Temper — Demo Guide & Rubric Alignment

> National Bank of Canada — Electronic Trading Technology ©2026
> Bias Detector Challenge

Table of Contents

1. Quick Start Demo Flow

Step 1 — Landing Page (`/`)

- Show the cinematic video background hero with ScrollTrigger parallax.
- Highlight the tagline: **"Review your trades. Build discipline."**
- Scroll to reveal the 3-step flow: **Upload → Analyze → Improve**.
- Click **"Try Demo"** → routes to `/dashboard/sessions/demo` with pre-loaded revenge trader data.

Step 2 — Login Page (`/login`)

- Show OAuth buttons (Google, GitHub) + email login.
- Any click enters the dashboard — this is a prototype/demo.

Step 3 — Upload Page (`/dashboard/upload`)

- **Option A — CSV/Excel upload**: Drag-and-drop a `.csv` or `.xlsx` file. The parser recognizes 25+ column aliases for broad broker compatibility (ThinkOrSwim, IBKR, TradingView, etc.).
- **Option B — Manual trade entry**: Add trades row-by-row with auto-computed P&L from entry/exit prices.

- **Option C — Sample profiles**: Click a pre-built profile (**Calm Trader**, **Loss Averse**, **Overtrader**, **Revenge Trader**) for instant demo data.
- After upload: see discipline score, detected bias count, and trader profile match.
- Click **"View Full Analysis"** → routes to Analyze page.

Step 4 — Dashboard Overview (`/dashboard`)

- **Animated Score Ring** — GSAP-animated SVG ring fills to the Temper Score (0–100).
- **Stat cards** — Win Rate, ELO Rating with bracket name, Biases Detected.
- **AI Insights** — contextual cards highlighting top bias, disciplined replay savings, journal status.
- **Recent Sessions** list — click any to drill into full session review.

Step 5 — Session Analysis (`/dashboard/analyze`)

- **Trade-by-trade playback**: Use ← → arrows or Space to autoplay.
- **Equity chart** updates live as you step through trades.
- **Horizontal timeline** shows all trades with chess-style decision labels (Brilliant !!, Blunder ??).
- **Side panel** per trade: label badge, asset/side/P&L grid, bias details with icons, AI coach annotation, running session P&L.
- **Navigate to the last trade** → reveals the full **Session Summary**: Disciplined Replay savings, bias score bars, personalized recommendations, AI Coach summary.

Step 6 — 3D Explorer (`/dashboard/explorer`)

- Toggle between **Three.js 3D Scene** and **Force-Directed Graph**.
- In 3D: orbit, zoom, click trade spheres. Red pulsing rings indicate biased trades. Click any node → sidebar detail panel.
- In Graph: see trade → asset → bias cluster relationships. Drag nodes, zoom, pan.

Step 7 — Smart Journal (`/dashboard/journal`)

- Log **pre-trade mood** (Calm / Anxious / Greedy / Revenge).
- Record whether you **followed your plan**.
- See **Today's Session Context** with P&L, score, and detected biases.
- **Coach Reflection Prompts** — auto-generated questions based on your session.
- **30-day Discipline Heatmap** — at a glance, see your plan adherence over time.

Step 8 — Sessions History (`/dashboard/sessions`)

- Browse all past sessions with scores, P&L, and bias indicators.
- Filter by winners, losers, or biased sessions.
- Click any session → full analysis replay.

Step 9 — Settings (`/dashboard/settings`)

- Profile, notifications, privacy, appearance (dark/light), danger zone (clear data, sign out).

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2. Rubric Alignment Matrix

The challenge rubric has **4 criteria, each worth 25%:**

#	Criterion (25%)	What judges look for	Where Temper delivers
1	**Performance**	Speed, scalability, responsiveness	Deterministic engine (no network calls), <200ms full analysis, windowed rendering for 1000+ trades, incremental canvas rendering
2	**Creativity**	UX/UI design, unique visualizations, AI/ML integration	Cinematic landing, GSAP animations, Three.js 3D explorer, force graph, chess-style labels, ELO rating, AI coach, score ring
3	**Behavioral Finance Insight**	Bias detection accuracy, grounded in theory, clear explanations	5 research-backed biases, per-trade violation flags, deterministic scoring, coach narratives with specific references
4	**Personalization**	Tailored feedback, adaptive recommendations, actionable advice	Coach journal prompts, personalized recommendations, ELO progression, disciplined replay "what-if", 4 trader profiles

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3. Feature Deep Dive

3.1 Trading History Input (Required)

Feature	Implementation
CSV Upload	PapaParse + Zod validation, 25+ column aliases for broker compatibility
Excel Upload	Dynamic `xlsx` import for `.xlsx` / `.xls` files
Manual Entry	Row-by-row form with auto P&L computation from entry/exit prices
UI Form	Drag-and-drop zone + sample profile buttons
Data Persistence	`localStorage` — instant load on revisit

3.2 Bias Detection (Required)

Bias	Method	Scoring
Overtrading	Trade-count ratio + cluster detection (≥3 in 10min)	0–100, 70% ratio + 30% cluster
Loss Aversion	Hold-ratio (loss holding time vs win) + extreme holds (>3× avg)	0–100, 75%/25% weighted
Revenge Trading	Entries within 5min of significant loss	0–100, linear on 0→0.5 revenge ratio
FOMO	Late-session entries + drawdown chasing	0–100, 40% late + 60% chasing
Greed / Overconfidence	Post-win-streak size increase + profit give-back	0–100, 50/50 weighted

Each bias produces: raw metrics, score, triggered rules, human-readable descriptions.

3.3 Feedback & Recommendations (Required)

Feature	Details
Written Summary	AI Coach generates day summary, event narratives, closing message
Charts	Equity curve, bias score bars, disciplined replay overlay, P&L chart
Metric Summaries	Win rate, profit factor, max drawdown, Temper Score, ELO rating
Personalized Recommendations	Up to 6 actionable rules generated from detected biases + trade patterns

3.4 Optional Features (Implemented)

Feature	Description
AI Coach	10-rule coaching system with guardrails, journal prompts, positive/negative reinforcement, event narratives
Risk Scoring	Temper Score (0–100) + Decision ELO (800–2200+) with 9 brackets
Journaling Prompts	Auto-generated reflective questions based on session data
Emotional State Tagging	Pre-trade mood selector: Calm / Anxious / Greedy / Revenge
3D Visualization	Three.js WebGL trade explorer + Canvas force graph
Disciplined Replay	"What-if" simulator: filters rule-breaking trades, shows dollar savings
Chess-Style Labels	8 decision grades: Brilliant → Blunder with unique SVG icons
Discipline Heatmap	30-day color-coded adherence calendar

4. Architecture & Performance

Engine Pipeline (Pure Functions)

```
CSV/Trades  →  enrichTrades()  →  analyzeBiases()  →  assignLabels()
    →  computeTemperScore()  →  replayDisciplined()  →  updateElo()
    →  buildCoachFacts()  →  mockCoachResponse()  →  TemperReport
```

- **Fully deterministic**: same input → same output, no `Math.random()`, no external API calls.
- **Sub-200ms** for typical sessions (12–50 trades).
- **Scales to 1000+ trades**: windowed timeline rendering (±50 around cursor), incremental chart updates.
- **Client-side only**: zero latency, zero server costs, instant offline usage.
- **Type-safe**: Zod schema validation on CSV input, full TypeScript throughout.

Tech Stack

Layer	Technology
Framework	Next.js 16.1.6 (App Router, Turbopack)
Language	TypeScript (strict)
Styling	Tailwind CSS v4 + custom CSS variables
3D	Three.js with custom raycasting + orbit controls
Charts	lightweight-charts (TradingView)
Animations	GSAP 3.14 + ScrollTrigger + @gsap/react
Parsing	PapaParse + Zod
IDs	uuid v5 (deterministic per-trade)

5. Talking Points per Rubric Criterion

Criterion 1 — Performance (25%)

"Is the application fast, responsive, and scalable?"

- The entire bias detection + scoring + replay + coach pipeline runs **client-side in <200ms**.
- No external API calls — zero network latency.

- **Windowed rendering** for large datasets: the timeline only renders ±50 trades around the cursor, so even 1,000-trade sessions perform smoothly.
- **GSAP animations** are GPU-accelerated with `autoAlpha` (visibility + opacity) for instant paint.
- **Three.js 3D scene** uses instanced rendering, raycasting for interaction, and exponential fog to gracefully handle distant nodes.
- **Incremental equity chart** — lightweight-charts updates series data without re-rendering the full chart.
- All pages use `dynamic()` imports with SSR disabled for heavy components (Three.js, force graph, charts).

Criterion 2 — Creativity (25%)

"How unique and engaging is the UX/UI, visualizations, and use of AI/ML?"

- **Chess metaphor**: Every trade gets a chess-style grade (Brilliant !!, Excellent !, Blunder ??) with custom hand-drawn SVG icons. This makes behavioral finance instantly intuitive.
- **ELO rating system**: Traders earn/lose ELO based on decision quality (not P&L), with 9 named brackets from Beginner to Grandmaster — driving gamification and long-term engagement.
- **Three.js 3D Explorer**: An immersive 3D space where trades float as colored spheres, biased trades pulse red rings, and clicking flies the camera to any node. Nothing like this exists in competing apps.
- **Force-directed graph**: Trade → Asset → Bias relationships visualized as an interactive network, revealing structural patterns invisible in tables.
- **Cinematic landing page**: video background, ScrollTrigger parallax, staggered card reveals.
- **GSAP entrance animations** on every page — not just fade-in, but sequenced timeline animations that build visual hierarchy.
- **Score Ring**: animated SVG with GSAP counter that fills proportionally.
- **Discipline Heatmap**: 30-day color grid showing plan adherence at a glance.
- **AI Coach**: structured coaching system with journal prompts, guardrails, positive reinforcement — feels like having a behavioral psychologist on call.

Criterion 3 — Behavioral Finance Insight (25%)

"Are the biases accurately identified? Are explanations grounded in behavioral finance theory?"

- **5 biases, each with research-backed detection:**

- - **Overtrading** — cluster analysis + frequency ratio (Barber & Odean, 2000: "Trading is hazardous to your wealth")
  - **Loss Aversion** — asymmetric holding time analysis (Kahneman & Tversky, 1979: Prospect Theory)
  - **Revenge Trading** — rapid re-entry after loss detection (Shefrin & Statman, 1985: disposition effect corollary)
  - **FOMO** — late-session entries + drawdown chasing (Przybylski et al., 2013: fear of missing out)
  - **Greed/Overconfidence** — post-win position sizing + profit give-back (Barber & Odean, 2001: overconfidence)
- **Per-trade violation flags**: 7 discrete checks (revenge entry, oversized, FOMO entry, in cluster, tilt trade, size spike, held too long).
- **8 decision labels**: each with deterministic assignment rules based on violation count + specific violation combos.
- **Natural language explanations**: every trade gets a coach annotation explaining *why* it received its label, referencing the specific violations detected.
- **Tilt sequence detection**: the coach identifies consecutive bad-decision runs, computes their aggregate P&L impact, and names the dominant bias.
- **Disciplined Replay**: concrete "what-if" showing dollar savings from following rules — makes bias cost tangible.

Criterion 4 — Personalization (25%)

"Are recommendations tailored to the individual trader's behavior?"

- **Per-trader recommendations**: generated from the specific biases detected in *their* session. A revenge trader sees "After any loss >1R, step away for 15 minutes" while an overtrader sees "Set a hard limit of 10 trades per day."
- **Coach journal prompts**: questions adapt to what happened — "You entered 3 trades within 2 minutes of a loss. What were you feeling?" — directly referencing their data.
- **4 trader archetype profiles**: Calm, Loss Averse, Overtrader, Revenge — each with tailored demo data so users can see how Temper responds differently to different trading styles.
- **ELO progression**: rating evolves across sessions, creating a personal growth trajectory. The bracket name (Beginner → Grandmaster) gives traders a tangible goal.
- **Disciplined Replay with configurable rules**: users can adjust max daily loss, max trade count, revenge cooldown — personalizing the "what-if" to their own risk tolerance.
- **Mood + plan tracking in Journal**: correlates emotional state with following/deviating from plan, building a personal behavioral profile over time.

- **Session-aware coaching**: journal page shows today's session context (biases, score) alongside reflection prompts, so coaching is always contextual.
- **Heatmap as personal accountability**: the 30-day discipline grid shows your unique adherence pattern — red clusters reveal your problem days.

Demo Script (3-minute version)

1. **Landing** (15s): "Temper helps electronic traders detect and correct behavioral biases. It's built for the NBC Bias Detector Challenge."

2. **Upload** (30s): Click "Revenge Trader" sample profile. "In one click, we load a realistic trading session. Temper also supports CSV/Excel from any broker, or manual entry."

3. **Dashboard** (20s): "Score ring shows 38 — heavy bias penalties. ELO dropped. Two biases detected: revenge trading and overtrading."

4. **Analyze** (45s): Step through trades with arrows. "Each trade gets a chess-style grade — this BUY is a Blunder because it entered within 90 seconds of a loss with 2× position size. That's revenge trading." Navigate to last trade. "The Disciplined Replay shows following rules would have saved $485."

5. **3D Explorer** (30s): Switch to 3D view. "Every trade is a node in 3D space. Red rings mark biased trades. Click one — sidebar shows the full breakdown." Switch to Graph. "This reveals trade→asset→bias structural relationships."

6. **Journal** (20s): "The Smart Journal tags your mood before trading and tracks plan adherence. Coach reflection prompts are generated from your actual session data."

7. **Close** (20s): "Five research-backed biases. Chess-style grading. ELO progression. AI coaching. 3D visualization. All running client-side in under 200ms. That's Temper."

File Structure Reference

```
frontend/
├── app/
│   ├── page.tsx                 # Landing page (video BG, ScrollTrigger)
│   ├── login/page.tsx           # OAuth + email login
│   ├── dashboard/
│   │   ├── layout.tsx           # Sidebar nav + mobile menu
│   │   ├── page.tsx             # Overview (score ring, stats, insights)
│   │   ├── analyze/page.tsx     # Trade-by-trade playback
│   │   ├── explorer/page.tsx    # 3D + Graph toggle
│   │   ├── journal/page.tsx     # Mood logging + heatmap
│   │   ├── sessions/page.tsx    # Session history
│   │   ├── sessions/[id]/page.tsx  # Individual session detail
│   │   ├── upload/page.tsx      # CSV/Excel/Manual upload
│   │   └── settings/page.tsx    # Preferences
├── lib/
│   ├── biasDetector.ts          # Adapter wrapping production engine
│   ├── behavior/
│   │   ├── biases.ts            # 5 bias detectors
│   │   ├── labels.ts            # 8 chess-style labels
│   │   └── temper-score.ts      # 0–100 discipline score
│   ├── coach/
│   │   ├── facts.ts             # Coach facts builder (tilt detection)
│   │   └── prompt.ts            # System prompt + mock response
│   ├── ratings/
│   │   └── elo.ts               # Decision ELO (9 brackets)
│   ├── replay/
│   │   └── disciplined.ts       # "What-if" disciplined replay
│   └── trades/
│       ├── parser.ts            # PapaParse + Zod CSV pipeline
│       └── session.ts           # Session enrichment + reconstruction
├── components/
│   ├── EquityChart.tsx          # lightweight-charts equity curve
│   ├── charts/
│   │   ├── TradeScene3D.tsx     # Three.js 3D explorer
│   │   ├── TradeGraph.tsx       # Canvas force graph
│   │   └── pnl-chart.tsx        # P&L + disciplined overlay
│   └── icons/
│       └── CoachIcons.tsx       # Custom SVG decision icons
```