# Timesheet Management System - Detailed API Documentation & Project Flow

## Project Overview

This project is a Timesheet Management System designed to help employees record their daily work hours, attach supporting documents, and submit them for approval. Employers and managers can review, approve, or reject timesheets, while administrators can manage employees, roles, and access rights. The system uses a secure login process, a relational database for structured storage, and Azure cloud services for attachments, approvals, and notifications.

## Authentication & Password APIs

### POST /api/auth/login

Authenticates a user by email and password. If it's the user's first login (FirstTimeFlag=1), they are required to change their password. On success, returns either a JWT token or a flag requiring password change.

Request Body:

{  
 "email": "user@org.com",  
 "password": "PlainOrHashedAsPerImpl"  
}

Response Example:

{  
 "employeeId": 123,  
 "requirePasswordChange": true  
}  
OR  
{  
 "employeeId": 123,  
 "token": "jwt...",  
 "role": "Emp"  
}

### POST /api/auth/change-password

Allows a user to update their password. On first login, only the new password is required. On subsequent updates, both current and new passwords are validated.

Request Body:

{  
 "employeeId": 123,  
 "currentPassword": "old",  
 "newPassword": "newStrong!"  
}

Response Example:

{  
 "message": "Password updated."  
}

### POST /api/auth/forgot-password

Initiates a reset flow for users who forgot their password. If the email exists in the system, a reset email with a secure token is sent.

Request Body:

{  
 "email": "user@org.com"  
}

Response Example:

{  
 "message": "If the account exists, a reset email was sent."  
}

### POST /api/auth/reset-password

Resets a user's password after verifying a reset token received via email.

Request Body:

{  
 "token": "reset-token",  
 "newPassword": "newStrong!"  
}

Response Example:

{  
 "message": "Password reset successful."  
}

## Employee APIs (Employer Portal)

### POST /api/employees

Allows employers to create new users. Inserts a record in the Employee table and links them with the Identity table based on the selected role.

Request Body:

{  
 "companyName": "Acme",  
 "firstName": "A",  
 "lastName": "B",  
 "email": "user@acme.com",  
 "role": "Emp",  
 "temporaryPassword": "Init@123",  
 "firstTimeFlag": true  
}

Response Example:

{  
 "employeeId": 987  
}

### PUT /api/employees/{employeeId}

Updates employee details such as name, role, or access rights. Employers can also reset passwords.

Request Body:

{  
 "firstName": "John",  
 "lastName": "Smith",  
 "role": "Admin"  
}

Response Example:

{  
 "message": "Employee updated."  
}

### GET /api/employees

Returns a list of employees filtered by email, role, or company.

Response Example:

{  
 "items": [  
 { "employeeId": 987, "firstName": "John", "lastName": "Smith", "role": "Emp" }  
 ]  
}

## Timesheet APIs (MasterTimeSheet & EveryDayTimesheet)

### GET /api/timesheets

Fetches a list of timesheets from MasterTimeSheet filtered by employeeId, status, or date range. Supports pagination.

Response Example:

{  
 "items": [  
 { "indexId": 1001, "employeeId": 987, "fromDate": "2025-09-22", "toDate": "2025-09-28", "totalHoursWorked": 39.5, "approvalL1": false, "approvalL2": false }  
 ],  
 "page": 1,  
 "pageSize": 20,  
 "total": 5  
}

### GET /api/timesheets/{indexId}

Fetches full details of a specific timesheet including MasterTimeSheet header data, EveryDayTimesheet entries, and attachment metadata.

Response Example:

{  
 "header": { "indexId": 1001, "employeeId": 987, "fromDate": "2025-09-22", "toDate": "2025-09-28", "totalHoursWorked": 39.5 },  
 "entries": [ { "timesheetId": 1, "date": "2025-09-22", "hoursWorked": 8.0 } ],  
 "attachments": [ { "fileName": "abc123.pdf", "size": 123456 } ]  
}

### POST /api/timesheets

Creates a new timesheet period in MasterTimeSheet, inserts daily rows into EveryDayTimesheet, stores an attachment in Azure File Share, and optionally submits it for approval.

Request Body:

{  
 "employeeId": 987,  
 "periodStart": "2025-09-22",  
 "periodEnd": "2025-09-28",  
 "entries": [ { "date": "2025-09-22", "hoursWorked": 8.0 } ],  
 "attachment": { "fileName": "SepWeek4.pdf", "contentType": "application/pdf", "base64": "..." },  
 "submit": true  
}

Response Example:

{  
 "indexId": 1001  
}

### PUT /api/timesheets/{indexId}

Updates an existing timesheet if it is not approved. Allows changes to daily entries, comments, and attachments. If resubmitted, approval flags are reset.

Request Body:

{  
 "entries": [ { "date": "2025-09-22", "hoursWorked": 7.5 } ],  
 "comments": "Updated as requested",  
 "resubmit": true  
}

Response Example:

{  
 "message": "Timesheet updated.", "indexId": 1001  
}

### PUT /api/timesheets/{indexId}/entries

Bulk upserts daily entries into EveryDayTimesheet by date. Updates total hours in MasterTimeSheet.

Request Body:

{  
 "entries": [ { "date": "2025-09-24", "hoursWorked": 8.0 }, { "date": "2025-09-25", "hoursWorked": 6.0 } ]  
}

Response Example:

{  
 "message": "Entries saved.", "totalHoursWorked": 39.5  
}

## Attachment APIs

### POST /api/timesheets/{indexId}/attachments

Uploads or replaces a timesheet attachment. A unique GUID filename is generated for storage in Azure File Share. If an old file exists, it is deleted before saving the new one.

Response Example:

{  
 "fileName": "newguid.pdf", "sasUrl": "https://...", "size": 123456, "contentType": "application/pdf"  
}

## Approval APIs

### POST /api/timesheets/{indexId}/submit

Transitions a Draft timesheet to Submitted and triggers the approval workflow.

Response Example:

{  
 "message": "Submitted for approval."  
}

### POST /api/timesheets/{indexId}/approve

Marks a timesheet as approved at a specific level (L1 or L2). Records comments and updates flags in MasterTimeSheet.

Request Body:

{  
 "level": 1, "comment": "Looks good"  
}

Response Example:

{  
 "approvalL1": true, "approvalL2": false, "comments": "Looks good"  
}

### POST /api/timesheets/{indexId}/reject

Rejects a timesheet at the given approval level. Adds comments and notifies the employee to resubmit.

Request Body:

{  
 "level": 1, "comment": "Fix breaks"  
}

Response Example:

{  
 "message": "Rejected and sent back.", "comments": "Fix breaks"  
}

## Admin / Employer APIs

### POST /api/admin/timesheets/{indexId}/reopen

Allows employers or admins to reopen an approved timesheet. Approval flags are reset, and the employee can edit and resubmit.

Response Example:

{  
 "message": "Timesheet reopened for edits."  
}

### PUT /api/admin/employees/{employeeId}/role

Updates an employee's role in the Identity table, changing their access level.

Request Body:

{  
 "role": "Admin"  
}

Response Example:

{  
 "message": "Role updated."  
}

## Project Flow Explanation

1. Employee logs in. If first login, system requires a password change.  
2. Employee creates a timesheet for a chosen period, enters daily hours, and attaches documents.  
3. The system saves data into MasterTimeSheet and EveryDayTimesheet tables, uploads attachments to Azure, and marks the period for approval.  
4. Approvers (employers/managers) receive an email notification and can approve or reject the timesheet.  
5. If rejected, the employee can edit and resubmit. If approved, the record is locked.  
6. Employers/admins can reopen locked timesheets when corrections are needed.  
7. Employers manage employees, their roles, and permissions through Employee and Identity tables.