

# Software Design Document (SWDD) Template

This template is based to the *IEEE Recommended Practice for Software Design Descriptions*.

Logo ( if needed )

(Eagle Tech)

## **(The Nest)**

### **Software Design Document**

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## 1.0 INTRODUCTION

### 1.1 Purpose

The purpose of this document is to describe the architecture and the system design of the Nest, an interactive calendar habit tracking system. This document serves as a reference for software engineers, project managers, and stakeholders to ensure the proper design, implementation, and deployment of the system.

### 1.2 Scope

The Nest is designed to enhance user wellness and productivity by allowing users to create, track, and manage habits efficiently. The system provides featured such as:

- User authentication: Secure login/logouts
- Calendar navigation: Interactive calendar with navigation between months
- Habit Management: Adding, deleting, editing and tracking habits
- Data storage and syncing: Firestore based storage with real time updates
- UI/UX performance: A seamless interface for users

The Nest is designed as a comprehensive motivational system focused on enhancing user wellness. The website will allow users to enhance their wellness through habit tracking and goal accomplishment. The website will provide an interactive calendar where users can set, edit, and achieve development goals. The key goals include:

- Customizable Habit Tracking: Users can define and track habits over time, receiving insights into their progress.
- Goal Achievement Visualization: The system will highlight completed goals, offering motivation and reinforcing positive behaviors.
- Interactive Calendar: A user-friendly interface allows seamless navigation through months, enabling easy habit tracking and progress review.

The Nest will function as a web-based platform, ensuring users can track habits and goals anytime. It will integrate features aligned with higher-level system requirements, such as secure user authentication, integration with firestorm with real time updates and an interactive interface for goal-setting and progress tracking. The software will be designed for scalability, allowing possible future enhancements such as social features, and integration with external health apps.

## **1.4 Reference Material**

- The Nest Test Procedures
- The Nest SRS

## **3.0 SYSTEM ARCHITECTURE**

### **3.1 Architectural Design**

The following are 'The Nest' subsystems:

Authentication Subsystem: Handles user registration and authentication by using ClerkAPI.

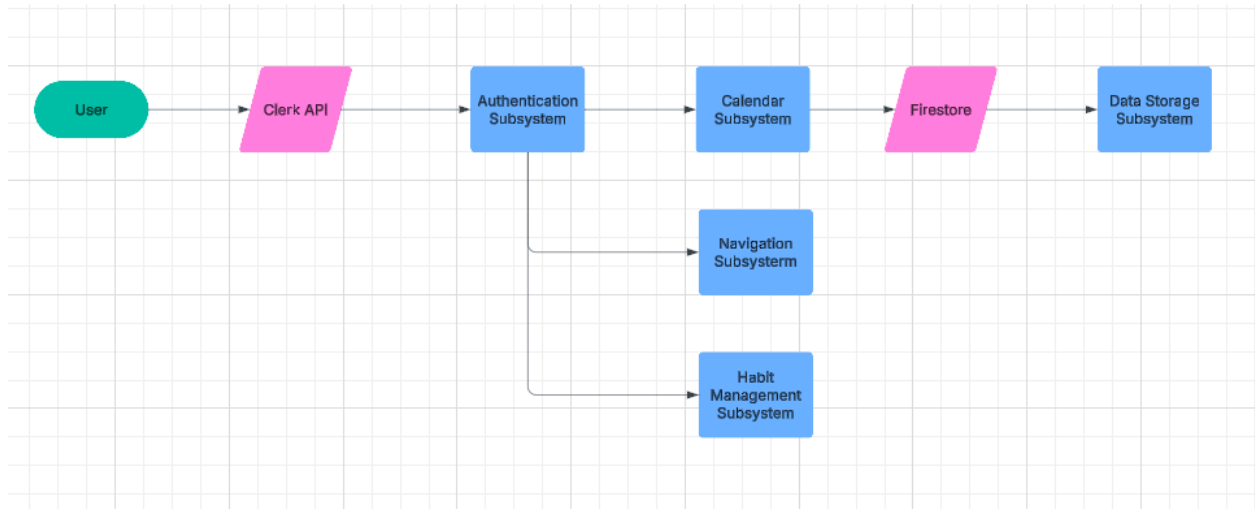
Navigation Subsystem: Provides a navigation bar showing and allowing users to navigate between months.

Calendar Subsystem: Displays an interactive spreadsheet calendar, which contains the users habits and completion progress.

Habit Management Subsystem: Handles habit adding, editing, and deletion with a pop up window.

Data Storage Subsystem: Uses Firestore for storing user data such as habits and completion progress.

A model to show these subsystems relationships are below



### 3.3 Design Rationale

- Clerk API was chosen because of its ability to easily integrate within the website system being built, as well as its security features.
- Firebase was chosen because of its capability of synchronizing in real-time. This was needed for tracking habit completion progress

## 4.0 DATA DESIGN

### 4.1 Data Description

The information domain of The Nest system is transformed into structured data using Firestore. The major system entities and their associated data are stored in Firestore collections and documents, ensuring that there is real time synchronization across users. The system primarily handles user authentication, habit tracking, and calendar-based interactions.

Data storage and organization:

- User data: Stored in Firestore under a "User" collection. Each user has a unique document containing personal details and authentication information.

- Habit data: Stored in a "Habits" collection, which is linked to users by unique identifiers. Each habit document contains details like habit name, frequency, and completion status.
- Calendar data: Organized as a structured document containing user-selected dates, tracked habit progress, and timestamps.
- Authentication data: Managed through Clerk API, integrating secure login and session management.
- Syncing and processing: Firestore enables real-time updates, ensuring user progress is reflected instantly on the interactive calendar.

## 4.2 Data Dictionary

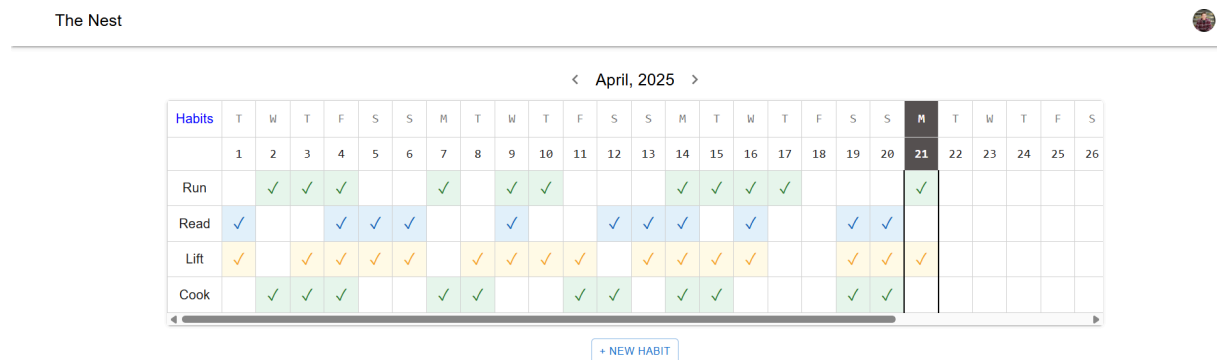
Entity	Type	Description
Authentication	API clerk	Manages user login, logout and session management
Interactive calendar	Collection	Stores the tracked habit for each date
Completion status/achievement	Boolean	Indicates that a habit was completed on selected date.
Habit	Collection	Represents a habit that the user defines including name, frequency/goal, and status.
Time stamp	date/time	Stores the time based data for habit completion.
User	Collection	Stores personal details for authentication and tracking habits.
UserID	String	Unique user identifier that is assigned/created for each user.

## 6.0 HUMAN INTERFACE DESIGN

### 6.1 Overview of User Interface

Website with interactive calendar meaning users can see the dates of the month and days of the week. The user will see add a new habit button, when clicked it will show a pop-up window where the user can set the name of the habit and the number of times the user wants to perform the habit in one month. The calendar will include small boxes where users can put checkmarks.

### 6.2 Screen Images



### 6.3 Screen Objects and Actions

On the screen we have the following objects and actions that are associated with those:

- Clickable arrows: Navigate between months
- Date Numbers: Select/show a specific date
- Habit goal progress column: Displays the progress for activities
- Log in / sign up buttons: Allows for users to sign up or log in via user authentication
- Header: "The Nest" clickable link to return back to homepage

- Month name: Displays the month that is selected and updates when arrows are clicked

## 7.0 REQUIREMENTS MATRIX

Requirement	Design
3.2.1	Authentication
3.2.2	Calendar navigation
3.2.3.1	Add Habit
3.2.3.2	Edit Habit
3.2.3.3	Delete Habit
3.2.4	Account settings
3.1.3.2	Firestore