

# Proposal for the Development of a Proof-of-Concept (POC) Academic Advisor Chatbot

## 1. Project Assessment

### Scope Definition:

- Project Objectives: Develop a chatbot capable of assisting students with academic inquiries by leveraging a Retrieval-Augmented Generation (RAG) approach. The chatbot will support both Arabic and English and will utilize Deepseek v3 and Deepseek R1 for enhanced reasoning when required.
- Deliverables:
  - Implementation of a RAG-based system using Deepseek v3 and Deepseek R1.
  - Integration of approximately 100 pages of academic-related documents as needed.
  - Deployment of the chatbot for proof-of-concept testing.
- Specific Requirements:
  - Ensure the chatbot effectively understands and processes both Arabic and English queries.
  - Optimize response generation by selecting appropriate retrieval methods for academic advising scenarios.
  - Conduct initial testing to evaluate chatbot performance.

## 2. Cost Estimation

- Time Calculation:
  - **Development:** Approximately 10 hours
  - **Maintenance:** 3 hours
  - **Total Estimated Hours:** 13 hours
- Hourly Rate Determination:
  - Based on project scope and expertise required, an hourly rate of \$12 is proposed.
- Total Cost Computation:
  - **Development Cost:** 10 hours × \$12/hour = \$120
  - **Testing Cost:** 3 hours × \$12/hour = \$36
  - **Subtotal:** \$156
  - **Contingency (15%):** \$156 × 0.15 = \$23.40
  - **Total Cost:** \$156 + \$23.40 = \$179.40
  - **Estimated additional cost for API testing:** \$16
  - **Final Cost Estimate:** \$195.40

## 3. Inclusion of Contingency

### Risk Assessment:

- Potential Risks:
  - Unforeseen technical challenges during development or integration.
  - Unexpected issues arising during the testing phase.

- Buffer Addition: A 15% contingency buffer is included to mitigate these risks and ensure the project remains within budget.

#### **4. Value Justification**

- Expertise Highlighting:
  - Experience in Arabic Natural Language Processing (NLP) and Large Language Models (LLMs).
  - Proficiency in deploying and fine-tuning RAG-based AI systems.
  - Knowledge in optimizing multi-language chatbot interactions.
- Cost Efficiency:
  - Strategic selection of embedding models for academic content retrieval.
  - Efficient integration of relevant documents to minimize redundant queries and optimize computational efficiency.

#### **5. Transparent Pricing Proposal**

- Itemized Breakdown:
  - Development: \$120
  - Testing: \$36
  - Contingency (15%): \$23.40
  - Estimated Testing API Cost: \$16
  - **Total Cost: \$195.40**
- Payment Terms:
  - To be determined later on.

#### **6. Competitive Analysis**

- Market Research:
  - The proposed hourly rate aligns with competitive market standards.
  - The use of state-of-the-art AI models enhances chatbot efficiency and effectiveness.
- Value Proposition:
  - The combination of specialized expertise, effective development, and optimized resource allocation provides superior value compared to standard market solutions.

This proposal outlines a structured plan to develop a POC Academic Advisor Chatbot that is both cost-efficient and functionally robust, leveraging advanced AI models to enhance student academic support.