



FinBuddy – Technical Specification

Version: v1.0 (Initial Prototype for Replit Core / Bolt.new)



1. Application Overview

FinBuddy is an AI-powered financial education platform that helps users understand complex finance and economic concepts in simple, relatable terms. It delivers topic cards with real-world examples, interactive quizzes, and real-time market data using GPT-4 and finance APIs.

Users can explore topics like inflation, tariffs, bonds, and options, and see how current market conditions connect to these ideas. Over time, users can track progress, ask finance-related questions in a chat-style interface, and simulate market scenarios.

2. Architecture Overview

Frontend (Replit or Bolt.new)

- **Framework:** React (preferred for Replit Core) or Svelte (for Bolt.new)
- **Views:**
 - Topic Explorer UI (card grid, search bar, filters)
 - Topic Detail View (explanation, example, quiz)
 - Real-time Data Panels (linked to concepts)
 - Chat Interface (Q&A in Phase 3)
 - Learning Dashboard (Phase 4)

Backend

- **Framework:** FastAPI (preferred) or Flask
- **Responsibilities:**

- Handle topic content and quiz delivery
- Serve API responses to frontend
- Route user prompts to GPT engine
- Manage user learning state & saved data

Database

- **Option A (Replit):** PostgreSQL
- **Option B (Bolt.new):** Firebase
- **Stores:**
 - Users + progress
 - Topics + structured content
 - Quiz results + retry counts
 - Bookmarks, saved questions

External Integrations

- **Market Data APIs:**
 - Alpha Vantage (free tier)
 - Twelve Data (free tier)
 - Finnhub.io (free tier)
- **AI Services:**
 - OpenAI GPT-4 API

🔗 3. AI Prompt & Processing Flow

1. **Topic Generation** (Phase 1)

- Use predefined prompts per topic for:
 - Simple explanation
 - Real-world analogy
 - Short quiz
 - Optional: summary feedback on user answers

2. **Real-time Q&A** (Phase 3)

- User inputs question (e.g., "What happens to bonds when inflation rises?")
- Send prompt to GPT-4 with:
 - System role: financial educator
 - Style: simple, human-friendly, with examples

3. **Scenario Simulation** (Phase 5)

- Use GPT to simulate expected effects from user-defined scenarios
- e.g., "Inflation hits 7% and interest rates stay flat"



4. **Prompt Engineering Examples**

Each topic card is backed by reusable GPT prompts:

- "Explain [concept] like I'm 12, using a real-life analogy."
- "Generate 3 quiz questions on [concept] with 1 correct and 2 distractor answers."
- "Correct this user misunderstanding about [concept] with a friendly explanation."
- "Simulate Buffett's view on [concept]."

- "Fit [economic event] into Ray Dalio's economic machine model."
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5. Example User Flow (Phase 1)

User Asks: What are treasury yields?

System Flow:

- Pull topic card: "Yields"
 - Render explanation: plain-language definition
 - Display example: "Loaning \$100 to the U.S. government for 10 years..."
 - Load real-time chart: 10-year yield via Alpha Vantage
 - Quiz: 2 multiple-choice questions
 - Save progress
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6. Suggested File Structure

finbuddy/

```
|— frontend/
|   |— App.jsx
|   |— components/
|       |— TopicCard.jsx
|       |— QuizModule.jsx
|       |— MarketPanel.jsx
|       |— ChatBotUI.jsx
|— backend/
|   |— main.py
|   |— routes/
```

- | | | — topics.py
- | | | — quiz.py
- | | | — ask_gpt.py
- | | — prompts/
- | | | — templates.py
- | | | — scenarios.py
- | — database/
- | | — schema.sql (or firestore.rules)
- | | — seed_data.py
- | — assets/
- | — README.md
- | — requirements.txt

✅ 7. MVP Milestones

Phase	Feature	Description
1	Topic Explorer	Explanation + Example + Quiz
2	Live Data Panels	Integrate free API stock/yield data
3	Chat Mode	Plain-language Q&A via GPT
4	Personal Progress	Track learning state and quizzes
5	Scenario Playground	Simulated economic outcomes

🛡️ 8. Disclaimers & Legal Module

- All AI explanations and outputs must include:

"This content is AI-generated and for educational purposes only. It is not financial advice. Please consult a licensed financial advisor before making investment decisions."

To maintain academic and ethical standards, all instructional content generated by the AI must be clearly marked as derivative and exploratory. These outputs should serve as pedagogical scaffolding, not as actionable investment guidance. Users are expected to independently verify information and consult credentialed professionals before undertaking any financial decision-making processes.
