BIA/DA Proficiency Test - Business Intelligence Analyst/Data Analyst

Test Overview

Test Objectives and Deliverables

▼ Purpose, Duration, and Expected Outputs

Test Objective

- **Evaluate proficiency** in **using genAI tools (Cursor, Windsurf, Claude, etc.) for data analysis, reporting, and business intelligence**
- **Assess understanding** of data pipeline design, analytics frameworks, and business metrics
- **Measure ability** to translate business requirements into analytical solutions and clear documentation
- **Test documentation skills** following established style guidelines for cross-functional teams

Duration and Deliverables

- **Expected time commitment**:
  - This exercise is designed for you (the candidate) to do it **in OUT-OF-OFFICE time in 5 days**
  - We understand that you may be busy full time job and design this to see how much you can do in the designated timeframe
- **Primary deliverables**: `report_<task>.md` files for each selected task **(AT LEAST ONE MAIN FILE FOR EACH TASK)**
  - If you have more than one main files, name them suitably, like `report_<task>_part01_<part_name>.md`
  - You should also save your main/long prompts for workflow illustration
    - You can name the prompt file: `report_<task>_prompt.md`
    - or `report_<task>_part01_prompt.md`
- **Supplementary materials**: Code snippets, diagrams, or additional documentation **if you feel needed (OPTIONAL)**
  - Supplementary files are only for additional supporting materials only
- **Report specifications**: For reference, team standard is 1000-1500 lines per report file, 2-10 files per task
  - **You may choose your own approach** based on task complexity and your analysis needs

Task Requirements and Guidelines

Context and Expectations

▼ Core Assessment Requirements and Approach

- **Use genAI tools** (Cursor, Windsurf, Claude, etc.) to generate comprehensive analytical reports and documentation
  - **CRITICAL: You can only finish this task with genAI**
- **Choose tasks strategically** - minimum one from List A (mandatory), additional from List B (optional)
- **CRITICAL: Demonstrate understanding** - you must comprehend both content and underlying logic of your reports
- **Target audience** - write for cross-departmental understanding (Engineering, Product, Business teams should understand BIA reports)

Report Quality Standards

▼ Documentation and Writing Requirements

- **Terminology** - Have a Terminology section in your report
  - Use the terms and definitions consistently thorough the report
- **Clear and concise writing** - use short, focused bullet points instead of long sentences
- **Proper document structure** - follow `ctx_doc_style.md` guidelines exactly
- **Logical organization** - ensure progressive disclosure and scannable format
- **Technical accuracy** - all data models, metrics, and processes must be documented clearly

Visual Documentation Guidelines

▼ Illustration and Diagram Recommendations

Recommended Visualizations

- **Recommended for better understanding** - data flow diagrams, dashboard mockups, metric visualizations
- **Quick implementation methods**:
  - **Mermaid charts** - for data flow diagrams, process workflows
  - **Python visualization examples** - Plotly, Streamlit dashboard concepts
- **Time management**: Do not spend excessive time on illustrations
- **Purpose**: Enhance report clarity and stakeholder understanding
- **Integration**: Include diagrams directly in markdown reports or as supplementary files

GenAI Usage Guidelines

▼ Responsible AI Tool Usage and Verification

- **Use responsibly** - leverage tools for research, planning, and documentation generation
- **Verify accuracy** - ensure all analytical approaches and business logic are correct
- **Maintain quality** - don't sacrifice clarity for speed
- **Document sources** - include references where appropriate
- **Show your process** - demonstrate how you used GenAI tools for analysis and reporting

Submission Requirements

▼ Final Deliverable Format and Compliance

- **Primary format**: `report_<task>.md` files in markdown
  - **Saved main/long prompts**: `report_<task>_prompt.md`
- **Supplementary files**: Additional code snippets or documentation **if needed (OPTIONAL)**
- **Content focus**: Main content must be complete in primary report files
- **Style compliance**: Must follow `ctx_doc_style.md` formatting exactly

Analytics and Business Intelligence Requirements

▼ Specific Guidelines for Data Analysis and BI Tasks

Scope and Requirements

- **Focus on planning and design** - not full code implementation
- **Document the analytical logic** - detailed planning and framework design
- **Data components**: Raw data sources, schemas, transformations, metrics, dashboards
- **Documentation procedures**: Step-by-step analysis approach, stakeholder communication
- **Code snippets encouraged** - include relevant SQL, Python snippets in reports for clarity
- **Full implementation not required** - focus on comprehensive planning and documentation
- You can provide code as supplementary materials, if you feel that would clarify your solution
    - But the main logic, description should be in your main file `report_<task>.md`

Key Documentation Areas

- **Data pipeline architecture** - source to insights data flow design
- **Schema and data model design** - table structures, relationships, and data governance
- **Analytics framework** - metrics definitions, calculation logic, and business context
- **Dashboard and reporting strategy** - visualization approaches and stakeholder communication
- **Business impact measurement** - KPIs, success metrics, and actionable insights
- **Cross-functional documentation** - knowledge sharing and team collaboration workflows
- **Code examples** - SQL queries, Python analysis scripts, and visualization code

Assessment Criteria

▼ Evaluation Standards and Success Metrics

Technical Understanding

- **Depth of knowledge** - demonstrates comprehensive understanding of chosen analytical topics
  - **CRITICAL:**: You need to think in depth about every aspect of the task. Always ask yourself that what the reader (or maybe you) wants to read and to understand next. Play the role of your reader.
- **Logical reasoning** - shows clear understanding of underlying data concepts and business relationships
- **Practical application** - translates business requirements into actionable analytical plans
- **Problem-solving approach** - identifies data challenges and proposes viable analytical solutions

Documentation Quality

- **Style compliance** - follows `ctx_doc_style.md` formatting exactly
- **Clarity and conciseness** - uses bullet points effectively, avoids verbose explanations
- **Organization structure** - logical flow and progressive disclosure
- **Cross-functional accessibility** - understandable by non-technical stakeholders

GenAI Tool Proficiency

- **Effective utilization** - demonstrates skilled use of genAI tools for research and documentation
- **Content quality** - produces accurate, comprehensive, and well-structured reports
- **Responsible usage** - shows understanding of tool limitations and verification needs
- **Efficiency** - completes tasks within reasonable timeframes while maintaining quality

Professional Readiness

- **Communication skills** - writes clearly for diverse audiences
- **Attention to detail** - maintains consistency and accuracy throughout
- **Project management** - organizes work effectively and meets deliverable requirements
- **Business acumen** - shows understanding of business context and stakeholder needs

List A - Mandatory Tasks - Choose AT LEAST one task

▼ Data Analysis and Business Intelligence Core Tasks (Choose Minimum One)

A01 - Crypto Exchange Data Pipeline and Analytics Framework

What You Need to Do

Plan and design a comprehensive data pipeline and analytics framework for crypto exchange data, including documentation strategy for team knowledge sharing. Create the foundation for understanding user behavior, transaction patterns, and business performance.

Task Clarity

- **End-to-end data strategy** - from raw data ingestion to business insights
- **Documentation focus** - create knowledge base for all team members to use and share
- **Analytics framework design** - structured approach to measuring exchange performance
- **Your role** - data architect and business analyst designing analytical capabilities
- **Think scalable** - system should handle big data volumes and complex analytical queries

What You're Solving

Crypto exchanges generate massive amounts of data from user registrations, trading activities, and financial transactions. Business teams need clear insights into user behavior, revenue patterns, and operational efficiency, but raw data is complex and scattered across multiple systems.

Data Sources and Schema Design

These are example data source categories - identify the data sources that best support your specific analytics approach:

- **User data** - registrations, KYC status, demographics, account tiers
- **Trading data** - orders, executions, market data, price feeds
- **Financial data** - deposits, withdrawals, fees, revenue streams
- **Operational data** - system performance, security events, compliance logs
- **Market data** - external price feeds, trading pairs, liquidity metrics

Raw Tables and Data Model

These are example table categories - design your own schema structure that best supports your analytics approach:

- **User tables** - user profiles, verification status, account settings
- **Transaction tables** - trades, orders, settlements, fee calculations

- **Financial tables** - balances, deposits, withdrawals, P&L calculations
- **Market tables** - price history, order books, trading volumes
- **Audit tables** - compliance logs, security events, system metrics

Big Data Considerations

- **Volume handling** - strategies for processing millions of transactions daily
- **Real-time vs batch processing** - when to use streaming vs scheduled analytics
- **Data partitioning** - efficient storage and query optimization strategies
- **Performance optimization** - indexing, aggregation tables, caching strategies

Analytics Framework Areas

- **User analytics** - registration trends, active user metrics, user journey analysis
- **Transaction analytics** - trading volume, order patterns, market impact analysis
- **Revenue analytics** - fee collection, revenue by product, profitability analysis
- **Churn analysis** - user retention, dormancy patterns, reactivation strategies
- **Risk analytics** - compliance monitoring, fraud detection, market risk assessment

Deliverable Requirements

- **Data pipeline architecture** - complete flow from raw data to business insights
- **Schema design documentation** - detailed table structures, relationships, and data governance
- **Analytics framework** - metrics definitions, calculation logic, and business context
- **Big data strategy** - handling volume, velocity, and variety of exchange data
- **Transformation logic** - data cleaning, enrichment, and aggregation approaches
- **Business metrics specification** - KPIs for users, transactions, revenue, and churn
- **Documentation strategy** - knowledge sharing framework for cross-functional teams
- **Dashboard and reporting plan** - visualization strategy for different stakeholders
- **Implementation timeline** - phased approach to building analytical capabilities

A02 - AppFlyer Marketing Attribution Data Pipeline and Analysis

What You Need to Do

Plan and design a comprehensive data pipeline and analytics framework for AppFlyer tracking data, focusing on conversion analysis, attribution analysis, and channel performance comparison.

Create documentation for sharing insights across marketing, product, and business teams.

Task Clarity

- **Marketing attribution focus** - track user journey from ad click to app installation to trading
- **Channel comparison strategy** - analyze efficiency of Google, Facebook, TikTok campaigns
- **Time-based analysis** - hourly, daily, monthly performance patterns
- **Cross-functional documentation** - enable marketing and business teams to understand and use insights
- **Your role** - marketing analyst designing attribution and conversion measurement systems

What You're Solving

Marketing teams need to understand which advertising channels and campaigns are most effective at acquiring valuable users. The user journey goes: Ad Click → App Install → First App Open → Trading Activity. AppFlyer provides raw attribution data, but teams need clear insights into conversion rates, channel efficiency, and campaign ROI.

User Journey and Data Flow

- **Ad interaction** - user sees and clicks on Google/Facebook/TikTok ads
- **Attribution tracking** - AppFlyer tracks the click and attributes it to campaign
- **App installation** - user downloads and installs the trading app
- **First app open** - user opens app for the first time
- **Trading conversion** - user completes first trade or deposit

AppFlyer Data Inputs

These are typical AppFlyer data types - focus on the data elements most relevant to your analytical approach:

- **Click data** - timestamps, campaign IDs, ad network, creative details
- **Install data** - attribution windows, device info, geographic data
- **In-app events** - app opens, registration, first deposit, first trade
- **Campaign data** - campaign names, ad sets, targeting parameters
- **Cost data** - ad spend by campaign, CPC, CPM metrics

Data Transformation Strategy

- **Attribution logic** - connecting clicks to installs to conversions
- **Conversion funnel** - calculating rates at each step of user journey

- **Time window analysis** - different attribution windows (1-day, 7-day, 30-day)
- **Channel normalization** - standardizing data across Google, Facebook, TikTok
- **Campaign aggregation** - rolling up performance by campaign, ad set, creative

Analytics Framework Areas

- **Conversion analysis** - click-to-install rates, install-to-registration rates, registration-to-trading rates
- **Attribution analysis** - first-click vs last-click attribution, multi-touch attribution
- **Channel efficiency** - comparing Google vs Facebook vs TikTok performance
- **Campaign performance** - ROI, LTV, payback periods by campaign
- **Time-based patterns** - hourly conversion rates, daily trends, monthly seasonality
- **Cohort analysis** - user behavior patterns by acquisition source and time

Comparison Methodologies

- **Statistical significance** - ensuring comparisons are meaningful
- **Cohort normalization** - comparing users acquired in same time periods
- **Cost efficiency metrics** - CPA, ROAS, LTV/CAC ratios
- **Quality metrics** - not just volume but value of acquired users

Documentation and Stakeholder Strategy

- **Marketing team docs** - campaign optimization insights and recommendations
- **Business team docs** - ROI analysis and budget allocation guidance
- **Product team docs** - conversion optimization opportunities
- **Executive dashboards** - high-level performance summaries and trends

Deliverable Requirements

- **Data pipeline architecture** - AppFlyer data ingestion to business insights
- **Attribution logic documentation** - detailed methodology for connecting user actions
- **Conversion funnel analysis** - step-by-step user journey measurement
- **Channel comparison framework** - standardized methods for comparing Google, Facebook, TikTok
- **Time-based analysis strategy** - hourly, daily, monthly reporting approaches
- **Transformation logic** - data cleaning, normalization, and aggregation procedures
- **Business metrics specification** - KPIs for conversion, attribution, and channel performance
- **Statistical methodology** - ensuring accurate and meaningful comparisons

- **Stakeholder documentation plan** - tailored insights for marketing, business, and product teams
- **Dashboard and reporting strategy** - visualization approaches for different audiences
- **Implementation roadmap** - phased approach to building attribution analytics

A03 - Fraud Control Analytics and Monitoring System

What You Need to Do

Plan and design a comprehensive fraud detection and monitoring analytics framework for crypto exchange operations, including real-time alerting systems and documentation strategy for compliance and security teams. Create the foundation for identifying suspicious activities, transaction patterns, and user behavior anomalies.

Task Clarity

- **End-to-end fraud analytics strategy** - from raw transaction data to automated alerts and compliance reporting
- **Real-time monitoring focus** - streaming analytics for immediate fraud detection
- **Multi-layered detection approach** - rule-based, statistical, and behavioral analytics
- **Your role** - fraud analyst and data architect designing comprehensive monitoring capabilities
- **Think proactive** - system should prevent fraud before it impacts business or users

What You're Solving

Crypto exchanges face sophisticated fraud attempts including account takeovers, wash trading, market manipulation, and money laundering. Security and compliance teams need automated systems to detect suspicious patterns in real-time while minimizing false positives that disrupt legitimate user activities.

Data Sources and Schema Design

These are typical fraud detection data sources - identify additional data types relevant to your monitoring approach:

- **Transaction data** - deposits, withdrawals, trades, transfers, fee calculations
- **User behavior data** - login patterns, device fingerprints, IP geolocation, session activities
- **Market data** - price movements, volume spikes, order book manipulation
- **External data** - blacklisted addresses, sanctions lists, risk scoring services

- **Historical patterns** - known fraud signatures, seasonal trends, user lifecycle stages

Raw Tables and Data Model

These are example table categories - design your schema to support your specific fraud detection approach:

- **Transaction tables** - real-time transaction logs, cross-reference tables, settlement records
- **User activity tables** - session logs, device tracking, behavioral metrics
- **Risk scoring tables** - dynamic risk assessments, alert triggers, investigation workflows
- **External reference tables** - sanctions lists, blacklisted entities, risk intelligence feeds
- **Alert management tables** - case tracking, investigation status, resolution outcomes

Big Data Considerations

- **Real-time processing** - streaming fraud detection on high-volume transaction flows
- **Pattern recognition** - machine learning models for behavioral anomaly detection
- **Data retention** - compliance-driven storage requirements for audit and investigation
- **Performance optimization** - sub-second alert generation without impacting trading systems

Analytics Framework Areas

- **Transaction anomaly detection** - unusual amounts, frequencies, destinations
- **User behavior analysis** - login anomalies, device changes, velocity checks
- **Market manipulation detection** - wash trading, pump and dump schemes, spoofing
- **Money laundering monitoring** - structuring, layering, integration patterns
- **Account compromise detection** - unauthorized access, credential stuffing, social engineering

Transformation Logic

- **Real-time scoring** - continuous risk assessment and threshold monitoring
- **Pattern aggregation** - combining multiple weak signals into strong fraud indicators
- **False positive reduction** - machine learning models to improve detection accuracy
- **Alert prioritization** - intelligent routing based on risk severity and investigation capacity

Business Metrics Specification

- **Detection metrics** - true positive rates, false positive rates, detection latency
- **Investigation metrics** - case resolution times, investigation accuracy, resource utilization
- **Financial impact metrics** - prevented losses, investigation costs, compliance penalties avoided
- **System performance metrics** - processing throughput, alert response times, system availability

Deliverable Requirements

- **Fraud detection architecture** - real-time and batch processing pipeline design
- **Rule engine documentation** - configurable fraud rules and threshold management
- **Machine learning strategy** - behavioral models and anomaly detection algorithms
- **Alert management system** - prioritization, escalation, and case management workflows
- **Compliance reporting framework** - regulatory filing automation and audit trail maintenance
- **Performance metrics** - detection rates, false positive rates, investigation efficiency
- **Documentation strategy** - knowledge sharing for security, compliance, and operations teams
- **Integration plan** - connecting with existing security infrastructure and tools
- **Implementation timeline** - phased deployment approach with risk mitigation strategies

A04 - Liquidity Analytics and Market Making Performance

What You Need to Do

Plan and design a comprehensive liquidity analytics framework for crypto exchange market making operations, including spread analysis, depth monitoring, and market maker performance evaluation. Create documentation for trading teams to optimize liquidity provision and market quality.

Task Clarity

- **Multi-dimensional liquidity measurement** - spread, depth, resilience, immediacy analysis
- **Market maker performance tracking** - efficiency metrics and comparative analysis
- **Real-time monitoring focus** - continuous liquidity assessment and optimization
- **Your role** - quantitative analyst designing liquidity measurement and optimization systems
- **Think market quality** - ensuring optimal trading conditions for all market participants

What You're Solving

Crypto exchanges need deep, tight markets to attract traders and remain competitive. Trading teams require detailed analytics on liquidity provision effectiveness, market maker performance, and opportunities for improvement. Manual analysis doesn't provide the real-time insights needed for optimal market making operations.

Data Sources and Schema Design

These are key liquidity analytics data sources - focus on different aspects based on your market making analysis approach:

- **Order book data** - real-time bid/ask levels, quantities, order timestamps
- **Trade execution data** - fill prices, volumes, execution timestamps, trade IDs
- **Market maker quotes** - MM-specific bid/ask submissions, quote updates, cancellations
- **Market data feeds** - external price references, competitor spread data, cross-exchange arbitrage opportunities
- **Latency metrics** - order processing times, quote update speeds, system response times
- **Inventory positions** - real-time asset balances, position limits, risk exposure

Raw Tables and Data Model

These are example table categories - structure your data model to best serve your liquidity analysis requirements:

- **Order book tables** - real-time snapshots, historical depth records, quote lifecycle tracking
- **Execution tables** - trade records, fill analysis, market impact measurements
- **Market maker tables** - performance metrics, inventory tracking, P&L calculations
- **Benchmark tables** - competitor analysis, market standards, performance comparisons
- **System metrics tables** - latency measurements, throughput statistics, availability tracking

Big Data Considerations

- **High-frequency processing** - handling millions of order book updates and trades daily
- **Real-time calculations** - sub-second liquidity metrics for trading decisions
- **Historical analysis** - long-term trend analysis and performance attribution
- **Cross-market integration** - aggregating data from multiple trading pairs and venues

Liquidity Metrics Framework

- **Spread analysis** - bid-ask spreads across time periods and market conditions
- **Market depth** - order book thickness and price impact measurement
- **Liquidity resilience** - recovery speed after large trades
- **Transaction cost analysis** - execution quality and slippage measurement
- **Market maker efficiency** - fill rates, inventory management, profitability analysis

Transformation Logic

- **Real-time aggregation** - continuous calculation of liquidity metrics across trading pairs
- **Performance normalization** - standardizing metrics for cross-pair and cross-market comparison
- **Benchmark integration** - incorporating external market data for competitive analysis

- **Risk adjustment** - volatility-adjusted performance measurements and attribution

Business Metrics Specification

- **Liquidity quality metrics** - spread tightness, depth consistency, resilience speed
- **Market maker metrics** - fill rates, inventory turnover, risk-adjusted returns
- **Competitive metrics** - market share, relative spread performance, trader attraction
- **Revenue metrics** - market making profitability, fee generation, cost efficiency

Performance Analysis Areas

- **Comparative benchmarking** - performance vs other exchanges and market makers
- **Market condition adaptation** - liquidity provision during volatile periods
- **Cross-asset analysis** - liquidity patterns across different trading pairs
- **Time-based patterns** - intraday, weekly, monthly liquidity variations
- **Impact assessment** - measuring effects of market making parameter changes

Deliverable Requirements

- **Liquidity measurement framework** - standardized metrics and calculation procedures
- **Market maker evaluation system** - performance tracking and benchmarking
- **Real-time monitoring dashboard** - continuous liquidity assessment and alerts
- **Optimization recommendations** - strategies to improve market quality and efficiency
- **Competitive analysis** - benchmarking against other exchanges and market makers
- **Performance attribution** - identifying factors driving liquidity and market maker success
- **Documentation strategy** - knowledge sharing for trading, product, and business development teams
- **Implementation roadmap** - phased approach to building comprehensive liquidity analytics
- **Integration plan** - connecting with trading systems and risk management platforms

A05 - Customer Onboarding Journey Analytics (KYC/AML)

What You Need to Do

Plan and design a comprehensive customer onboarding analytics framework covering KYC/AML processes, including conversion funnel analysis, friction point identification, and compliance efficiency optimization. Create documentation for compliance, product, and customer experience teams to optimize onboarding while maintaining regulatory compliance.

Task Clarity

- **End-to-end onboarding analysis** - from registration to full account activation
- **Compliance efficiency focus** - balancing regulatory requirements with user experience
- **Friction point identification** - finding and addressing onboarding bottlenecks
- **Your role** - customer experience analyst designing onboarding optimization and compliance monitoring
- **Think conversion optimization** - maximizing successful onboarding while maintaining compliance standards

What You're Solving

Crypto exchanges face complex onboarding requirements balancing regulatory compliance with user experience. Teams need detailed analytics on where users drop off, why KYC processes fail, how long verification takes, and which approaches optimize both compliance and conversion rates.

Data Sources and Schema Design

These cover typical onboarding data areas - identify additional data sources relevant to your conversion optimization approach:

- **User registration data** - email, phone, country, referral source, registration timestamp, device info
- **Identity verification data** - document types, upload timestamps, verification status, rejection reasons
- **Biometric verification data** - liveness check results, face match scores, verification attempts
- **Address verification data** - proof of address documents, verification status, address matching results
- **Risk assessment data** - PEP screening results, sanctions list checks, risk scores, manual review flags
- **Document processing data** - OCR results, document quality scores, manual review requirements

Raw Tables and Data Model

These are example table categories - design your schema to support your specific onboarding analytics goals:

- **User journey tables** - registration events, step completion tracking, funnel progression
- **Verification tables** - document processing results, biometric analysis, approval workflows

- **Risk assessment tables** - screening results, compliance checks, manual review queues
- **Performance tables** - processing times, approval rates, reviewer productivity metrics
- **Communication tables** - user notifications, support interactions, feedback collection

Big Data Considerations

- **Volume scaling** - handling thousands of daily applications with multiple documents each
- **Document storage** - secure, compliant storage for identity documents with encryption
- **Real-time processing** - instant feedback for document uploads and verification status
- **Compliance requirements** - audit trails, data retention, regulatory reporting automation

Onboarding Process Analysis

- **Registration journey** - email verification, password setup, initial profile creation
- **Identity verification** - document upload, biometric verification, address confirmation
- **Risk assessment** - PEP screening, sanctions checking, source of funds verification
- **Account activation** - final approval, first deposit, initial trading activity
- **Post-onboarding engagement** - feature adoption, trading activity, retention patterns

Transformation Logic

- **Funnel calculation** - step-by-step conversion rates with confidence intervals
- **Cohort analysis** - user behavior patterns by acquisition source and time period
- **Performance aggregation** - reviewer productivity, processing time optimization
- **Risk scoring integration** - combining multiple data sources for comprehensive risk assessment

Business Metrics Specification

- **Conversion metrics** - step-by-step completion rates, overall onboarding success rates
- **Efficiency metrics** - processing times, reviewer productivity, automation rates
- **Quality metrics** - approval accuracy, false positive rates, compliance effectiveness
- **User experience metrics** - satisfaction scores, support ticket volumes, resubmission rates

Analytics Framework Areas

- **Conversion funnel analysis** - step-by-step completion rates and drop-off points
- **Time-to-activation measurement** - verification processing times and efficiency metrics
- **Failure pattern analysis** - common reasons for KYC rejection and remediation success
- **User experience optimization** - identifying friction points and improvement opportunities
- **Compliance effectiveness** - false positive rates, risk detection accuracy, audit performance

Deliverable Requirements

- **Onboarding funnel architecture** - comprehensive tracking from registration to activation
- **KYC/AML performance metrics** - processing times, approval rates, compliance effectiveness
- **User experience analysis** - friction point identification and optimization recommendations
- **Compliance monitoring system** - real-time tracking of regulatory requirement adherence
- **A/B testing framework** - methods for testing onboarding process improvements
- **Benchmarking strategy** - comparing performance against industry standards
- **Documentation strategy** - knowledge sharing for compliance, product, and customer success teams
- **Optimization roadmap** - prioritized improvements balancing compliance and user experience
- **Implementation timeline** - phased approach to building comprehensive onboarding analytics

List B - Optional Enhancement Tasks

▼ Learning and Documentation Tasks (Additional Credit)

B01 - Vector Database Tutorial

Task Description

- **Comprehensive tutorial** creation for vector database technology
- **Learning focus** - suitable for self-study and team knowledge sharing
- **Content scope**: Definitions, common tools, detailed tool analysis
- **Writing style** - simple, direct, plain language approach

Deliverable Requirements

- **Concept introduction** - vector database definitions and use cases
- **Tool comparison** - popular vector database options
- **Deep dive analysis** - detailed examination of one selected tool
- **Implementation guidance** - practical usage examples
- **Best practices** - optimization and performance considerations

B02 - Crypto Exchange Products Guide

Task Description

- **User-focused tutorial** on Centralized Exchange products
- **Product coverage**: Spot, Convert, Futures, Margin, Options
- **Perspective** - detailed user experience and functionality analysis
- **Fee analysis** - comprehensive fee structure documentation

Deliverable Requirements

- **Product explanations** - functionality from user perspective
- **Fee structure analysis** - detailed cost breakdown by product type
- **User journey mapping** - typical workflows and processes
- **Risk considerations** - user awareness and safety guidelines

B03 - Market Making Analysis

Task Description

- **Comprehensive Market Making guide** covering all aspects
- **Scope**: Functionalities, top MM services, tools, strategies
  - **Include examples of these strategies**
- **Industry focus** - current market making landscape analysis

Deliverable Requirements

- **Market making fundamentals** - core concepts and mechanisms
- **Service provider analysis** - top market making services comparison
- **Tool evaluation** - market making software and platforms
- **Strategy documentation** - common approaches and methodologies
- **Industry insights** - current trends and best practices

B04 - Crypto Custody Tutorial

Task Description

- **Complete custody solution guide** for cryptocurrency assets
- **Storage types**: Hot, warm, cold wallet strategies
- **Operational focus** - daily operations and security procedures
    - Include examples. You need to understand the purposes of these operations
- **Service evaluation** - top custody service providers

Deliverable Requirements

- **Custody fundamentals** - security models and risk management
- **Wallet strategies** - hot/warm/cold storage implementations
- **Operational procedures** - daily custody management workflows
- **Service comparison** - top custody providers analysis
- **Security best practices** - comprehensive protection strategies

B05 - Technical Analysis Tutorial (Trading)

Task Description

- **Comprehensive technical analysis guide** for cryptocurrency and traditional trading
- **Chart analysis focus** - price patterns, indicators, and trading signals
- **Practical application** - how to use technical analysis for trading decisions
- **Tool coverage** - popular charting platforms and technical analysis software

Deliverable Requirements

- **Technical analysis fundamentals** - core concepts, chart types, timeframes
- **Indicator analysis** - moving averages, RSI, MACD, volume indicators, and other key tools
- **Pattern recognition** - support/resistance, trend lines, chart patterns (head and shoulders, triangles, etc.)
- **Trading signal interpretation** - how to identify entry/exit points using technical analysis
- **Platform comparison** - TradingView, charting tools, and other technical analysis platforms
- **Risk management** - position sizing and stop-loss strategies using technical analysis
- **Case study examples** - real trading scenarios with technical analysis application

B06 - Fundamental Analysis Tutorial (Trading)

Task Description

- **Comprehensive fundamental analysis guide** for evaluating investment opportunities
- **Financial analysis focus** - company financials, economic indicators, market valuation
- **Crypto-specific fundamentals** - tokenomics, protocol analysis, adoption metrics
- **Decision-making framework** - how to use fundamental analysis for investment decisions

Deliverable Requirements

- **Fundamental analysis basics** - core principles and methodology
- **Traditional asset analysis** - P/E ratios, revenue growth, balance sheet analysis, industry comparison
- **Cryptocurrency fundamentals** - tokenomics, protocol revenue, developer activity, adoption metrics
- **Economic indicator analysis** - inflation, interest rates, GDP impact on markets
- **Valuation methods** - different approaches to determining fair value
- **Information sources** - where to find reliable fundamental data and analysis
- **Integration with technical analysis** - combining both approaches for better decisions
- **Case study examples** - fundamental analysis applied to real investment scenarios

B07 - On-Chain Analysis Tutorial

Task Description

- **Comprehensive on-chain analysis guide** for cryptocurrency markets
- **Blockchain data focus** - transaction analysis, wallet behavior, network metrics
- **Tools and platforms** - on-chain analytics platforms and data interpretation
- **Trading applications** - how to use on-chain data for investment decisions

Deliverable Requirements

- **On-chain analysis fundamentals** - what blockchain data reveals about market behavior
- **Key metrics analysis** - active addresses, transaction volume, network hash rate, whale movements

- **Wallet behavior analysis** - identifying smart money, retail vs institutional patterns
- **Network health indicators** - congestion, fees, validator/miner behavior
- **Platform comparison** - Glassnode, Nansen, Dune Analytics, and other on-chain tools
- **Trading signal identification** - how to spot market trends using on-chain data
- **DeFi-specific analysis** - TVL, yield farming patterns, protocol token flows
- **Case study examples** - real market events explained through on-chain data

B08 - Real World Assets (RWA) Tutorial

Task Description

- **Comprehensive Real World Assets guide** covering tokenization of physical assets
- **Asset tokenization focus** - how physical assets become digital tokens
- **Market analysis** - current RWA projects, platforms, and market opportunities
- **Technical implementation** - blockchain infrastructure for RWA tokenization

Deliverable Requirements

- **RWA fundamentals** - definition, benefits, and challenges of asset tokenization
- **Asset categories** - real estate, commodities, debt instruments, equity, art, and other physical assets
- **Tokenization process** - technical steps to convert physical assets to blockchain tokens
- **Platform analysis** - major RWA platforms, protocols, and infrastructure providers
- **Regulatory considerations** - legal framework, compliance requirements, and jurisdictional differences
- **Market opportunities** - current trends, investment potential, and growth areas
- **Technical architecture** - smart contracts, oracles, and blockchain infrastructure for RWA
- **Case study examples** - successful RWA tokenization projects and their implementation details

B09 - Product-UIUX-Designer Team Analysis

Task Description

- **Comprehensive team structure analysis** for Product-UIUX-Designer organizations
- **Role definition focus** - detailed breakdown of responsibilities and sub-roles

- **Cross-team interaction** - how this team collaborates with engineering, business, and other departments
- **Operational workflow** - daily activities, project lifecycle, and deliverable processes

Deliverable Requirements

- **Team structure breakdown** - Product Manager, UI Designer, UX Designer, UX Researcher roles and sub-specializations
- **Role responsibilities** - detailed daily activities, key deliverables, and success metrics for each role
- **Sub-role analysis** - specialized positions like Service Designer, Interaction Designer, Visual Designer
- **Cross-functional collaboration** - interaction patterns with Engineering, Data Analytics, Business Development, Marketing
- **Workflow documentation** - project lifecycle from concept to launch, including design sprints and iteration cycles
- **Tool ecosystem** - Figma, Adobe Creative Suite, prototyping tools, user research platforms
- **Communication protocols** - how design decisions are communicated and implemented across teams
- **Success measurement** - KPIs, user feedback integration, and design impact assessment

B10 - Product Management Office (PMO) Analysis

Task Description

- **Comprehensive Product Management Office guide** covering organizational structure and operations
- **PMO functions focus** - strategic planning, resource allocation, project coordination
- **Cross-departmental role** - how PMO interfaces with all business units
- **Operational excellence** - processes, methodologies, and best practices

Deliverable Requirements

- **PMO fundamentals** - definition, purpose, and organizational positioning
- **Core functions** - portfolio management, resource planning, process standardization, performance tracking
- **Role structure** - PMO Director, Program Managers, Project Coordinators, Business Analysts

- **Strategic planning** - roadmap development, priority setting, resource allocation strategies
- **Cross-functional coordination** - interaction with Engineering, Sales, Marketing, Finance, Operations
- **Process management** - standardized workflows, documentation requirements, quality assurance
- **Performance measurement** - KPI tracking, project success metrics, team productivity analysis
- **Tools and systems** - project management software, collaboration platforms, reporting dashboards
- **Best practices** - successful PMO implementation strategies and common pitfalls to avoid