# TeamLexia Admin Panel - Comprehensive Test Cases Documentation

## Overview

This document provides comprehensive test cases for the TeamLexia Admin Panel web application, designed for parent/teacher mobile application management. The admin panel serves as a central management system for monitoring users, posts, appointments, verification requests, and administrative functions.

## Test Cases Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case Scenario ID | Name of Module Function | Test Case Scenario | Action | Actual Input |
| **AUTHENTICATION SYSTEM** |  |  |  |  |
| TC-AUTH-001 | Login Page Display | Admin login interface loading | Navigate to admin panel URL | https://gamedevcapz-admin.web.app |
| TC-AUTH-002 | Authentication Code Input | Admin code entry field functionality | Focus on password input field | Click on authentication code input |
| TC-AUTH-003 | Bootstrap Code Login | Initial setup authentication | Enter bootstrap admin code | Input: ADMINTEMP |
| TC-AUTH-004 | Bootstrap Code Session Lock | One-time bootstrap code usage | Attempt to use ADMINTEMP after first use | Input: ADMINTEMP (second attempt) |
| TC-AUTH-005 | Generated Code Login | Firebase admin code authentication | Enter generated admin code | Input: 8-character generated code (e.g., ABC123XY) |
| TC-AUTH-006 | Invalid Code Handling | Authentication error display | Enter invalid authentication code | Input: INVALID123 |
| TC-AUTH-007 | Empty Field Validation | Form validation for empty input | Submit form without entering code | Empty authentication code field |
| TC-AUTH-008 | Login Button State | Button loading state during authentication | Click login button | Click "Login to Admin Panel" button |
| TC-AUTH-009 | Authentication Success | Successful login redirection | Complete valid authentication | Valid admin code submission |
| TC-AUTH-010 | Session Management | Authentication persistence | Refresh page after login | Browser refresh/reload |
| **SIDEBAR NAVIGATION** |  |  |  |  |
| TC-NAV-001 | Sidebar Display | Navigation sidebar rendering | View admin panel after login | Successful authentication |
| TC-NAV-002 | Sidebar Toggle | Collapse/expand sidebar functionality | Click sidebar toggle button | Click chevron icon in sidebar header |
| TC-NAV-003 | Dashboard Navigation | Navigate to dashboard overview | Click Dashboard menu item | Click "Dashboard" in sidebar |
| TC-NAV-004 | User Management Navigation | Navigate to user management | Click User Management menu item | Click "User Management" in sidebar |
| TC-NAV-005 | Verification Navigation | Navigate to verification requests | Click Verification Requests menu item | Click "Verification Requests" in sidebar |
| TC-NAV-006 | Appointments Navigation | Navigate to appointments management | Click Appointments menu item | Click "Appointments" in sidebar |
| TC-NAV-007 | Posts Navigation | Navigate to posts management | Click Posts menu item | Click "Posts" in sidebar |
| TC-NAV-008 | Reported Posts Navigation | Navigate to reported posts management | Click Reported Posts menu item | Click "Reported Posts" in sidebar |
| TC-NAV-009 | Admin Codes Navigation | Navigate to admin codes management | Click Admin Codes menu item | Click "Admin Codes" in sidebar |
| TC-NAV-010 | Active Menu Highlighting | Current page menu item highlighting | Navigate to any menu item | Click any sidebar menu item |
| TC-NAV-011 | Logout Button Access | Logout button functionality | Click logout button in sidebar footer | Click logout button |
| TC-NAV-012 | Logout Confirmation Modal | Logout confirmation dialog display | Initiate logout process | Click logout button |
| TC-NAV-013 | Logout Confirmation | Confirm logout action | Confirm logout in modal dialog | Click "Logout" in confirmation modal |
| TC-NAV-014 | Logout Cancellation | Cancel logout action | Cancel logout in modal dialog | Click "Cancel" in confirmation modal |
| **DASHBOARD OVERVIEW** |  |  |  |  |
| TC-DASH-001 | Dashboard Data Loading | Statistics and data fetching | Access dashboard after login | Navigate to dashboard page |
| TC-DASH-002 | Statistics Cards Display | Key metrics visualization | View dashboard overview cards | Dashboard main view |
| TC-DASH-003 | Total Users Counter | User count statistics display | View users statistics card | Users stat card display |
| TC-DASH-004 | Appointments Counter | Appointment count statistics display | View appointments statistics card | Appointments stat card display |
| TC-DASH-005 | Posts Counter | Posts count statistics display | View posts statistics card | Posts stat card display |
| TC-DASH-006 | Reported Posts Counter | Reported posts count statistics display | View reported posts statistics card | Reported posts stat card display |
| TC-DASH-007 | Verification Requests Count | Verification requests statistics display | View verification requests count | Verification requests stat card display |
| TC-DASH-008 | New Users This Month | Monthly user growth indicator | View new users statistics | New users this month display |
| TC-DASH-009 | Bar Chart Visualization | System statistics bar chart display | View statistics bar chart | Chart.js bar chart rendering |
| TC-DASH-010 | Pie Chart Visualization | Appointment status pie chart display | View appointment status pie chart | Chart.js pie chart rendering |
| TC-DASH-011 | Recent Users Table | Latest users list display | View recent users table | Recent users table rendering |
| TC-DASH-012 | Recent Appointments Table | Latest appointments list display | View recent appointments table | Recent appointments table rendering |
| TC-DASH-013 | Recent Posts Table | Latest posts list display | View recent posts table | Recent posts table rendering |
| TC-DASH-014 | Dashboard Quick Navigation | Navigation from dashboard to modules | Click "View All" links on dashboard | Click "View All" button in any table section |
| TC-DASH-015 | Loading State Display | Dashboard loading spinner | Access dashboard while data loads | Dashboard page load |
| TC-DASH-016 | Error State Handling | Dashboard error message display | Simulate data loading error | Network error during data fetch |
| **USER MANAGEMENT** |  |  |  |  |
| TC-USER-001 | Users List Display | User management table rendering | Navigate to user management page | Access users page from sidebar |
| TC-USER-002 | User Search Functionality | Search users by name/email | Enter search term in search field | Input: user name or email |
| TC-USER-003 | Role Filter Dropdown | Filter users by role | Select role from dropdown filter | Select "Parents" or "Professionals" |
| TC-USER-004 | Verification Filter | Filter by verification status | Select verification status filter | Select "Verified", "Pending", or "Unverified" |
| TC-USER-005 | User Profile Picture Display | User avatar/profile image rendering | View users with profile pictures | User profile image display |
| TC-USER-006 | Default Avatar Display | Default avatar for users without images | View users without profile pictures | Default avatar icon display |
| TC-USER-007 | Verification Badge Display | User verification status badges | View verification status indicators | Badge display for verified/pending/rejected status |
| TC-USER-008 | User Detail Navigation | Navigate to individual user details | Click eye icon on user row | Click view button in actions column |
| TC-USER-009 | User Edit Navigation | Navigate to user edit form | Click edit icon on user row | Click edit button in actions column |
| TC-USER-010 | User Delete Action | Delete user confirmation and execution | Click delete icon on user row | Click delete button in actions column |
| TC-USER-011 | User Delete Confirmation | Confirmation dialog for user deletion | Confirm user deletion | Click "OK" in confirmation dialog |
| TC-USER-012 | Users Count Display | Total users count indicator | View users count at top of table | Users count display |
| TC-USER-013 | Users Pagination Stats | User statistics summary display | View user statistics at table bottom | Parents/Professionals/Verified count badges |
| TC-USER-014 | Real-time Updates | Live user data synchronization | User data changes in Firebase | Real-time data updates |
| TC-USER-015 | Empty State Display | No users found message display | Apply filters with no matching results | Search/filter with no matches |
| **USER DETAIL VIEW** |  |  |  |  |
| TC-USERDET-001 | User Detail Loading | Individual user information display | Navigate to user detail page | Click user view button |
| TC-USERDET-002 | User Profile Information | Complete user profile data display | View user profile section | User detail page main view |
| TC-USERDET-003 | User Edit Navigation | Navigate to user edit from detail view | Click edit button on user detail | Click "Edit User" button |
| TC-USERDET-004 | User Back Navigation | Return to users list from detail | Click back button | Click "Back to Users" button |
| TC-USERDET-005 | User Activity History | User activity and interactions display | View user activity section | User activity timeline/history |
| **USER FORM/EDIT** |  |  |  |  |
| TC-USERFORM-001 | User Edit Form Loading | User edit form display and population | Navigate to user edit page | Access user edit from detail or list view |
| TC-USERFORM-002 | Name Field Editing | User name input field functionality | Edit user name field | Input: new user name |
| TC-USERFORM-003 | Email Field Editing | User email input field functionality | Edit user email field | Input: new email address |
| TC-USERFORM-004 | Role Selection | User role dropdown selection | Select user role from dropdown | Select "Parent" or "Professional" |
| TC-USERFORM-005 | Status Selection | User status dropdown selection | Select user status from dropdown | Select "Active" or "Inactive" |
| TC-USERFORM-006 | Form Validation | Input validation and error display | Submit form with invalid data | Invalid email format or empty required fields |
| TC-USERFORM-007 | Save Changes Action | Form submission and data update | Click save button after making changes | Click "Save Changes" button |
| TC-USERFORM-008 | Cancel Changes Action | Cancel form changes and return to list | Click cancel button | Click "Cancel" button |
| TC-USERFORM-009 | Form Loading State | Loading spinner during form submission | Submit form with changes | Form submission processing |
| TC-USERFORM-010 | Success Message Display | Success confirmation after save | Successfully save user changes | Success alert/message display |
| **VERIFICATION REQUESTS** |  |  |  |  |
| TC-VERIF-001 | Verification List Display | Verification requests table rendering | Navigate to verification requests page | Access verification requests from sidebar |
| TC-VERIF-002 | Verification Search | Search verification requests | Enter search term in search field | Input: email, profession, or user ID |
| TC-VERIF-003 | Status Filter Selection | Filter by verification status | Select status from dropdown filter | Select "Pending", "Approved", or "Rejected" |
| TC-VERIF-004 | Profession Filter Selection | Filter by profession category | Select profession from dropdown filter | Select specific profession from dropdown |
| TC-VERIF-005 | Verification Detail View | View individual verification request | Click view button on verification row | Click eye icon in actions column |
| TC-VERIF-006 | Quick Approve Action | Approve verification from list view | Click approve button on verification row | Click green checkmark button |
| TC-VERIF-007 | Quick Reject Action | Reject verification from list view | Click reject button on verification row | Click red X button |
| TC-VERIF-008 | Status Badge Display | Verification status badge rendering | View status indicators | Pending/Approved/Rejected badges |
| TC-VERIF-009 | Request Count Display | Total verification requests count | View requests count at top of table | Verification requests count display |
| TC-VERIF-010 | Statistics Summary | Verification statistics display | View statistics at table bottom | Pending/Approved/Rejected count badges |
| TC-VERIF-011 | Action Loading State | Loading spinner during status update | Approve or reject verification request | Spinner during processing |
| TC-VERIF-012 | Empty State Display | No verification requests message | Apply filters with no matching results | Search/filter with no matches |
| **VERIFICATION REQUEST DETAIL** |  |  |  |  |
| TC-VERIFDET-001 | Verification Detail Loading | Individual verification request display | Navigate to verification detail page | Click verification view button |
| TC-VERIFDET-002 | Professional Information | Professional credentials display | View professional details section | Professional information panel |
| TC-VERIFDET-003 | Documents Display | Uploaded documents/certificates view | View uploaded documents section | Document attachments display |
| TC-VERIFDET-004 | Approval Action | Approve verification with notes | Click approve button and add notes | Click "Approve" button |
| TC-VERIFDET-005 | Rejection Action | Reject verification with reason | Click reject button and add reason | Click "Reject" button |
| TC-VERIFDET-006 | Admin Notes Input | Admin comments/notes input field | Enter admin notes | Input: verification notes or rejection reason |
| TC-VERIFDET-007 | Status Change Confirmation | Confirmation dialog for status change | Confirm approval or rejection | Confirm action in dialog |
| TC-VERIFDET-008 | Back Navigation | Return to verification list | Click back button | Click "Back to Verification Requests" |
| **APPOINTMENTS MANAGEMENT** |  |  |  |  |
| TC-APPT-001 | Appointments List Display | Appointments table rendering | Navigate to appointments page | Access appointments from sidebar |
| TC-APPT-002 | Appointment Search | Search appointments by user/professional | Enter search term in search field | Input: user name or professional name |
| TC-APPT-003 | Status Filter Selection | Filter appointments by status | Select status from dropdown filter | Select "Scheduled", "Completed", or "Cancelled" |
| TC-APPT-004 | Date Range Filter | Filter appointments by date range | Select date range filter | Select date range from date picker |
| TC-APPT-005 | Appointment Detail View | View individual appointment details | Click view button on appointment row | Click eye icon in actions column |
| TC-APPT-006 | Status Badge Display | Appointment status badge rendering | View status indicators | Scheduled/Completed/Cancelled badges |
| TC-APPT-007 | Appointment Time Display | Date and time formatting | View appointment time column | Date/time display format |
| TC-APPT-008 | Appointment Actions | Available actions based on status | View actions column | Action buttons based on appointment status |
| TC-APPT-009 | Appointment Count Display | Total appointments count | View appointments count at top of table | Appointments count display |
| TC-APPT-010 | Empty State Display | No appointments found message | Apply filters with no matching results | Search/filter with no matches |
| **APPOINTMENT DETAIL VIEW** |  |  |  |  |
| TC-APPTDET-001 | Appointment Detail Loading | Individual appointment information display | Navigate to appointment detail page | Click appointment view button |
| TC-APPTDET-002 | User Information Display | Appointment user details section | View user information panel | User details display |
| TC-APPTDET-003 | Professional Info Display | Professional details section | View professional information panel | Professional details display |
| TC-APPTDET-004 | Appointment Details Panel | Appointment specifics display | View appointment details section | Date, time, duration, notes display |
| TC-APPTDET-005 | Status Update Action | Change appointment status | Click status update button | Status change dropdown/buttons |
| TC-APPTDET-006 | Notes Section Display | Appointment notes and comments | View notes section | Notes/comments display |
| TC-APPTDET-007 | Back Navigation | Return to appointments list | Click back button | Click "Back to Appointments" |
| **POSTS MANAGEMENT** |  |  |  |  |
| TC-POST-001 | Posts List Display | Posts management table rendering | Navigate to posts page | Access posts from sidebar |
| TC-POST-002 | Post Search Functionality | Search posts by content/author | Enter search term in search field | Input: post content or author name |
| TC-POST-003 | Post Content Preview | Truncated post content display | View post content column | Post content preview with truncation |
| TC-POST-004 | Author Information Display | Post author details and avatar | View author column | Author name and profile picture |
| TC-POST-005 | Professional Badge Display | Professional user indicator | View posts by professional users | "Pro" badge display for professional posts |
| TC-POST-006 | Engagement Metrics Display | Likes and comments count | View engagement column | Like and comment counts with icons |
| TC-POST-007 | Post Category Display | Post category/type indication | View category column | Post category badge/label |
| TC-POST-008 | Post Detail Navigation | Navigate to individual post details | Click view button on post row | Click eye icon in actions column |
| TC-POST-009 | Post Delete Action | Delete post confirmation and execution | Click delete button on post row | Click trash icon in actions column |
| TC-POST-010 | Delete Confirmation Modal | Confirmation dialog for post deletion | Confirm post deletion | Confirm deletion in modal dialog |
| TC-POST-011 | Posts Count Display | Total posts count indicator | View posts count at top of table | Posts count display |
| TC-POST-012 | Empty State Display | No posts found message | Apply search with no matching results | Search with no matches |
| **POST DETAIL VIEW** |  |  |  |  |
| TC-POSTDET-001 | Post Detail Loading | Individual post information display | Navigate to post detail page | Click post view button |
| TC-POSTDET-002 | Full Content Display | Complete post content rendering | View full post content | Full post text display |
| TC-POSTDET-003 | Media Content Display | Images/attachments rendering | View post media content | Image/media attachments display |
| TC-POSTDET-004 | Author Profile Display | Post author detailed information | View author profile section | Author information panel |
| TC-POSTDET-005 | Engagement Details Display | Detailed likes and comments | View engagement section | Likes, comments, shares details |
| TC-POSTDET-006 | Comments Section Display | Post comments thread | View comments section | Comments list and threading |
| TC-POSTDET-007 | Post Actions Panel | Available actions for post | View post actions section | Edit, delete, moderate actions |
| TC-POSTDET-008 | Back Navigation | Return to posts list | Click back button | Click "Back to Posts" |
| **REPORTED POSTS MANAGEMENT** |  |  |  |  |
| TC-REPORT-001 | Reported Posts List Display | Reported posts table rendering | Navigate to reported posts page | Access reported posts from sidebar |
| TC-REPORT-002 | Report Search Functionality | Search reports by content/author | Enter search term in search field | Input: post content, author, or reporter name |
| TC-REPORT-003 | Reason Filter Selection | Filter reports by violation reason | Select reason from dropdown filter | Select specific report reason |
| TC-REPORT-004 | Status Filter Selection | Filter reports by resolution status | Select status from dropdown filter | Select "Pending", "Dismissed", or "Removed" |
| TC-REPORT-005 | Report Content Preview | Reported content snippet display | View reported content column | Truncated reported post content |
| TC-REPORT-006 | Reporter Information | Report submitter details | View reported by column | Reporter user information |
| TC-REPORT-007 | Violation Reason Badge | Report reason badge display | View reason column | Violation reason badge |
| TC-REPORT-008 | Report Status Badge | Current report status indicator | View status column | Pending/Dismissed/Removed status badge |
| TC-REPORT-009 | Report Detail Navigation | Navigate to individual report details | Click view button on report row | Click eye icon in actions column |
| TC-REPORT-010 | Quick Dismiss Action | Dismiss report from list view | Click dismiss button on report row | Click checkmark button for pending reports |
| TC-REPORT-011 | Quick Remove Action | Remove reported post from list view | Click remove button on report row | Click trash button for pending reports |
| TC-REPORT-012 | Action Confirmation Modal | Confirmation dialog for report actions | Confirm dismiss or remove action | Confirm action in modal dialog |
| TC-REPORT-013 | Reports Count Display | Total reports count indicator | View reports count at top of table | Reports count display |
| TC-REPORT-014 | Reports Statistics Summary | Report status statistics display | View statistics at table bottom | Pending/Dismissed/Removed count badges |
| **REPORTED POST DETAIL VIEW** |  |  |  |  |
| TC-REPORTDET-001 | Report Detail Loading | Individual report information display | Navigate to report detail page | Click report view button |
| TC-REPORTDET-002 | Full Content Display | Complete reported post content | View reported post content section | Full reported post display |
| TC-REPORTDET-003 | Report Details Panel | Report submission information | View report details section | Reporter, reason, timestamp details |
| TC-REPORTDET-004 | Violation Context Display | Report reason and context | View violation details section | Detailed violation reason and context |
| TC-REPORTDET-005 | Resolution Actions Panel | Available resolution actions | View resolution actions section | Dismiss, remove, or other resolution options |
| TC-REPORTDET-006 | Admin Notes Input | Resolution notes input field | Enter resolution notes | Input: resolution decision notes |
| TC-REPORTDET-007 | Resolution Confirmation | Confirmation dialog for resolution | Confirm resolution action | Confirm dismiss or remove action |
| TC-REPORTDET-008 | Back Navigation | Return to reported posts list | Click back button | Click "Back to Reported Posts" |
| **ADMIN CODES MANAGEMENT** |  |  |  |  |
| TC-ADMIN-001 | Admin Codes List Display | Admin codes table rendering | Navigate to admin codes page | Access admin codes from sidebar |
| TC-ADMIN-002 | Generate Code Button | New admin code generation trigger | Click generate new code button | Click "Generate New Code" button |
| TC-ADMIN-003 | Generation Modal Display | Code generation configuration modal | Open code generation modal | Modal dialog display |
| TC-ADMIN-004 | Expiration Time Selection | Code expiration time dropdown | Select expiration time from dropdown | Select hours from expiration dropdown |
| TC-ADMIN-005 | One-time Use Checkbox | One-time use configuration option | Toggle one-time use checkbox | Check/uncheck one-time use option |
| TC-ADMIN-006 | Code Generation Action | Generate new admin code | Click generate button in modal | Click "Generate Code" button |
| TC-ADMIN-007 | Generated Code Display | New code display and copy functionality | View generated code result | Generated code display with copy button |
| TC-ADMIN-008 | Code Copy to Clipboard | Copy generated code to clipboard | Click copy button for generated code | Click clipboard button |
| TC-ADMIN-009 | Code Status Display | Code status badge rendering | View code status column | Active/Used/Expired status badges |
| TC-ADMIN-010 | Code Type Display | Code type indicator (one-time/reusable) | View code type column | One-time/Reusable badges |
| TC-ADMIN-011 | Time Remaining Calculation | Live countdown for code expiration | View time remaining column | Countdown timer display |
| TC-ADMIN-012 | Code Usage Tracking | Used date and user tracking | View used column | Usage timestamp and user display |
| TC-ADMIN-013 | Code Delete Action | Delete admin code | Click delete button on code row | Click trash icon in actions column |
| TC-ADMIN-014 | Delete Confirmation | Confirmation dialog for code deletion | Confirm code deletion | Confirm deletion in dialog |
| TC-ADMIN-015 | Cleanup Expired Codes | Bulk removal of expired codes | Click cleanup expired button | Click "Cleanup Expired" button |
| TC-ADMIN-016 | Codes Count Display | Total codes count indicator | View codes count at top of table | Admin codes count display |
| TC-ADMIN-017 | Empty State Display | No codes found message | View table with no codes | Empty state message |
| **ERROR HANDLING & EDGE CASES** |  |  |  |  |
| TC-ERROR-001 | Network Error Handling | Display error messages for network issues | Simulate network disconnection | Disconnect internet during data operations |
| TC-ERROR-002 | Loading State Management | Loading spinners during async operations | Perform any data loading operation | Any page load or data fetch |
| TC-ERROR-003 | Empty Data State Handling | Empty state messages for no data | Access pages with no data | Empty database collections |
| TC-ERROR-004 | Form Validation Error | Input validation error messages | Submit forms with invalid data | Invalid email, empty required fields |
| TC-ERROR-005 | Permission Error Handling | Access restriction error messages | Access without proper authentication | Expired session or invalid permissions |
| TC-ERROR-006 | 404 Error Handling | Page not found error display | Navigate to non-existent page | Invalid URL path |
| TC-ERROR-007 | Data Corruption Handling | Graceful handling of corrupted data | Access records with missing fields | Incomplete or malformed data |
| TC-ERROR-008 | Browser Compatibility | Cross-browser functionality testing | Test on different browsers | Chrome, Firefox, Safari, Edge |
| TC-ERROR-009 | Mobile Responsiveness | Mobile device layout and functionality | Access admin panel on mobile device | Mobile browser access |
| TC-ERROR-010 | Session Timeout Handling | Session expiration and re-authentication | Let session timeout occur | Extended period of inactivity |
| **ACCESSIBILITY & UX** |  |  |  |  |
| TC-ACCESS-001 | Keyboard Navigation | Tab navigation through interface | Navigate using keyboard only | Tab key navigation |
| TC-ACCESS-002 | Screen Reader Compatibility | Screen reader functionality | Use screen reader software | Screen reader software testing |
| TC-ACCESS-003 | Color Contrast Compliance | Adequate color contrast for readability | Verify color contrast ratios | WCAG contrast testing |
| TC-ACCESS-004 | Focus Indicators | Visible focus indicators for navigation | Tab through focusable elements | Keyboard focus visibility |
| TC-ACCESS-005 | Alternative Text | Alt text for images and icons | Check image alternative text | Image alt attribute verification |
| TC-ACCESS-006 | Responsive Design | Layout adaptation to different screen sizes | Resize browser window | Various screen resolutions |
| TC-ACCESS-007 | Touch Interaction | Touch-friendly interface elements | Use touch device for interaction | Touch device testing |
| TC-ACCESS-008 | Print Functionality | Print-friendly page layouts | Print pages from browser | Browser print function |
| **PERFORMANCE & OPTIMIZATION** |  |  |  |  |
| TC-PERF-001 | Page Load Performance | Fast initial page loading | Measure page load times | Page load speed testing |
| TC-PERF-002 | Data Pagination | Efficient handling of large datasets | Load pages with many records | Large data sets |
| TC-PERF-003 | Search Performance | Fast search results rendering | Perform searches on large datasets | Search with thousands of records |
| TC-PERF-004 | Image Loading Optimization | Efficient image loading and caching | Load pages with multiple images | Pages with user profile images |
| TC-PERF-005 | Memory Usage | Optimal memory consumption | Monitor memory usage during extended use | Extended session usage |
| TC-PERF-006 | Real-time Updates | Efficient real-time data synchronization | Monitor real-time data updates | Firebase real-time listeners |
| **SECURITY & DATA PROTECTION** |  |  |  |  |
| TC-SEC-001 | Authentication Security | Secure authentication mechanism | Test authentication bypass attempts | Direct URL access without authentication |
| TC-SEC-002 | Data Encryption | Encrypted data transmission | Monitor network traffic for encryption | HTTPS verification |
| TC-SEC-003 | Input Sanitization | Prevention of malicious input | Enter script tags and SQL injection | Script injection attempts |
| TC-SEC-004 | Session Security | Secure session management | Test session hijacking vulnerabilities | Session security testing |
| TC-SEC-005 | Data Access Control | Proper access control to sensitive data | Attempt unauthorized data access | Data access permission testing |
| TC-SEC-006 | Admin Code Security | Secure admin code generation and usage | Test admin code vulnerabilities | Code generation and validation security |
| **INTEGRATION TESTING** |  |  |  |  |
| TC-INT-001 | Firebase Authentication | Firebase Auth integration | Test Firebase authentication flow | Firebase Auth service integration |
| TC-INT-002 | Firestore Database | Firestore data operations | Test CRUD operations with Firestore | Database read/write operations |
| TC-INT-003 | Real-time Listeners | Firebase real-time data updates | Test real-time data synchronization | Live data updates across sessions |
| TC-INT-004 | Cloud Functions Integration | Backend function calls | Test serverless function integration | Firebase Functions integration |
| TC-INT-005 | Third-party Services | External service integrations | Test external API integrations | Any third-party service calls |

## Test Execution Guidelines

### Prerequisites

* Modern web browser (Chrome, Firefox, Safari, Edge)
* Stable internet connection
* Valid admin authentication codes
* Test data in Firebase database

### Test Environment Setup

1. **Development Environment**: http://localhost:5173
2. **Production Environment**: https://gamedevcapz-admin.web.app
3. **Authentication**: Bootstrap code ADMINTEMP for initial access
4. **Database**: Firebase Firestore with test data

### Test Data Requirements

* Sample user accounts (parents and professionals)
* Sample posts with various content types
* Sample appointments with different statuses
* Sample verification requests
* Sample reported posts with various violation reasons

### Expected Results

* All UI components render correctly
* Data loads and displays properly
* Form validations work as expected
* Navigation functions correctly
* Error states are handled gracefully
* Real-time updates work properly
* Authentication and authorization function correctly

### Testing Notes

* Test on multiple browsers and devices
* Verify responsive design on different screen sizes
* Check accessibility compliance
* Monitor performance and loading times
* Validate data integrity and security
* Test offline/online behavior
* Verify error handling and recovery

## Conclusion

This comprehensive test case documentation covers all functional aspects of the TeamLexia Admin Panel, ensuring thorough testing of user management, content moderation, appointment tracking, verification processes, and administrative functions. The test cases are designed to validate both functionality and user experience across all supported platforms and use cases.