

BAQI AI

Multi-Agent Investment Intelligence Platform

MY ROLE	DOMAIN	BUILT FOR	YEAR
Lead AI Systems Engineer	AI Agents · ML · FinTech	JS Bank PROCOM '26	2025–2026

Turns a bank statement into a personalized, Shariah-compliant investment portfolio — fully automated by 5 AI agents in under 60 seconds.

■ Claude Sonnet 4	■ CrewAI	■ FastAPI
■ React 19	■ Scikit-learn	■ Supabase
■ Vite	■ LangChain	■ PSX API

Name origin: BAQI (باقی) means *leftover* in Urdu — the investable surplus hidden inside your spending that most people never find.

Why 78% of Pakistanis Don't Invest

No Clarity on Surplus	People don't know how much they can actually afford to invest after all fixed and variable expenses. No existing tool solves this with real transaction data.
No Accessible Analysis	Analyzing PSX stocks requires financial expertise most people don't have. Existing apps show raw charts — not personalized, plain-language recommendations.
No Shariah Guarantee	Islamic finance compliance is either ignored entirely or manually checked. 78% of Pakistan's population requires halal-only investments — this is a systemic gap.

BAQI AI: End-to-End Automated Investment Intelligence

A full-stack AI platform that ingests a raw bank statement and outputs a personalized, Shariah-compliant investment portfolio — with specific PSX ticker symbols, PKR amounts, 21-day ML price forecasts, and plain-language rationale. Zero financial expertise required from the user.

	BAQI AI	Generic Robo-Advisors	PSX Apps
Behavioral data analysis	✓	✗	✗
21-day ML price forecasts	✓	✗	Partial
Shariah compliance (automated)	✓	✗	✗
Plain-language for non-experts	✓	Partial	✗
Multi-agent AI reasoning	✓	✗	✗
One-click portfolio execution	✓	✓	✗

4-Stage Automated Workflow

Claude Sonnet 4 parses bank statement

- Accepts CSV or PDF bank statements in any format
- Claude Sonnet 4 categorizes 3,000+ transactions automatically
- Extracts 14 behavioral signals: merchant loyalty, binge days, subscriptions, lifestyle scores
- Outputs financial personality archetype (e.g. 'The Urban Nomad', 'The Disciplined Saver')
- Generates 7 AI-discovered actionable insights per user

02 BAQI Calculation Engine

Spending classification + investable surplus

- Classifies every transaction: Fixed Costs / Discretionary / Watery Spending
- Fixed: rent, utilities, loan payments, recurring subscriptions — obligations
- Discretionary: groceries, transport, healthcare — optimizable
- Watery: food delivery, impulse buys, entertainment — money leaks
- Current BAQI = Income - (Fixed + Discretionary + Watery)
- Potential BAQI = BAQI + 50% of Watery Spending
- Example: PKR 150,000 income → PKR 48,000 today → PKR 55,600 potential

03 5-Agent AI Orchestra

CrewAI sequential multi-agent pipeline

- Agent 1 (Spending Analyst): Queries Supabase, calculates full BAQI breakdown
- Agent 2 (Risk Specialist): Scores risk from quiz + age → Conservative / Moderate / Aggressive
- Agent 3 (Market Analyzer): Reads proprietary PSX ML engine → bullish/neutral/bearish
- Agent 4 (Shariah Officer): Screens via KMI-30 + Meezan Bank criteria — zero shortcuts
- Agent 5 (Strategist): Builds final portfolio with tickers, PKR amounts, expected returns
- Sequential execution — each agent feeds full context to the next

04 21-Day PSX ML Forecast

- Ensemble: SVM (35%) + MLP (35%) + Gradient Boosting (15%) + Ridge (15%)

- 85% directional accuracy — validated on Pakistani stocks in academic literature
- Features: USD/PKR rate, KSE-100 beta, oil price, gold price, KIBOR rate
- Wavelet denoising (Daubechies db4) reduces RMSE by 30–42%
- Confidence: Day 1-7 = 95% · Day 8-14 = 80% · Day 15-21 = 60%
- Hysteresis algorithm prevents prediction flip-flopping
- 3-tier fallback: Live Cache → Seed Data → Hardcoded Baseline (zero downtime)

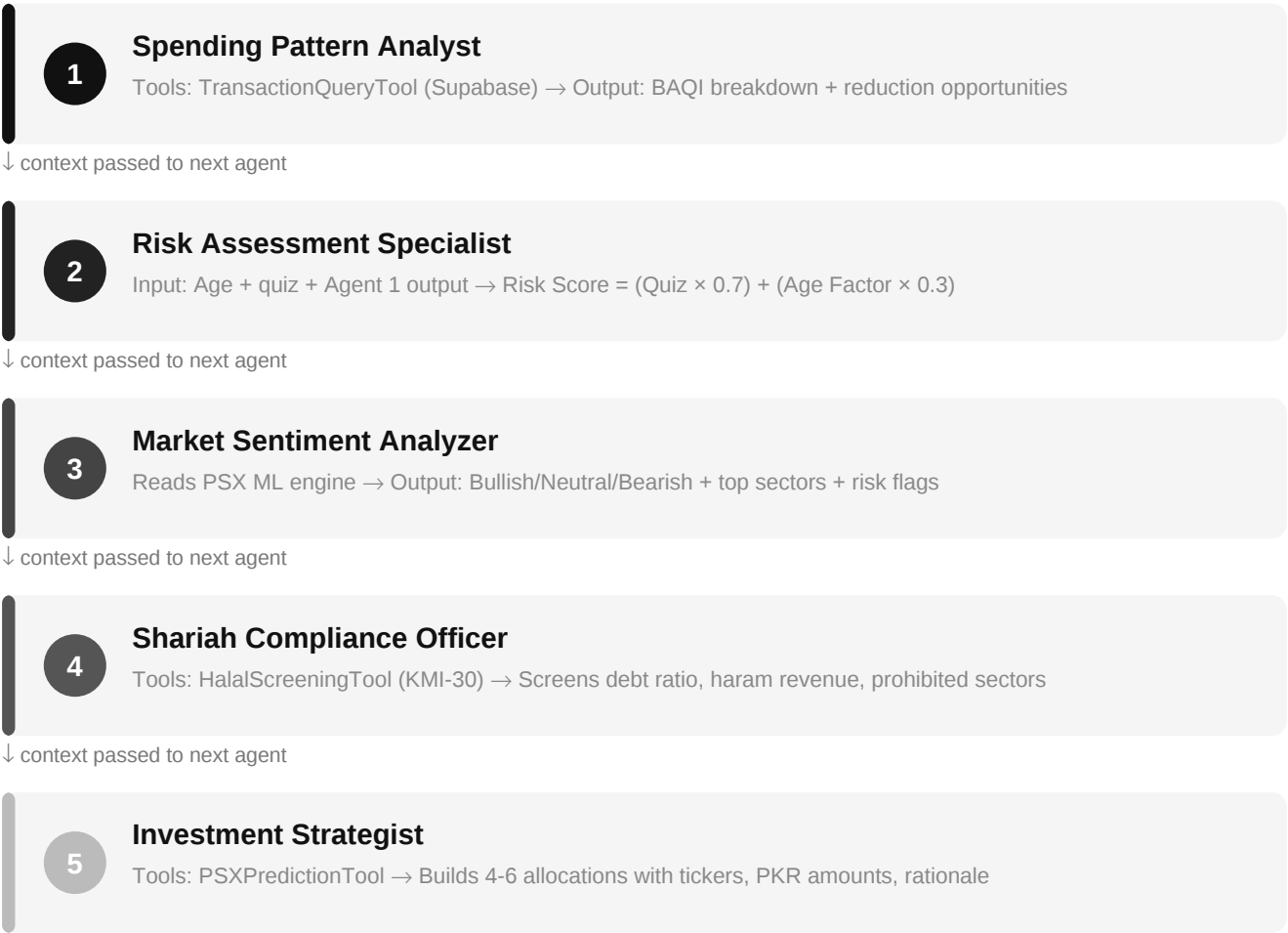
Full-Stack Architecture

LAYER	TECHNOLOGIES	PURPOSE
AI / Agents	Claude Sonnet 4 · CrewAI · LangChain	LLM reasoning, multi-agent orchestration
ML Engine	Scikit-learn · SVM · MLP · GradientBoosting · PyWavelets	21-day PSX price forecasting
Backend	FastAPI · Python · Supabase (PostgreSQL)	Async API, database, auth
Frontend	React 19 · Vite · TailwindCSS · Framer Motion · Recharts · Shadcn/ui	Dashboard & portfolio UI
Data Sources	PSX DPS API · Yahoo Finance · State Bank of Pakistan	Real-time market & macro data
Integrations	Telegram Bot API · Anthropic API	Mobile notifications & LLM access
Compliance	KMI-30 Index · Meezan Bank Shariah Criteria	Islamic finance screening

Measured Outcomes

85% Directional accuracy on 21-day PSX forecasts	60s Bank statement to full portfolio — end-to-end	3,000+ Transactions analyzed per user per run	14 Behavioral signals extracted per statement
5 Autonomous AI agents with context passing	30–42% RMSE reduction via wavelet denoising	100% Shariah-compliant via dual-layer screening	0 Downtime — 3-tier fallback system

5-Agent Sequential Pipeline (CrewAI + Claude Sonnet 4)



Risk Profile → Portfolio Allocation

RISK PROFILE	EQUITY	FIXED INCOME	MUTUAL FUNDS	FORMULA
Conservative	20%	60%	20%	Low risk tolerance / older age
Moderate	40%	30%	30%	Balanced quiz + age score
Aggressive	60%	10%	30%	High tolerance / younger profile

Built by **Shahmeer I.** — AI Automation Architect specializing in agentic systems, multi-agent pipelines, and production-grade automation at scale.

Upwork Profile
[upwork.com/freelancers/~01f43ec6e4961fa3e](https://www.upwork.com/freelancers/~01f43ec6e4961fa3e)