE string;
DEFINE FIELD premises ON TABLE argument TYPE array;
DEFINE FIELD conclusion ON TABLE argument TYPE string;

DEFINE TABLE rebuts TYPE RELATION IN argument OUT argument ENFORCED;
DEFINE TABLE supports TYPE RELATION IN argument OUT aqeedah_principle ENFORCED;

-- ==========================================================
-- PHASE 3: EXAMPLE "PAYOFF" QUERIES
-- ==========================================================

-- Query 1: The 'Qat'i' (Definitive) Query
SELECT ->holds_opinion->ruling.name AS ruling
FROM fiqh_issue
WHERE name = 'Consumption of Pork' AND certainty_level = 'Qat''i';

-- Query 2: The 'Zanni' / 'Ikhtilaf' (Disagreement) Query
SELECT
   opinion.out.name AS ruling,
   opinion.scholar.name AS scholar,
   opinion.scholar.madhhab AS madhhab,
   opinion.methodology AS methodology,
   opinion.proof_text.* AS proof,
   opinion.validation_timestamp AS validated_on
FROM holds_opinion AS opinion
WHERE opinion.in = fiqh_issue:hands_in_prayer;

-- Query 3: Full 'Tawhidic' Traversal (Fiqh -> Hadith -> 'Ilm al-Rijal)
SELECT
   opinion.proof_text AS hadith_record,
   (SELECT
      link_order,
      (SELECT
         name,
         death_year_hijri,
         jarh_wa_tadil_status
       FROM out) AS narrator
    FROM isnad
    WHERE in = opinion.proof_text
    ORDER BY link_order ASC
   ) AS isnad_chain
FROM holds_opinion AS opinion
WHERE opinion.in = fiqh_issue:hands_in_prayer
  AND opinion.scholar.madhhab = 'Shafi''i'
FETCH narrator, hadith_record;
```

sample data

```
-- This file contains sample data to populate your Tawhidic Graph.
-- Run these commands in your SurrealDB query editor AFTER you have
-- successfully applied your schema (the DEFINE statements).

-- 1. Create sample nodes (Entities)

-- Two verses from Surah Al-Ikhlas
CREATE quran_verse:ikhlas_1 SET
    ayah_text = "Say, 'He is Allah, [who is] One.'",
    ayah_number = 1,
    surah_id = 112,
    juz_id = 30;

CREATE quran_verse:ikhlas_2 SET
    ayah_text = "Allah, the Eternal Refuge.",
    ayah_number = 2,
    surah_id = 112,
    juz_id = 30;

-- A core 'Aqeedah principle
CREATE aqeedah_principle:tawhid SET
    principle_name = "Tawhid (Oneness of Allah)",
    description = "The foundational principle of Islam, asserting the absolute oneness of Allah.";

-- A scholar
CREATE scholar:ibn_kathir SET
    name = "Ibn Kathir",
    era = "14th Century (Mamluk)";

-- A Tafsir entry by that scholar
CREATE tafsir_entry:tafsir_on_ikhlas_1 SET
    tafsir_text = "This verse, 'He is Allah, One,' asserts the absolute uniqueness and oneness of Allah,
refuting polytheism and any concept of partnership with Him...",
    mufassir = "Ibn Kathir";

-- A Fiqh ruling related to the concept
CREATE fiqh_ruling:intention_in_wudu SET
    ruling = "The intention (Niyyah) is a prerequisite for the validity of Wudu (ablution).",
    madhab = "Jumhur (Majority)";

-- A Hadith related to the ruling
CREATE hadith:actions_by_intentions SET
    text = "Verily, actions are but by intentions, and every person will have but that which he
intended.",
    source = "Sahih al-Bukhari",
    classification = "Sahih";


-- 2. Create sample edges (Relationships)

-- Connect the Tafsir entry to the verse it explains
```

```
RELATE tafsir_entry:tafsir_on_ikhlas_1->explains_verse->quran_verse:ikhlas_1;

-- Connect the Tafsir entry to its author
RELATE tafsir_entry:tafsir_on_ikhlas_1->authored_by->scholar:ibn_kathir;

-- Connect the 'Aqeedah principle to the verse that establishes it
-- We use the generic 'related_to' edge and define its properties
RELATE aqeedah_principle:tawhid->related_to->quran_verse:ikhlas_1 SET
    relation_type = 'is_established_by',
    mutability_status = 'Thabit',
    strength = 1.0;

-- Also create the reverse relationship
RELATE quran_verse:ikhlas_1->related_to->aqeedah_principle:tawhid SET
    relation_type = 'establishes',
    mutability_status = 'Thabit',
    strength = 1.0;

-- Connect the Fiqh ruling to the Hadith that forms its evidence
RELATE fiqh_ruling:intention_in_wudu->derives_ruling_from->hadith:actions_by_intentions;

-- Connect the Hadith's author (Bukhari) - if we had a 'Bukhari' scholar node
-- (Skipping for brevity, but this shows where the graph grows)
```