**Executive Summary**

**Executive Summary: Revolutionizing Affin Moneybrokers' REPO Trading with Nitor Infotech**

Affin Moneybrokers operates in a highly competitive and regulated market. The current limitations in automating Malaysian REPO/Reverse REPO transactions, coupled with the need for stringent GMRA compliance and seamless integration with key participants (Affin, interbank, Bursa Malaysia, BNM), creates significant operational inefficiencies and exposes Affin to substantial financial and regulatory risks. Manual processes are slow, prone to errors, and hinder rapid response to market opportunities. Without a robust, automated, and compliant REPO trading platform, Affin Moneybrokers risks losing market share, incurring higher operational costs, and facing potential regulatory penalties. This is not merely an IT project; it's a strategic imperative for survival and growth.

Nitor Infotech is uniquely positioned to solve this critical challenge. We are not just another technology vendor; we are a strategic partner with a proven track record of delivering high-impact solutions for financial institutions in the Malaysian market. Our deep understanding of the Malaysian regulatory landscape, coupled with our extensive experience in building sophisticated trading platforms and integrating with market data providers like Bloomberg, makes us the ONLY choice for Affin Moneybrokers.

**Our proposed solution directly addresses Affin's key requirements:**

Automated Trade Execution: Our platform will automate the entire REPO/Reverse REPO trade lifecycle, from order initiation to settlement, significantly reducing processing time and minimizing human error. This translates into faster execution speeds, improved operational efficiency, and increased profitability.

Real-Time Compliance Monitoring: Built-in compliance checks and reporting ensure full adherence to GMRA regulations and best practices, mitigating regulatory risk and minimizing the potential for costly fines.

Efficient Collateral Management: Our platform will streamline collateral management processes, optimizing collateral utilization and minimizing counterparty risk. This ensures efficient capital allocation and reduces operational costs.

Seamless Integration: We will ensure seamless integration with existing systems and market data feeds (e.g., Bloomberg), minimizing disruption and maximizing data utilization for informed decision-making.

Robust Security and Scalability: Our solution will be built on a secure, scalable architecture capable of handling increasing transaction volumes and the introduction of new instruments, ensuring future-proof capabilities.

**Nitor Infotech's unique value proposition stems from our:**

Deep Expertise in Financial Technology: We possess a team of highly skilled developers, architects, and compliance experts with extensive experience in building and implementing complex financial trading systems. We understand the intricacies of the REPO market and the specific regulatory requirements of Malaysia.

Proven Track Record: We have a demonstrable history of successfully delivering similar projects for major financial institutions in Southeast Asia, exceeding expectations and delivering tangible ROI. We will provide specific case studies upon request.

Agile Development Methodology: Our agile approach ensures transparency, flexibility, and rapid iteration, allowing us to adapt quickly to changing requirements and deliver the solution efficiently.

Commitment to Quality and Security: We adhere to the highest standards of software development and security best practices, ensuring a reliable and secure platform for Affin Moneybrokers.

**Project Details:**

Project Title: REPO Trading Platform

Project Timeline: 4 months

Project Amount: USD 34,534.00

This investment represents a fraction of the potential long-term cost savings and revenue generation that Affin Moneybrokers will realize through improved efficiency, reduced risk, and increased market competitiveness. The return on investment (ROI) will be substantial, far exceeding the project cost in terms of operational efficiencies, reduced regulatory risk, and increased trading capacity. The speed and accuracy of transactions will dramatically increase revenue opportunities and enhance overall profitability.

**Call to Action:**

Affin Moneybrokers stands at a crucial juncture. Investing in a modern, automated REPO trading platform is not a luxury, but a necessity for sustained success in the dynamic Malaysian market. Nitor Infotech offers the expertise, experience, and commitment to deliver a solution that meets your immediate needs and positions you for future growth. We urge you to schedule a meeting to discuss this proposal in detail and explore how we can help Affin Moneybrokers achieve its strategic objectives. Let's collaborate to transform your REPO trading operations and unlock significant business value.

**Our Understanding**

**Our Understanding:**

**1. About Affin Moneybrokers's Project**

Inferred Current State and Challenges: Affin Moneybrokers likely operates with a mix of manual and potentially outdated systems for REPO trading. This likely leads to inefficiencies in trade execution, increased operational risk due to manual processes, difficulties in ensuring GMRA (Good Market Regulation and Administration) compliance across all transactions, and challenges in real-time monitoring of positions and collateral. Scalability to handle increasing transaction volumes and the addition of new instruments is probably limited. Integration with external data providers like Bloomberg may be fragmented, leading to data silos and inconsistencies. Security and auditability of transactions might also be areas of concern. The current environment likely requires significant manual intervention for reconciliation and reporting, increasing operational costs and potentially introducing human error.

Project Objectives and Success Criteria: The primary objective is to automate the entire Malaysian REPO/Reverse REPO trading lifecycle, enhancing efficiency, reducing operational risk, and ensuring full compliance with all relevant regulations (BNM, Bursa Malaysia, GMRA). Success will be measured by a reduction in processing times, improved accuracy of transactions, a demonstrable decrease in operational risk (e.g., fewer errors, faster resolution of discrepancies), enhanced compliance reporting capabilities, seamless integration with existing systems and Bloomberg, scalability to handle future growth, and a demonstrable return on investment within the four-month timeframe.

Proposed Technical Approach: We propose a robust, scalable, and secure REPO trading platform built using a microservices architecture. This approach allows for modularity, independent scaling of components, and easier maintenance and updates. The system will incorporate automated trade execution, real-time risk and compliance monitoring, sophisticated collateral management modules, and seamless integration with market data feeds (Bloomberg API) and Affin's existing infrastructure. We will leverage industry-standard technologies focusing on security, performance, and maintainability, while adhering strictly to Malaysian regulatory guidelines. The system will be designed for high availability and disaster recovery, ensuring business continuity. Specific technology choices will be detailed in the subsequent design phase.

**2. Implementation Methodology**

Phase 0: Discovery & Assessment (1 Week): Detailed requirements gathering, system landscape analysis, identification of key interfaces, and risk assessment. A comprehensive gap analysis comparing existing systems with the desired functionality will be performed. This phase will involve workshops with Affin Moneybrokers' key stakeholders.

Phase 1: Planning & Design (3 Weeks): Based on the findings from Phase 0, we will develop a detailed system design, including database design, API specifications, security architecture, and infrastructure requirements. This phase will include creating a comprehensive project plan, outlining tasks, timelines, and resource allocation. Key deliverables include detailed design documents, technical specifications, and a project schedule.

Phase 2: Implementation (7 Weeks): Development, testing, and deployment of the REPO trading platform. This will involve iterative development sprints, utilizing Agile methodologies to ensure flexibility and responsiveness to changing requirements. Rigorous testing, including unit, integration, and user acceptance testing (UAT), will be conducted to ensure quality and stability.

Phase 3: Go-Live & Support (2 Weeks): Deployment of the platform to the production environment, user training, and post-implementation support. This phase includes monitoring the system's performance and addressing any post-implementation issues. Ongoing support will be provided to Affin Moneybrokers for a defined period post go-live.

**3. Roles & Responsibilities**

|  |  |  |
| --- | --- | --- |
| Phase | Nitor | Affin Moneybrokers |
| Discovery & Assessment | Requirements gathering, Gap analysis, Risk assessment | Stakeholder participation, Data provision, System documentation |
| Planning & Design | System design, Technical specifications, Project planning | Review & approval of design documents, Data mapping |
| Implementation | Development, Testing, Deployment | UAT, Data migration, Internal system preparation |
| Go-Live & Support | Deployment, Training, Post-implementation support | User acceptance, Issue reporting, Ongoing feedback |

**4. Implementation Challenges & Solutions**

|  |  |
| --- | --- |
| Potential Challenge | Mitigation Strategy |
| Integration with existing systems | Phased integration approach; thorough data mapping and interface testing; dedicated integration team |
| Data migration issues | Robust data migration plan; data cleansing and validation; rigorous testing of migrated data |
| Regulatory compliance | Close collaboration with regulatory experts; continuous monitoring of regulatory changes |
| Time constraints | Agile methodology, prioritized features, dedicated project management |
| Budget constraints | Prioritization of essential features, efficient resource allocation, cost-effective technologies |
| Security vulnerabilities | Secure coding practices; penetration testing; regular security audits; use of industry best practices |

**5. Benefits of Partnership with Nitor**

Quantifiable Benefits: Reduced operational costs through automation (estimated at X% based on industry benchmarks), increased transaction throughput (estimated at Y% improvement), minimized compliance risks leading to potential cost savings in fines or penalties.

Strategic Advantages: Access to experienced professionals with deep expertise in REPO trading and regulatory compliance in the Malaysian market. Our proven track record delivers solutions built to scale and withstand future market demands.

ROI Considerations (within 4 Months): While a full ROI calculation requires more detailed financial data, the anticipated cost savings from automation, reduced risk, and improved efficiency should demonstrate a positive return within the project timeframe. This will be quantitatively analyzed in a separate ROI document.

**6. Our Implementation Practices**

Quality Assurance Approach: We will implement a rigorous QA process involving unit testing, integration testing, system testing, and user acceptance testing. Automated testing will be employed wherever possible.

Risk Management Framework: A formal risk management framework will be established and maintained throughout the project lifecycle, proactively identifying and mitigating potential risks.

Communication and Reporting Structure: Regular progress reports, status meetings, and transparent communication channels will ensure all stakeholders are informed and engaged throughout the project.

Support Model: We offer comprehensive post-implementation support, including ongoing maintenance, bug fixes, and system enhancements. A dedicated support team will be available to address any issues promptly and effectively.

**Scope of Work**

**Scope of Work: REPO Trading Platform for Affin Moneybrokers**

**1. Project Overview**

This document outlines the scope of work for the development of a REPO Trading Platform for Affin Moneybrokers by Nitor Infotech. The project aims to automate Malaysian REPO/Reverse REPO transactions, ensuring compliance with GMRA regulations and supporting key participants (Affin, interbank, Bursa Malaysia, BNM). The project timeline is four months, and the budget is USD 34,534.

**1.1 In Scope**

System Design and Development: Design, develop, and test a robust and scalable REPO trading platform capable of automating REPO and Reverse REPO transactions in accordance with GMRA regulations. This includes the design of the system architecture, database schema, user interface, and API integrations.

Trade Execution Module: Development of a fully automated trade execution module, including order entry, matching, confirmation, and settlement.

Compliance Monitoring: Real-time monitoring of transactions against GMRA regulations and other relevant Malaysian regulations. This includes automated alerts for any non-compliance issues.

Collateral Management: Development of a module for efficient collateral management, including tracking, valuation, and margin calls.

Market Data Integration: Integration with a market data provider (e.g., Bloomberg Terminal API â€“ assuming client has access and subscription) to obtain real-time market data for pricing and risk management. The specific data points and feeds will be defined in a subsequent detailed requirements document.

Integration with Existing Systems: Integration with Affin Moneybrokers' existing systems (specific systems and APIs to be defined in a subsequent detailed requirements document). This will involve mapping data fields and creating appropriate interfaces.

User Interface (UI) and User Experience (UX) Design: Design and development of a user-friendly interface for traders, operations staff, and compliance officers.

Testing and Quality Assurance: Comprehensive testing, including unit testing, integration testing, user acceptance testing (UAT), and performance testing. Defect tracking and resolution will be managed through a defined process.

Deployment: Deployment of the platform to a suitable environment (to be determined collaboratively).

Documentation: Comprehensive technical documentation, including system architecture diagrams, API specifications, user manuals, and deployment guides.

**1.2 Out of Scope**

Data Migration: Migration of existing trade data from legacy systems is out of scope unless explicitly agreed upon and included in a separate statement of work with defined costs and timelines.

Third-Party System Support: Nitor Infotech is not responsible for the maintenance, support, or updates of third-party systems (including Bloomberg Terminal). We will assume the stability and availability of these systems.

Regulatory Compliance Consulting: Nitor Infotech is not providing regulatory compliance consulting services; Affin Moneybrokers is solely responsible for ensuring compliance with all applicable laws and regulations.

Post-Deployment Support and Maintenance: Post-deployment support and maintenance will be defined in a separate service level agreement (SLA) and will incur additional costs.

Development of new instruments not defined within current REPO and Reverse REPO instruments

Advanced Analytics or Machine Learning features: Unless specifically agreed in a separate scope.

Mobile Application Development: A mobile application for accessing the platform is excluded from this scope.

**1.3 Client Responsibilities**

Provide Access: Provide timely access to necessary systems, data, personnel (including subject matter experts), and environments required for the project.

Data Provision: Provide complete and accurate data required for integration and testing. This includes data cleansing and preparation as needed.

Review and Approval: Review and approve deliverables at each stage of the development process.

Testing and Feedback: Actively participate in the testing process and provide timely feedback.

Communication: Maintain open communication channels with Nitor Infotech throughout the project. Appoint a dedicated project liaison.

**1.4 Assumptions**

Data Availability: Affin Moneybrokers will provide access to all necessary data and APIs within agreed upon timelines.

System Stability: Third-party APIs (Bloomberg, internal systems) will remain stable and reliable throughout the project duration.

Client Resources: Affin Moneybrokers will dedicate sufficient resources to the project to ensure its timely completion.

Regulatory Compliance: Affin Moneybrokers is responsible for obtaining all necessary regulatory approvals and licenses.

Communication: Effective and consistent communication will be maintained throughout the project lifecycle.

**2. Acceptance Criteria**

The project will be considered complete upon successful completion of all in-scope deliverables, satisfactory completion of UAT by Affin Moneybrokers, and formal acceptance of the system by authorized representatives of Affin Moneybrokers.

**3. Payment Schedule**

A detailed payment schedule will be provided separately. This will be structured in line with project milestones and deliverables.

**4. Project Management**

Nitor Infotech will use Agile methodologies to manage the project. Regular progress reports and meetings will be held to ensure transparency and effective communication.

**5. Intellectual Property**

Ownership of intellectual property rights will be defined in a separate agreement.

**6. Confidentiality**

Both parties agree to maintain the confidentiality of all information exchanged during the project.

This Scope of Work document serves as a high-level overview. A more detailed requirements document will be developed collaboratively to define specific functionalities, technical specifications, and integration details. This document is subject to change based on further discussions and requirements clarification.

**Solution Approach**

**Solution Overview:**

The proposed solution for Affin Moneybrokers' REPO Trading Platform will employ a microservices architecture, leveraging a robust technology stack to ensure compliance, scalability, and security. The system will be designed for high availability and performance, capable of handling a large volume of transactions and integrating seamlessly with existing systems and market data providers like Bloomberg. The architecture will prioritize automated trade execution, real-time compliance monitoring, and efficient collateral management, all while adhering to GMRA and Malaysian regulatory requirements.

**Phases:**

Assessment and Planning (2 weeks): This phase involves a detailed analysis of Affin Moneybrokers' existing systems, infrastructure, and business processes related to REPO trading. We will conduct workshops with key stakeholders to gather detailed requirements, identify integration points, and assess existing data sources. Deliverables include a comprehensive requirements document, a preliminary risk assessment, and a project plan.

Design and Architecture (4 weeks): This phase focuses on designing the microservices architecture, database schema, API specifications, and integration strategy. We will define the individual microservices (e.g., Trade Execution, Collateral Management, Compliance Monitoring, Market Data Integration), their interactions, and data flow. We will select appropriate technologies based on performance and scalability needs. Deliverables include a detailed technical architecture diagram, API specifications, database design documents, and a security design document.

Development (8 weeks): This phase involves the development and unit testing of the individual microservices. We will employ Agile methodologies, utilizing continuous integration and continuous deployment (CI/CD) pipelines to ensure rapid development and frequent testing. Code reviews and automated testing will be integral to this phase. Deliverables include fully functional microservices with comprehensive unit tests and integration tests, and a deployment pipeline.

Integration and Testing (6 weeks): This phase focuses on integrating the microservices with each other, existing systems (e.g., Affin's internal systems), third-party services (e.g., Bloomberg), and market data feeds. This will involve developing and testing APIs, message queues (e.g., RabbitMQ or Kafka), and data synchronization mechanisms. Rigorous system integration testing, user acceptance testing (UAT), and performance testing will be conducted to ensure functionality, reliability, and scalability. Deliverables include a fully integrated system, test reports, and performance benchmarks.

Security Hardening and Compliance (2 weeks): This phase involves implementing comprehensive security measures, including access control, encryption (both in transit and at rest), intrusion detection, and regular security audits. We will ensure compliance with all relevant Malaysian regulations and GMRA guidelines. Penetration testing and vulnerability assessments will be conducted to identify and remediate any security weaknesses. Deliverables include a security audit report, remediation plans, and documented security policies.

Deployment and Go-Live (1 week): This phase involves deploying the system to a production environment (cloud-based or on-premise depending on Affin's infrastructure capabilities). A phased rollout approach might be considered to minimize disruption. Post-deployment monitoring and support will commence immediately. Deliverables include a fully deployed and operational system.

Monitoring and Support (Ongoing): This phase involves continuous monitoring of system performance, error tracking, and incident response. We will implement comprehensive monitoring tools to track key performance indicators (KPIs) and proactively identify and address potential issues. A service level agreement (SLA) will define support response times and escalation procedures. Deliverables include ongoing monitoring and support, regular performance reports, and incident management reports.

**Technology Stack:**

Programming Languages: Java (Spring Boot framework for backend microservices), Python (for scripting and potential specific microservices)

Database: PostgreSQL (for its scalability and robustness)

Message Queue: RabbitMQ (for asynchronous communication between microservices)

API Gateway: Kong or Apigee (for managing and securing API traffic)

Cloud Platform: AWS or Azure (for scalability, reliability, and cost-effectiveness) â€“ a decision will be made based on Affin's preferences.

Market Data Integration: Bloomberg API (direct integration)

Security: OAuth 2.0, JWT, TLS/SSL encryption, robust authentication and authorization mechanisms.

**Integration Strategy:**

The system will integrate with existing systems and third-party services through well-defined APIs, using RESTful principles. Message queues will facilitate asynchronous communication between microservices and external systems. Data synchronization will leverage ETL (Extract, Transform, Load) processes to ensure data consistency across different systems. Secure API gateways will manage and monitor all external communication.

**Risk Mitigation:**

Technical Risks: Agile development methodology, continuous integration/continuous delivery (CI/CD), code reviews, automated testing, and thorough testing throughout the development lifecycle will mitigate technical risks.

Security Risks: Implementation of industry-standard security best practices, regular security audits, penetration testing, and robust authentication and authorization mechanisms will mitigate security risks.

Integration Risks: Phased integration approach, thorough testing of integration points, and close collaboration with stakeholders will minimize integration challenges.

**Security Considerations:**

Secure API gateways will protect against unauthorized access to the system.

Data encryption (both in transit and at rest) will safeguard sensitive information.

Robust authentication and authorization mechanisms (e.g., multi-factor authentication) will control access to the system.

Regular security audits and penetration testing will identify and address vulnerabilities.

Compliance with all relevant Malaysian regulations and GMRA guidelines will be ensured.

**Scalability and Performance:**

Microservices architecture will enable independent scaling of individual components.

Cloud-based infrastructure will provide on-demand scalability.

Load balancing will distribute traffic across multiple instances.

Caching mechanisms will reduce database load and improve response times.

Database optimization techniques will ensure efficient data retrieval.

**Monitoring and Support:**

Comprehensive monitoring tools will track system performance and identify potential issues proactively.

Automated alerting will notify support teams of critical events.

A well-defined incident response plan will ensure timely resolution of incidents.

Regular maintenance and updates will ensure system stability and security. A SLA will be established to define support levels and response times.

This detailed technical solution approach provides a robust framework for the development of a reliable, secure, and scalable REPO trading platform for Affin Moneybrokers, meeting all project requirements and mitigating potential risks within the specified timeframe.

**Project Timeline & Deliverables**

**Project Timeline and Deliverables: REPO Trading Platform for Affin Moneybrokers**

The project will be executed over four months (16 weeks) and divided into seven distinct phases, each with clearly defined milestones and deliverables. Resource allocation will prioritize experienced developers, compliance specialists, and system integrators throughout. Dependencies will be managed using a project management software (e.g., Jira) to track progress, identify bottlenecks, and ensure timely completion. Regular status meetings and risk assessments will be conducted to proactively address potential issues.

**Phase 1: Requirements Gathering and Analysis (2 weeks)**

Deliverable: Comprehensive requirements specification document outlining functional and non-functional requirements, including GMRA compliance specifics, integration points with existing systems (Bloomberg, internal systems), security requirements, and scalability targets. This will include detailed user stories and acceptance criteria.

Resources: Business analysts, compliance officers, system architects.

**Phase 2: System Design and Architecture (3 weeks)**

Deliverable: Detailed technical design document specifying the system architecture (including database design, API specifications, security architecture), technology stack selection, and deployment strategy. This will also include a high-level project plan.

Resources: System architects, senior developers, database administrators.

**Phase 3: Development (6 weeks)**

Deliverable: Fully functional REPO trading platform incorporating automated trade execution, real-time compliance monitoring, and efficient collateral management. This includes development of all core functionalities and integration with external data sources (Bloomberg).

Resources: Development team (front-end, back-end, database developers), DevOps engineers.

**Phase 4: Compliance and Security Testing (2 weeks)**

Deliverable: Comprehensive testing report confirming compliance with GMRA regulations and security standards. This phase will involve penetration testing and vulnerability assessments.

Resources: Security specialists, compliance officers, QA testers.

**Phase 5: Integration and User Acceptance Testing (2 weeks)**

Deliverable: Integrated system demonstrating seamless interaction with existing Affin systems, Bloomberg, Bursa Malaysia, and BNM. Successful completion of User Acceptance Testing (UAT) by key stakeholders.

Resources: Integration specialists, QA testers, business users.

**Phase 6: Deployment and Go-Live (1 week)**

Deliverable: Successfully deployed and operational REPO trading platform in the production environment. Post-deployment monitoring and support setup.

Resources: DevOps engineers, system administrators, support team.

**Phase 7: Post-Deployment Support and Monitoring (Ongoing)**

Deliverable: Ongoing support and monitoring of the system, addressing any bugs or issues, and providing user training. This also includes regular system updates and security patches.

Resources: Support team, DevOps engineers.

A detailed Gantt chart illustrating the project timeline, dependencies, and resource allocation will be provided separately. This Gantt chart will allow for effective monitoring and management of the critical path activities to ensure the timely completion of the project within the 16-week timeframe.

**Team Structure**

**Team Structure:**

The project team will consist of experienced professionals with expertise in financial technology (FinTech), regulatory compliance (specifically GMRA), real-time systems, and secure software development. The team will be structured as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. | Role | Resource Count | Justification |
| 1 | Solutions Architect | 1 | Provides overall technical direction, ensuring the system architecture aligns with business requirements, GMRA compliance, and scalability. This role is crucial for integrating with existing systems and market data feeds. |
| 2 | Backend Developer | 3 | Develops the core trading engine, handles real-time transaction processing, integrates with market data APIs (Bloomberg), and manages collateral. Three developers are necessary due to the complexity of real-time processing, compliance requirements, and the need for robust error handling. |
| 3 | Frontend Developer | 2 | Develops the user interface for trade execution, monitoring, and reporting. Two developers are needed to ensure timely delivery and to handle potential UI/UX complexity for diverse user groups (Affin, interbank, etc.). |
| 4 | Database Engineer | 1 | Designs and implements the database schema, ensuring efficient data storage and retrieval for trade data, collateral information, and compliance records. This role is crucial for performance and scalability. |
| 5 | QA Engineer | 2 | Designs and executes comprehensive testing plans to ensure the platform meets functional and non-functional requirements, including compliance and security testing. Two QA engineers provide sufficient coverage across the entire platform given the complexity and regulatory requirements. |
| 6 | DevOps Engineer | 1 | Manages the deployment pipeline, infrastructure, and monitoring. Ensures system stability and high availability. Essential for a real-time trading platform. |
| 7 | Compliance Specialist | 1 | Ensures the platform adheres to all relevant Malaysian regulations (GMRA, etc.) throughout the development lifecycle. This role is critical for risk mitigation. |
| 8 | Project Manager | 1 | Oversees the project timeline, budget, and resources, ensuring effective communication and collaboration among team members. |

The 4-month timeline is ambitious for a project of this complexity. Therefore, the team structure prioritizes experienced developers to accelerate development and minimize risks. This structure also ensures adequate QA and compliance oversight, crucial for a financial application. The inclusion of a DevOps engineer is essential for maintaining the system's stability and performance in production.

**Commercials**

**Commercials: REPO Trading Platform for Affin Moneybrokers**

This section details the costs and payment terms associated with developing the REPO trading platform for Affin Moneybrokers. We propose two approaches, each optimized for different priorities â€“ Approach 1 prioritizes speed to market with a slightly higher upfront cost, while Approach 2 emphasizes long-term cost efficiency through phased development. Both approaches remain within the allocated budget of $34,534.0 USD.

**Total Cost of Ownership**

|  |  |  |
| --- | --- | --- |
| Component | Estimated Cost ($) - Approach 1 | Estimated Cost ($) - Approach 2 |
| Infrastructure cost | $200/month | $150/month |
| Development cost | $28,000 | $25,000 |
| Power BI Licensing | $0 | $0 |
| Development Time | 12 Weeks | 16 Weeks |
| Total Project Cost | $28,400 | $25,300 |

**Infrastructure Costs**

**Approach 1:**

|  |  |  |  |
| --- | --- | --- | --- |
| Services | Sub-services | Description | Approx. Monthly Cost (in USD) |
| Azure Services | App Service Plan | Standard Tier for hosting the application. | $100 |
|  | SQL Database | Managed database service for data persistence. | $50 |
|  | Storage Account | Blob storage for data backup and archival. | $25 |
|  | Azure DevOps | Basic plan for CI/CD pipeline (enough users for 4 Months). | $25 |
| Terraform | HCP Free | UP TO 500 resources per month. | $0 |
| Total infrastructure costs (per month) |  |  | $200 |

**Approach 2:**

|  |  |  |  |
| --- | --- | --- | --- |
| Services | Sub-services | Description | Approx. Monthly Cost (in USD) |
| Azure Services | App Service Plan | Basic Tier for hosting the application (cost optimization). | $75 |
|  | Cosmos DB | Serverless database for cost-efficient data management. | $50 |
|  | Storage Account | Blob storage for data backup and archival. | $25 |
|  | Azure DevOps | Basic plan for CI/CD pipeline (enough users for 4 Months) | $0 |
| Terraform | HCP Free | UP TO 500 resources per month. | $0 |
| Total infrastructure costs (per month) |  |  | $150 |

**Milestones for Approach 1**

|  |  |  |  |
| --- | --- | --- | --- |
| Milestone | Deliverable | Delivery Timeline (In Weeks) | Amount |
| Milestone 0 | Project Kickoff, Requirements Gathering, Design | Week 0-1 | $2,000 |
| Milestone 1 | Development of Core Trading Engine | Week 2-6 | $10,000 |
| Milestone 2 | Integration with Market Data and Existing Systems | Week 7-9 | $8,000 |
| Milestone 3 | Compliance and Security Implementation, Testing | Week 10-11 | $5,000 |
| Milestone 4 | Deployment and Final Testing and Handover | Week 12 | $3,000 |
| Total Amount |  |  | $28,000 |

**Milestones for Approach 2**

|  |  |  |  |
| --- | --- | --- | --- |
| Milestone | Deliverable | Delivery Timeline (In Weeks) | Amount |
| Milestone 0 | Project Kickoff, Requirements Gathering, Design | Week 0-1 | $2,000 |
| Milestone 1 | MVP Development (Core Trading Functionality) | Week 2-8 | $8,000 |
| Milestone 2 | Integration with Market Data & Initial Compliance Measures | Week 9-12 | $7,000 |
| Milestone 3 | Enhanced Compliance, Security, and Additional Features (Phased Rollout) | Week 13-16 | $8,000 |
| Total Amount |  |  | $25,000 |

**License Cost**

No specific software licenses are required for this project beyond those included in the Azure and Terraform infrastructure costs. Both approaches leverage cloud-based services that handle licensing internally.

**Payment Terms and Conditions**

Currency: USD

Payment Schedule: Milestone-based payments as outlined in the Milestones sections for each approach. 50% upon signing the contract, 50% upon successful completion and acceptance testing of each milestone.

Invoice Terms: Invoices will be issued upon completion of each milestone. Payment is due within 14 days of invoice date.

Interest on Late Payments: A late payment fee of 1.5% per month will be applied to any overdue invoices.

Right to Halt Work: We reserve the right to halt work on the project until payment is received for any overdue invoices.