



CollabCanvas Rubric

Total Points: 100

Section 1: Core Collaborative Infrastructure (30 points)

Real-Time Synchronization (12 points)

Excellent (11-12 points)

- Sub-100ms object sync
- Sub-50ms cursor sync
- Zero visible lag during rapid multi-user edits

Good (9-10 points)

- Consistent sync under 150ms
- Occasional minor delays with heavy load

Satisfactory (6-8 points)

- Sync works but noticeable delays (200-300ms)
- Some lag during rapid edits

Poor (0-5 points)

- Inconsistent sync
- Frequent delays over 300ms
- Broken under concurrent edits

Conflict Resolution & State Management (9 points)

Excellent (8-9 points)

- Two users edit same object simultaneously → both see consistent final state
- Documented strategy (last-write-wins, CRDT, OT, etc.)
- No "ghost" objects or duplicates
- Rapid edits (10+ changes/sec) don't corrupt state
- Clear visual feedback on who last edited

Good (6-7 points)

- Simultaneous edits resolve correctly 90%+ of time
- Strategy documented
- Minor visual artifacts (brief flicker) but state stays consistent
- Occasional ghost objects that self-correct

Satisfactory (4-5 points)

- Simultaneous edits sometimes create duplicates
- Strategy unclear or undocumented
- State inconsistencies require refresh
- No indication of edit conflicts

Poor (0-3 points)

- Simultaneous edits frequently corrupt state
- Objects duplicate or disappear
- Different users see different canvas states
- Requires manual intervention to fix

Testing Scenarios for Conflict Resolution:

1. Simultaneous Move: User A and User B both drag the same rectangle at the same time
2. Rapid Edit Storm: User A resizes object while User B changes its color while User C moves it
3. Delete vs Edit: User A deletes an object while User B is actively editing it
4. Create Collision: Two users create objects at nearly identical timestamps

Persistence & Reconnection (9 points)

Excellent (8-9 points)

- User refreshes mid-edit → returns to exact state
- All users disconnect → canvas persists fully
- Network drop (30s+) → auto-reconnects with complete state
- Operations during disconnect queue and sync on reconnect
- Clear UI indicator for connection status

Good (6-7 points)

- Refresh preserves 95%+ of state
- Reconnection works but may lose last 1-2 operations
- Connection status shown
- Minor data loss on network issues

Satisfactory (4-5 points)

- Refresh loses recent changes (last 10-30 seconds)
- Reconnection requires manual refresh
- Inconsistent persistence
- No clear connection indicators

Poor (0-3 points)

- Refresh loses significant work
- Reconnection fails or requires new session
- Canvas resets when last user leaves
- Frequent data loss

Testing Scenarios for Persistence:

1. Mid-Operation Refresh: User drags object, refreshes browser mid-drag → object position preserved
2. Total Disconnect: All users close browsers, wait 2 minutes, return → full canvas state intact
3. Network Simulation: Throttle network to 0 for 30 seconds, restore → canvas syncs without data loss
4. Rapid Disconnect: User makes 5 rapid edits, immediately closes tab → edits persist for other users

Section 2: Canvas Features & Performance (20 points)

Canvas Functionality (8 points)

Excellent (7-8 points)

- Smooth pan/zoom
- 3+ shape types
- Text with formatting
- Multi-select (shift-click or drag)
- Layer management
- Transform operations (move/resize/rotate)
- Duplicate/delete

Good (5-6 points)

- All basic requirements met
- 2+ shapes

- Transforms work well
- Basic text support

Satisfactory (3-4 points)

- Basic shapes and movement
- Limited transform capabilities
- Single selection only

Poor (0-2 points)

- Missing core features
- Broken transforms
- Poor or no text support

Performance & Scalability (12 points)

Excellent (11-12 points)

- Consistent performance with 500+ objects
- Supports 5+ concurrent users
- No degradation under load
- Smooth interactions at scale

Good (9-10 points)

- Consistent performance with 300+ objects
- Handles 4-5 users
- Minor slowdown under heavy load

Satisfactory (6-8 points)

- Consistent performance with 100+ objects
- 2-3 users supported
- Noticeable lag with complexity

Poor (0-5 points)

- Fails performance targets
 - Drops below 60 FPS easily
 - Can't handle multiple users
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Section 3: Advanced Figma-Inspired Features (15 points)

Overall Scoring

Excellent (13-15 points): 3 Tier 1 + 2 Tier 2 + 1 Tier 3 features, all working excellently

Good (10-12 points): 2-3 Tier 1 + 1-2 Tier 2 features, all working well

Satisfactory (6-9 points): 2-3 Tier 1 features OR 1 Tier 2 feature working adequately

Poor (0-5 points): Only 0-1 additional features or features poorly implemented

Feature Tiers

Tier 1 Features (2 points each, max 3 features = 6 points)

- Color picker with recent colors/saved palettes
- Undo/redo with keyboard shortcuts (Cmd+Z/Cmd+Shift+Z)
- Keyboard shortcuts for common operations (Delete, Duplicate, Arrow keys to move)
- Export canvas or objects as PNG/SVG
- Snap-to-grid or smart guides when moving objects
- Object grouping/ungrouping
- Copy/paste functionality

Tier 2 Features (3 points each, max 2 features = 6 points)

- Component system (create reusable components/symbols)
- Layers panel with drag-to-reorder and hierarchy
- Alignment tools (align left/right/center, distribute evenly)
- Z-index management (bring to front, send to back)
- Selection tools (lasso select, select all of type)
- Styles/design tokens (save and reuse colors, text styles)
- Canvas frames/artboards for organizing work

Tier 3 Features (3 points each, max 1 feature = 3 points)

- Auto-layout (flexbox-like automatic spacing and sizing)
 - Collaborative comments/annotations on objects
 - Version history with restore capability
 - Plugins or extensions system
 - Vector path editing (pen tool with bezier curves)
 - Advanced blend modes and opacity
 - Prototyping/interaction modes (clickable links between frames)
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Section 4: AI Canvas Agent (25 points)

Command Breadth & Capability (10 points)

Excellent (9-10 points)

- 8+ distinct command types
- Covers all categories: creation, manipulation, layout, complex
- Commands are diverse and meaningful

Good (7-8 points)

- 6-7 command types
- Covers most categories
- Good variety

Satisfactory (5-6 points)

- Exactly 6 command types
- Limited variety
- Minimal category coverage

Poor (0-4 points)

- Fewer than 6 commands
- Commands don't work reliably
- Very limited scope

AI Command Categories (must demonstrate variety):

Creation Commands (at least 2 required)

- "Create a red circle at position 100, 200"
- "Add a text layer that says 'Hello World'"
- "Make a 200x300 rectangle"

Manipulation Commands (at least 2 required)

- "Move the blue rectangle to the center"
- "Resize the circle to be twice as big"
- "Rotate the text 45 degrees"

Layout Commands (at least 1 required)

- "Arrange these shapes in a horizontal row"
- "Create a grid of 3x3 squares"
- "Space these elements evenly"

Complex Commands (at least 1 required)

- "Create a login form with username and password fields"

- "Build a navigation bar with 4 menu items"
- "Make a card layout with title, image, and description"

Complex Command Execution (8 points)

Excellent (7-8 points)

- "Create login form" produces 3+ properly arranged elements
- Complex layouts execute multi-step plans correctly
- Smart positioning and styling
- Handles ambiguity well

Good (5-6 points)

- Complex commands work but simpler implementations
- Basic layouts created
- 2-3 elements arranged

Satisfactory (3-4 points)

- Basic interpretation of complex commands
- Poor layout quality
- Elements created but not arranged

Poor (0-2 points)

- Complex commands fail
- Nonsensical results
- Cannot handle multi-step operations

AI Performance & Reliability (7 points)

Excellent (6-7 points)

- Sub-2 second responses
- 90%+ accuracy
- Natural UX with feedback
- Shared state works flawlessly
- Multiple users can use AI simultaneously

Good (4-5 points)

- 2-3 second responses
- 80%+ accuracy
- Good UX
- Shared state mostly works
- Minor conflicts with multi-user AI

Satisfactory (2-3 points)

- 3-5 second responses
- 60%+ accuracy
- Basic UX
- Shared state has issues

Poor (0-1 points)

- Slow responses (5s+)
 - Unreliable execution
 - Broken shared state
 - Poor or no UX feedback
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Section 5: Technical Implementation (10 points)

Architecture Quality (5 points)

Excellent (5 points)

- Clean, well-organized code
- Clear separation of concerns
- Scalable architecture
- Proper error handling
- Modular components

Good (4 points)

- Solid structure
- Minor organizational issues
- Generally maintainable

Satisfactory (3 points)

- Functional but messy
- Some architectural concerns
- Limited modularity

Poor (0-2 points)

- Poor code organization
- Architectural problems
- Difficult to maintain

Authentication & Security (5 points)

Excellent (5 points)

- Robust auth system
- Secure user management
- Proper session handling
- Protected routes
- No exposed credentials

Good (4 points)

- Functional auth
- Minor security considerations
- Generally secure

Satisfactory (3 points)

- Basic auth works
- Some security gaps
- Needs improvement

Poor (0-2 points)

- Broken authentication
 - Insecure implementation
 - Major vulnerabilities
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Section 6: Documentation & Submission Quality (5 points)

Repository & Setup (3 points)

Excellent (3 points)

- Clear README
- Detailed setup guide
- Architecture documentation
- Easy to run locally
- Dependencies listed

Good (2 points)

- Adequate documentation
- Setup mostly clear
- Can be run with some effort

Satisfactory (1 point)

- Minimal documentation
- Setup unclear
- Missing key info

Poor (0 points)

- Missing or inadequate documentation
- Cannot be set up

Deployment (2 points)

Excellent (2 points)

- Stable deployment
- Publicly accessible
- Supports 5+ users
- Fast load times

Good (1 point)

- Deployed
- Minor stability issues
- Generally accessible

Poor (0 points)

- Broken deployment
 - Not accessible
 - Major issues
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Section 7: AI Development Log (Required - Pass/Fail)

PASS Requirements: Must include **ANY 3 out of 5 sections** with meaningful reflection:

1. **Tools & Workflow used** - What AI tools you used and how you integrated them
 2. **3-5 effective prompting strategies** - Specific prompts that worked well
 3. **Code analysis** - Rough percentage of AI-generated vs hand-written code
 4. **Strengths & limitations** - Where AI excelled and where it struggled
 5. **Key learnings** - Insights about working with AI coding agents
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Section 8: Demo Video (Required - Pass/Fail)

PASS Requirements: 3-5 minute video demonstrating:

- Real-time collaboration with 2+ users (show both screens)
- Multiple AI commands executing
- Advanced features walkthrough
- Architecture explanation
- Clear audio and video quality

FAIL Penalty: Missing requirements OR poor quality OR not submitted = -10 points

Bonus Points (Maximum +5)

Innovation (+2 points)

- Novel features beyond requirements
- Examples: AI-powered design suggestions, smart component detection, generative design tools

Polish (+2 points)

- Exceptional UX/UI
- Smooth animations
- Professional design system
- Delightful interactions

Scale (+1 point)

- Demonstrated performance beyond targets
 - 1000+ objects at 60 FPS
 - 10+ concurrent users
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Grade Scale

A (90-100 points): Exceptional implementation, exceeds all targets, production-ready quality

B (80-89 points): Strong implementation, meets all core requirements, good quality

C (70-79 points): Functional implementation, meets most requirements, acceptable quality

D (60-69 points): Basic implementation, significant gaps, needs improvement

F (<60 points): Does not meet minimum requirements, major issues