

Landing Page (Home Page)

A simplified diagram of a graphical user interface (GUI) window. The window has a title bar at the top with a 'File' button and a small rectangular icon. The main area is divided into a vertical sidebar on the left and a large central workspace. The sidebar contains two buttons labeled 'Open' and 'New'. The central workspace is empty.

Project Page (After New Project Created or Existing Project is Opened)

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Attendance Management System - Project Workspace Documentation

1.0 Overview

1.1 Overall Purpose

The Project Workspace serves as the main operational interface of the Attendance Management System. This screen is activated when a user opens an existing project file (e.g., "SMIC ATTENDANCE"). Its primary function is to provide a comprehensive environment for viewing, inputting, and analyzing attendance data for multiple classes and their students/employees across customizable time periods.

The interface employs a flexible three-sidebar layout surrounding a central data grid, specifically engineered to handle large datasets efficiently while maintaining intuitive usability.

2.0 UI Layout & Sections

The workspace is divided into four distinct areas within the main application window.

2.1 Panel Configuration

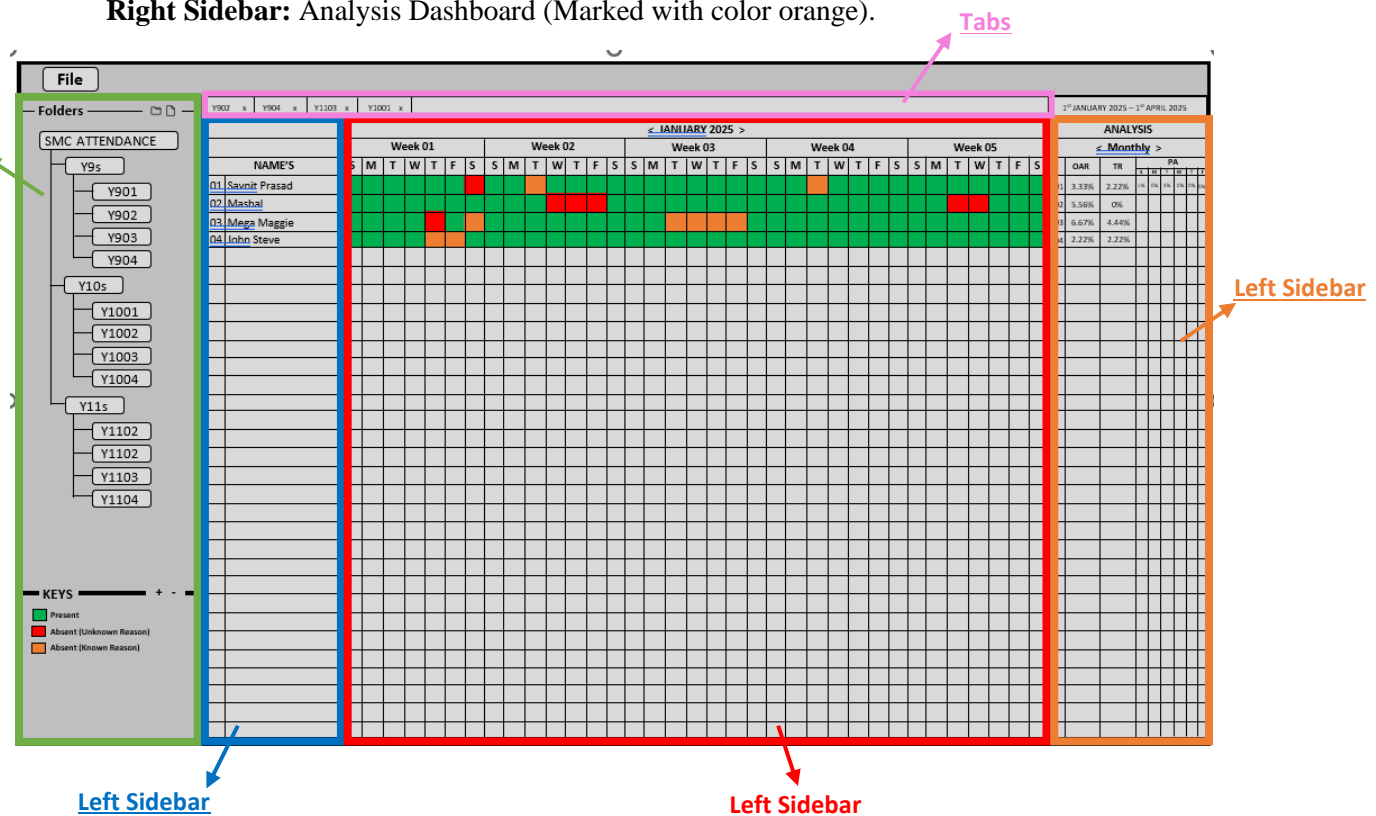
Left Sidebar: Project Hierarchy (Folders, marked with color Green).

Second Sidebar: Student/Employee Roster (Marked with color blue).

Tabs: Opened Files (Marked with color pink).

Central Area: Calendar & Data Grid (Marked with color red).

Right Sidebar: Analysis Dashboard (Marked with color orange).



2.2 Critical UI Behaviour

2.2.1 Resizable Panels

All three sidebars feature adjustable widths. Users can click and drag the vertical dividers between panels to allocate screen space according to their current task requirements.

2.2.2 Scrolling Behavior

Independent Scrolling: The Folder Hierarchy (Left Sidebar) scrolls independently of other panels.

Synchronized Scrolling: The Student Roster (Second Sidebar), Data Grid (Central Area), and Analysis Dashboard (Right Sidebar) are vertically synchronized. Scrolling action in any one of these three sections automatically scrolls the other two to maintain positional alignment. This ensures that student names, corresponding attendance data, and analysis statistics remain perfectly aligned during navigation.

3.0 Component Specifications

3.1 Left Sidebar - Project Hierarchy

3.1.1 Purpose

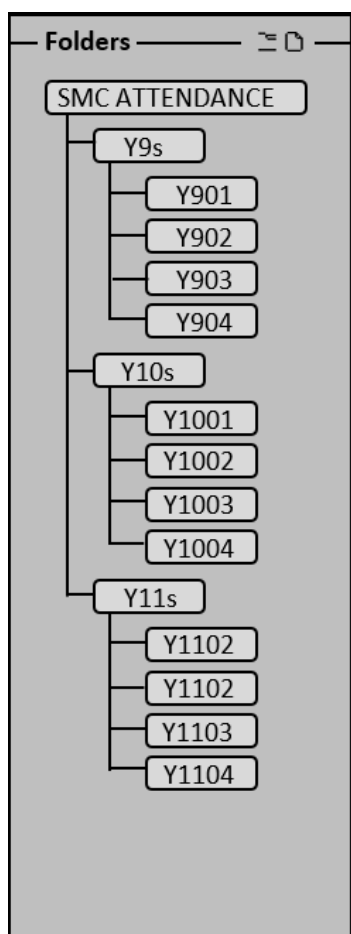
Navigation of the overall project structure and selection of classes/groups for operation.

3.1.2 Content & Structure

- **Title:** "Folders"
- **Layout:** Tree view displaying the project name ("SMIC ATTENDANCE") with hierarchical organization.
- **Groups:** Top-level items (e.g., Y9, Y10, Y11) representing organizational groups based on years or departments.
- **Classes/Files:** Sub-items within groups (e.g., Y901, Y902, Y1001) representing individual classes, teams, or attendance files. Note: Users are allowed to create as many Folders, Groups, or Classes / Files they need.
- **Creation Icons:** Folder and File icons placed in the header for creating new items.

3.1.3 Interaction

- Expand/collapse groups through click interaction.
- Select classes by clicking to load corresponding student lists and data into adjacent panels.
- Independent vertical scrolling functionality
- **Folder Creation:** Clicking the Folder icon or Right Mouse button click anywhere in the panel creates a new folder under the currently selected hierarchy item with default name "New Folder" (editable)
- **File Creation:** Clicking the File icon or Right Mouse button click anywhere in the panel creates a new ".attc" file under the currently selected folder with default name "New Attendance.attc" (editable)
- New items enter edit mode immediately after creation for renaming.
- Validation prevents duplicate names at the same hierarchy level.



3.2 Status Keys / Legend (KEYS):

This section defines the attendance codes used to mark data in the central grid. It acts as both a legend and a tool palette.

3.2.1 The Default Statuses

- Present
- Absent (Unknown Reason)
- Absent (Known Reason)

3.2.2 The + and – Buttons

These buttons allow for customization. Users can add new custom statuses (e.g., "Late", "School Trip") or remove existing ones, tailoring the app to their specific recording needs.

To select them, user can use short cut keys which they have assigned while creating the attendance codes.

3.2.3 By Default Shortcut Keys:

- "G" for Present
- "R" for Absent (Unknown Reason)
- "O" for Absent (known Reason)

3.3 Second Sidebar - Student/Employee Roster

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3.3.1 Purpose

Display of individuals (students/employees) belonging to the currently selected class/group.

3.3.2 Content & Structure

Numbered list of names in ascending order (1, 2, 3, 4...).

Numbers serve as fixed identifiers for cross-referencing with the Analysis Dashboard.

3.3.3 Interaction

Synchronized vertical scrolling with Central Data Grid and Analysis Dashboard

Adjustable width via drag interaction.

Y902 x	Y904 x	Y1103 x	Y1001 x	
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3.4 Tabs – Open Files

3.4.1 Overview

The Tabs component is located above the second sidebar in the Attendance Management System interface. It provides quick access to currently open attendance files with the ability to switch between them or close them individually.

3.4.2 Visual Design

- **Tab Design:** Each tab displays the filename with a close button.
- **Active State:** The currently selected tab is visually distinguished.
- **Layout:** Tabs are left-aligned with overflow handling for many open files.

3.4.3 Tab Contents

Each tab displays:

- Short filename (e.g., "Y902", "Y906").
- Close button (× icon) on the right side.
- Visual indicator of active/inactive state.

3.4.4 Interaction Behavior

- **Clicking a tab:** Makes that file active and loads its content.
- **Clicking close button:** Removes the file from open tabs.
- **Tab overflow:** If many files are open, scrolling or overflow handling is implemented.
- **Last tab closed:** Shows an empty state or default content.

3.4.5 States

- **Active Tab:** Visually highlighted, content displayed in main area.
- **Inactive Tab:** Normal appearance, content not visible.
- **Hover State:** Visual feedback when mouse over tab or close button.
- **Empty State:** When no files are open.

3.4.6 Integration with Other Components

- **3.4.6.1 Connection to Left Sidebar**
Tabs correspond to files selected from the folder hierarchy. Closing a tab doesn't affect the underlying file in the folder structure.
- **3.4.6.2 Connection to Central Data Grid**
Switching tabs changes the attendance data displayed. Each tab maintains its own scroll position and view state.
- **3.4.6.3 Connection to Analysis Panel**
Analysis statistics update based on the active tab's content. Student summary reflects the currently selected file.

3.5 Central Area - Calendar & Data Grid

3.5.1 Purpose

Primary visualization and data input canvas for attendance information on a calendar timeline.

3.5.2 Structure

Month Navigation

Displays currently visible month, "<" and ">" buttons for temporal navigation, clicking on ">" will load next month's data into the grid that is, the data beneath will change. Same will happen when user will click "<" except the previous months data will load.

Timeline Organization

Columns represent weeks ("Week 01" to "Week 05"), Sub-header beneath each week shows days (S M T W T F S) for specific periods.

Data Grid

Rows correspond to students in the Second Sidebar.

Columns correspond to individual calendar days.

Cells use color-coded system:

- Green: Present
- Red: Absent (reason not obtained)
- Orange: Absent (reason obtained)

3.3.3 Interaction

Vertical scrolling synchronized with Student Roster and Analysis Dashboard.

Horizontal scrolling for temporal navigation.

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3.6 Right Sidebar – Analysis Dashboard

3.6.1 Overview

The Analysis Panel is a critical component of the Attendance Management System interface, located on the right side of the application. It provides real-time statistical analysis and summary information about attendance data, offering insights into patterns and trends.

3.6.2 Location and Positioning

- Panel Location: Right sidebar of the main application window.
- Size: Fixed width (approximately 250-300px) but resizable.
- Layout: Vertical arrangement with distinct sections.

3.6.3 Visual Components

3.6.3.1 Header Section

- Title: "ANALYSIS" in bold font.
- View Toggle: "< Monthly >" control (can be changed to Weekly, Fortnightly, Quarterly).
- Visual Style: Subtle divider separating header from content.

3.6.3.2 Statistical Metrics Section

Layout: Grid of three key metrics arranged in a 2x2 pattern (though only three are visible in the wireframe).

3.6.3.3 Metrics:

- OAR: Overall Attendance Rate (3.33%).
- TR: Truancy Rate (5.56%).
- PA: Pattern Analysis (6.67%).

3.6.3.4 Visual Design

Each metric appears in a bordered box with:

- Metric abbreviation label in smaller font.
- Percentage value in larger, bold font.
- Consistent spacing between boxes.

3.6.5 Visual Indicators:

Numbered circles (01, 02, 03, 04) for student identification.

Layout: Vertical list with consistent spacing between items.

3.6.6 Functional Specifications

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3.6.6.1 Data Display

- Real-time updating based on selected time period and active class.
- Statistical calculations update immediately when attendance data changes.
- Student summary highlights individuals with attendance patterns requiring attention.

3.6.6.2 Interactive Elements

View Toggle: Allows switching between different time aggregations (Monthly, Weekly, etc.).

3.6.6.3 Potential Interactions:

- Clicking on student names might highlight corresponding rows in main grid.
- Hover effects might provide additional details.
- Clicking on metrics might show detailed breakdowns.

3.6.6.4 Data Relationships

- Statistics reflect currently selected time range (shown above the data grid).
- Student list corresponds to the active class/file selected in left sidebar.
- Analysis connects to the specific attendance data visible in the central grid.

3.6.6.5 Calculation Methods

- **OAR (Overall Attendance Rate):** Percentage of days attended vs. total possible attendance days.
- **TR (Truancy Rate):** Percentage of unexplained absences.
- **PA (Pattern Analysis):** Identification of patterns in attendance (e.g., frequently absent on specific days).

3.6.6.6 Responsive Behavior

- Maintains fixed width but vertically scrollable if content exceeds panel height.
- Statistical boxes may rearrange on very narrow screens.
- Font sizes might adjust slightly based on available space.

3.6.7 Integration with Other Components

3.6.7.1 Connection to Data Grid

- Reacts to changes in the central attendance grid.
- Updates statistics when attendance marks are modified.
- Synchronizes with currently selected period.

3.6.7.2 Connection to File Selection

- Changes content when different class files are selected.
- Resets analysis when new file is opened.

3.6.7.3 Connection to Time Navigation

- Updates when user changes the month or time range.
- Adjusts calculations based on currently visible period.

3.6.7.4 User Experience Considerations

- **At-a-glance insights:** Quick understanding of attendance trends.
- **Problem identification:** Easy spotting of students with attendance issues.
- **Data-driven decisions:** Support for interventions based on statistical patterns.
- **Visual hierarchy:** Important information emphasized through size and placement.

4.0 Technical Implementation Notes

4.1 Scroll Synchronization

- The synchronized scrolling mechanism between the Student Roster, Data Grid, and Analysis Dashboard should implement:
- Event listeners for scroll actions on all three components.
- Position calculation and matching algorithms.
- Smooth scrolling implementation to maintain user experience.

4.2 Keyboard Shortcut Handling

- The system should provide:
- Robust keypress event detection.
- Visual feedback for shortcut activation.
- Configuration options for custom shortcut assignments.

4.3 Data Management

- Efficient handling of large datasets with lazy loading where appropriate.
- Real-time data synchronization between components.
- Cache management for performance optimization.

4.4 File System Operations

- Implementation of “.attc” binary file format for data persistence.
- File creation and validation logic for new folder and file items.
- Error handling for file system permissions and invalid operations.