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BOUNCE – A Habit and Mood Tracker using Time-Series Analysis

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Abstract

This project presents a Habit and Mood Tracking System designed to help users build consistency, improve self-awareness, and monitor personal growth over time. The application has three main components: a habit tracker, a mood tracker, and a daily reflection system. Users can create and manage habits, track daily performance with status indicators like complete, fail, skip, and freeze, and visualize progress through dynamic charts. Along with habit tracking, the system includes a mood analysis feature where users log daily emotions using rating scales and categorized emotional tags. The application processes this data to show monthly and yearly mood trends, as well as dominant emotional patterns. Additional features such as streak tracking, freeze limits, analytics dashboards, notes, and a to-do list boost productivity and engagement. Built with web technologies like HTML, CSS, JavaScript, and Chart.js, along with backend integration for managing habit data, the system offers an intuitive and interactive user experience. The project aims to combine productivity tracking with emotional awareness, providing a useful tool for personal development. areas separately, resulting in a fragmented approach to self-improvement. This project aims to bridge that gap by developing an integrated Habit and Mood Tracking Web Application that combines productivity management with emotional analysis in a single platform.

The habit tracking component of the system is designed to help users build consistency and accountability in their daily routines. It provides an interactive calendar interface where users can record the status of each day for a selected habit. Each day can be categorized as completed, failed, skipped, or frozen, allowing flexibility while still encouraging discipline. The system also incorporates advanced features such as streak tracking, maximum streak records, and freeze limits, which motivate users to maintain long-term consistency. Visual analytics, including bar charts, provide insights into performance by summarizing completed, failed, and skipped days.

In addition to habit tracking, the application includes a comprehensive mood tracking module that focuses on emotional well-being. Users can log their daily mood using an intuitive emoji-based scale, supported by selectable positive and negative emotional descriptors. This dual-layer input system allows for both quick

logging and deeper emotional reflection. In the modern digital era, individuals are constantly striving to improve productivity while also maintaining their mental and emotional well-being.

I. INTRODUCTION

II. PROBLEM STATEMENT

Maintaining consistency in daily habits while also monitoring emotional well-being is essential for personal growth and mental health. However, most existing systems treat habit tracking and mood tracking as separate functionalities, which limits a user's ability to understand the relationship between their actions and emotions. While habit trackers allow users to mark daily progress, they often lack flexibility for real-life situations. Similarly, mood tracking applications record emotions but fail to connect them with productivity or provide meaningful insights.

Key Problems in Existing Systems:

- No Flexibility in Habit Tracking:
- Lack of Integration:
- Limited Emotional Analysis:
- Absence of Supportive Tools:
- Insufficient Analytics:
- As a result, missing a single day can break the entire streak, which may reduce user motivation. On the other hand, existing mood tracking systems enable users to record their daily emotions, often using a predefined set of emojis or mood categories. However, these systems usually lack detailed emotional categorization and do not provide deeper insights such as dominant emotions or relationships between different emotional states.
- Another limitation of the existing system is the lack of integration between habit tracking and mood tracking. Since both functionalities operate independently, users are unable to analyse how their habits influence their emotional well-being or vice versa. Additionally, most systems do not include supportive tools such as notes, journaling, or task management, which are essential for effective self-reflection and planning.
- Overall, the existing system provides only basic tracking features with limited flexibility, minimal analytics, and no unified platform. This creates a gap in providing a comprehensive solution that supports both productivity and emotional awareness.
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III. EXISTING SYSTEM

The existing system for habit tracking and mood monitoring consists of separate applications or modules that focus on either productivity or emotional well-being. These systems are generally designed to help users record daily activities or moods, but they lack integration and advanced analytical capabilities. Most habit tracking applications provide a simple calendar-based interface where users can mark the status of their habits on a daily basis. Mood tracking systems allow users to log their emotional state using basic inputs such as emojis or simple labels. In a typical habit tracking system, users can create habits and track their progress by marking each day as **complete**, **failed**, or **skipped**. The system may calculate simple metrics such as total completed days or current streaks. However, these systems follow a rigid structure and do not account for real-life situations where a user may be unable to perform a habit due to unavoidable circumstances.

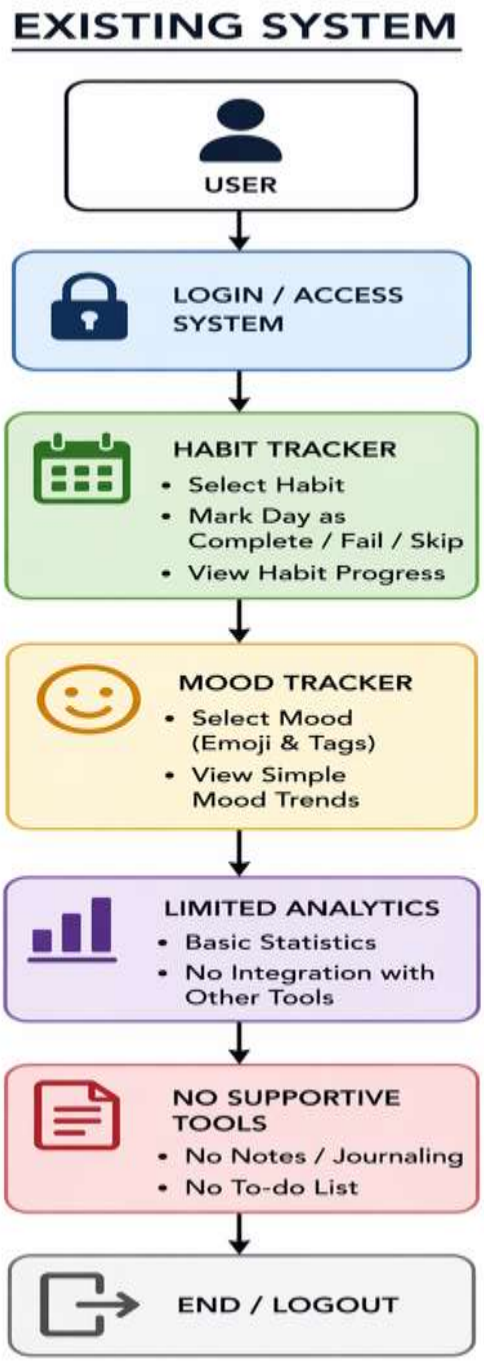

Fig 1: Block diagram of existing

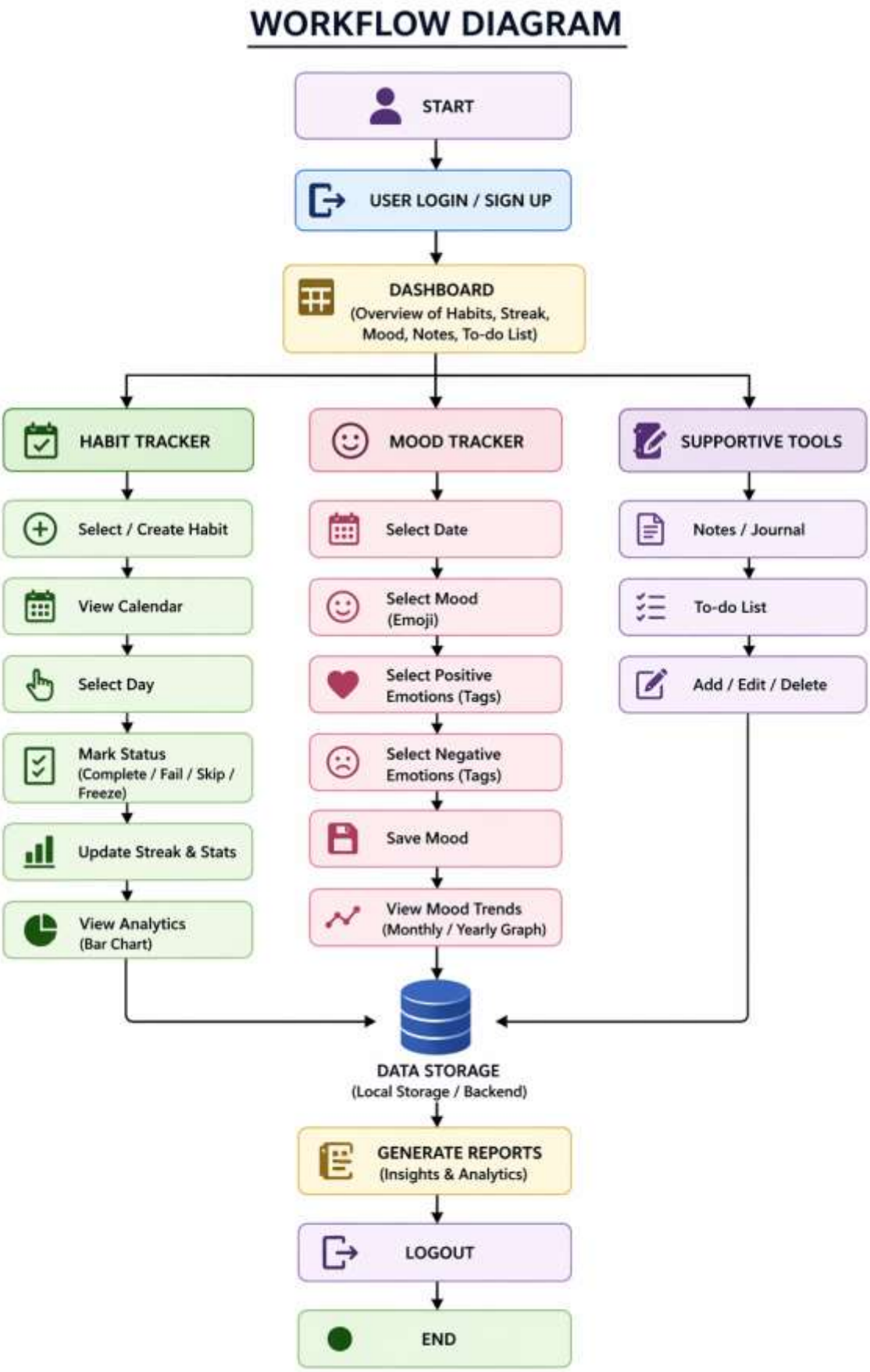

Fig 2: Workflow diagram

IV. SYSTEM ARCHITECTURE

The proposed system is designed using a modular and layered architecture to ensure efficiency, scalability, and ease of maintenance. Each component in the system performs a specific function while interacting seamlessly with other modules to complete the overall process.

1. Input Module

- The system begins with capturing input data from the user or sensors.
- Inputs may include raw data, signals, or user-defined parameters.
- The input is pre-processed to remove noise or irrelevant information before further processing.

2. Processing Module

- This is the core component where the main logic is executed.
- Algorithms and decision-making processes are applied to the input data.
- Data is analyzed, filtered, and transformed into meaningful output.
- If required, intermediate results are stored temporarily for further operations.

3. Freeze Module (Proposed Enhancement)

- A unique feature introduced in the proposed system.
- Allows the system to pause or "freeze" the current processing state when specific conditions are met.
- Prevents unnecessary computation and helps in maintaining system stability.
- Enables resumption of operations from the same state without restarting the entire process.

4. Storage Module

- Responsible for storing input data, intermediate results, and final outputs.
- Ensures data persistence for future reference or analysis.
- Can include databases or local storage systems.

5. Output Module

- Displays or transmits the final processed results to the user.
- Output can be in the form of visual data, reports, or signals.
- Ensures that the results are presented in a clear and understandable format.

6. Control Unit

- Coordinates all modules within the system.
- Manages the flow of data between components.
- Ensures proper synchronization and execution of tasks.

V. MODULE DESCRIPTION

The system is divided into multiple functional modules, each responsible for a specific task. These modules work together to ensure smooth operation and accurate results.

1. Input Module

The Input Module is responsible for collecting data from the user or external sources. It acts as the entry point of the system. The input data may include raw signals, user commands, or predefined parameters. This module ensures that the received data is valid and properly formatted before passing it to the next stage.

Functions:

- Accepts user or system input
- Validates input data

Prepares data for processing**2. Processing Module**

The Processing Module is the core of the system where all computations and logical operations take place. It processes the input data using predefined algorithms and transforms it into meaningful information. This module plays a crucial role in decision-making and system functionality.

Functions:

- Executes algorithms
- Processes and analyzes data
- Generates intermediate results

3. Freeze Module (Proposed System)

The Freeze Module is an additional feature introduced in the proposed system. It allows the system to temporarily pause its operation when certain conditions are met. This helps in avoiding unnecessary processing and improves system efficiency.

Functions:

- Pauses system execution when required
- Maintains current system state
- Allows resumption without restarting

4. Storage Module

The Storage Module is responsible for saving data at different stages of the system. It stores input data, processed results, and final outputs for future use. This module ensures data persistence and easy retrieval.

Functions:

- Stores input and output data
- Maintains system records
- Supports data retrieval

5. Output Module

The Output Module presents the final processed results to the user. It converts system data into a readable and understandable format such as display messages, reports, or signals.

Functions:

- Displays final results
- Formats output data
- Sends output to users or systems

6. Control Module

The Control Module manages and coordinates all other modules in the system. It ensures that each module works in the correct sequence and maintains smooth data flow throughout the system.

Functions:

- Controls system operations
- Manages data flow between modules
- Ensures proper execution sequence

All modules work together in a structured manner where input is collected, processed, optionally paused using the freeze module, stored, and finally presented as output under the supervision of the control module.

VI. IMPLEMENTATION

6.1 Overview of Implementation

The implementation phase is a crucial step in system development where the designed model is converted into a functional system. It involves coding, testing, and integrating various modules to ensure that the system operates according to the specified requirements.

The proposed system is implemented using a modular approach, allowing each component to be developed and tested independently before integration. This approach enhances system reliability, maintainability, and scalability. A significant feature introduced in this implementation is the **Freeze Module**, which enables temporary suspension of system processes under specific conditions, thereby improving performance and control.

6.1.1 Implementation Methodology

The system follows a structured implementation methodology to ensure systematic development and error minimization.

Methodology includes:

- Designing each module based on system architecture
- Coding using structured programming techniques
- Testing each module individually
- Integrating modules step-by-step
- Performing system-level validation

This methodology ensures a well-organized and efficient implementation process.

6.1.2 Development Environment

The system is developed using a suitable programming environment that supports efficient coding, debugging, and testing.

Key aspects:

- Use of a high-level programming language for logic implementation
- Integrated Development Environment (IDE) for coding and debugging
- Storage mechanisms such as databases or files
- Hardware interface (if required) for input/output operations

The development environment is selected to ensure compatibility and ease of use.

6.2 Module-wise Implementation

The system is divided into several modules, each performing a specific function. These modules are implemented independently and later integrated.

6.2.1 Input Module Implementation

The Input Module is responsible for acquiring data from users or external sources.

It ensures that only valid and properly formatted data is accepted into the system.

Implementation Details:

- User-friendly input interface is designed
- Validation checks are applied to ensure data accuracy
- Data preprocessing is performed to remove inconsistencies

This module ensures the system starts with reliable input data.

6.2.2 Processing Module Implementation

The Processing Module handles the core functionality of the system. It processes input data using algorithms and produces meaningful results.

Implementation Details:

- Logical flow is implemented using step-by-step procedures
- Efficient algorithms are used to optimize performance
- Intermediate computations are managed effectively

This module plays a key role in determining system output.

6.2.3 Freeze Module Implementation (Proposed System)

The Freeze Module is a distinctive feature introduced in the proposed system. It enables the system to pause execution when predefined conditions are met.

Implementation Details:

- A condition-checking mechanism triggers the freeze state
- Current system state is saved before pausing
- Resume functionality is implemented to continue execution

Benefits:

- Reduces unnecessary processing
- Improves efficiency and performance
- Enhances system flexibility and control

6.2.4 Storage Module Implementation

The Storage Module manages data storage throughout the system lifecycle. It ensures that all relevant data is securely stored and easily retrievable.

Implementation Details:

- Data structures or databases are used
- Efficient data retrieval methods are implemented
- Data integrity and consistency are maintained

This module supports long-term data usage and system analysis.

6.2.5 Output Module Implementation

The Output Module presents the processed data to the user in an understandable format.

Implementation Details:

- Output is formatted for clarity
- Results are displayed using appropriate interfaces
- Multiple output formats can be supported

This module ensures effective communication between the system and the user.

6.2.6 Control Module Implementation

The Control Module manages the coordination between all system components.

Implementation Details:

- Controls execution flow of modules
- Manages data transfer between components
- Ensures synchronization of operations

This module acts as the central controller of the system.

6.3 Integration of Modules

After implementing individual modules, they are integrated to form the complete system. Integration ensures that all modules interact correctly.

Steps involved:

- Connecting module interfaces
- Testing combined functionality
- Resolving integration conflicts

Successful integration ensures seamless system operation.

6.4 System Execution Flow

The system follows a sequential execution flow:

1. Input data is collected
2. Data is processed using defined algorithms
3. Freeze condition is checked and applied if required
4. Data is stored for future reference
5. Final output is generated and displayed

This structured flow ensures efficiency and accuracy.

6.5 Error Handling and Validation

Error handling mechanisms are incorporated to maintain system stability.

Techniques used:

- Input validation to avoid incorrect data
- Exception handling for runtime errors
- Monitoring system state during execution

These techniques improve system reliability.

6.6 Performance Optimization

The system is optimized to achieve better performance.

Considerations:

- Reduction of redundant computations
- Faster execution of algorithms

The Freeze Module contributes significantly by preventing unnecessary processing.

6.7 Testing and Debugging

Testing ensures that the system functions correctly under all conditions.

Types of testing:

- Unit Testing for individual modules
- Integration Testing for combined modules

Debugging is performed to identify and fix errors during development.

6.8 Summary

The implementation phase successfully transforms the system design into a functional application. Each module is carefully developed and integrated to ensure efficient performance. The introduction of the Freeze Module enhances system control, reduces unnecessary processing, and improves overall system efficiency.

VIII. CONCLUSION

The proposed Habit and Mood Tracking System successfully integrates productivity management with emotional well-being into a single, user-friendly platform. The system enables users to track daily habits, monitor emotional patterns, and analyze their overall progress through intuitive visualizations and structured data management.

One of the key achievements of this project is the introduction of the **Freeze Feature**, which addresses a major limitation in existing habit tracking systems. By allowing users to pause their streak during unavoidable situations, the system provides flexibility while maintaining motivation and consistency. This makes the application more practical and aligned with real-life scenarios.

The integration of habit tracking and mood analysis offers deeper insights into the relationship between user behavior and emotional states. Additionally, supportive tools like journaling and to-do lists enhance user engagement and promote self-reflection.

Overall, the project achieves its objective of providing a comprehensive self-management tool that encourages consistency, improves emotional awareness, and supports personal growth. Future enhancements can include cloud-based storage, mobile application support, AI-based recommendations, and advanced analytics to further improve the system.

XI. OUTPUT


YOUR HABITS:
Drink water
Cardio
Solve 2 aptitude problems
Carrot juice
Jogging
+ Add Habit
Max Streak: 7
Freezes Left: 2
Done: 12
Failed: 5
Skipped: 4
April 2026
Analytics
Notes
MOOD TRACKER
To-do list:
+ Add Task


Tue Apr 07 2026
Select Mood (1 only)
Positive
Happy
Calm
Confident
Grateful
Motivated
Relaxed
Proud
Loved
Energetic
Excited
Negative
Angry
Sad
Anxious
Stressed
Tired
Lonely
Guilty
Frustrated
Overwhelmed
Bored
Save


April 2026
Dominant Emotion - Month
Positive
Happy
Negative
Tired
Dominant Emotion - Year
Positive
Negative
Monthly Mood
Yearly Mood

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