PROJECT ABSTRACT

Habit Tracker Desktop App

A desktop habit tracker built on streak psychology: daily checklists with streak counters, a completion calendar, heatmap statistics, missed-day analysis and rest-day handling so planned breaks don’t kill streaks — built-to-order with source code, report, PPT and viva kit.

01. Title

Habit Tracker Desktop App

02. Introduction / Background

New-year resolutions fail by February for a well-studied reason: motivation is unreliable, but visible streaks are compelling — nobody wants to break the chain. Habit trackers weaponize this with daily checklists, streak counters and calendars, and the data they accumulate reveals genuine patterns (weekday vs weekend adherence, which habits drag the average down). This project builds a desktop habit tracker around that psychology: define habits with schedules (daily or specific weekdays), check them off each day, watch streaks grow, explore the completion calendar and heatmap, and get honest missed-day analysis — including a rest-day mode so a planned Sunday off doesn’t reset a 23-day streak.

03. Problem Statement

Phone habit apps nag with notifications and bury the data; paper trackers can’t compute statistics. Students juggling gym, DSA practice, reading and sleep need a calm desktop tool that makes consistency visible, explains misses instead of just resetting counters, and keeps all personal data on the local machine.

04. Objectives

- Implement habit definitions with schedules (daily or chosen weekdays) and reminders.
- Build a daily checklist UI with one-tap check-off and streak counters.
- Compute streaks with rest-day awareness (planned breaks don’t reset).
- Render a monthly completion calendar (full/partial/missed day states).
- Provide statistics: completion rate, heatmap, strongest streaks, best week.
- Implement missed-day analysis explaining what broke and suggesting fixes.
- Keep all data local on the device.

05. Proposed Methodology

Each habit stores its schedule as a weekday mask; a day is “expected” for a habit if the mask includes that weekday and the day is not marked a rest day. Check-ins are timestamped rows. Streaks count consecutive expected days with all expected habits complete, skipping rest days rather than breaking. The calendar colors each day by the fraction of expected habits completed (full/partial/missed). Statistics aggregate the check-in log: overall completion rate, per-habit streaks, weekly best. The missed-day analyzer compares missed days against weekday patterns and surfaces observations (e.g. lower weekend adherence) with concrete suggestions.

06. System Architecture / Working

Three layers: (1) Data layer — habits, schedules, check-ins, rest days in a local database; (2) Streak engine — expected-day computation, streak counting with rest-day logic, calendar coloring, statistics aggregation; (3) UI layer — today's checklist, calendar view with missed-day analysis, statistics view with heatmap. The working flow is: define habits → check off daily → streaks grow → review calendar and stats → adjust schedules or rest days from what the data shows.

07. Hardware / Software Requirements

- Windows/macOS/Linux desktop or laptop — no special hardware
- Python with a desktop GUI toolkit, or Electron
- Local database (SQLite) for habits and check-ins
- Fully offline; optional OS notification API for reminders

08. Expected Outcomes

A working desktop app where a week of realistic check-ins produces correct streak counts, a truthfully colored calendar, and statistics that reflect the logged data. The rest-day logic is demonstrated with a before/after streak comparison; all sample data is illustrative and labeled as such in the report.

09. Applications

- Student routine building (study, gym, reading, sleep)
- Placement-prep consistency (daily DSA practice)
- Wellness routines (water, meditation, exercise)
- Behavioural-science coursework on habit formation

10. Future Scope

- Phone companion app with synced check-ins
- Habit templates (student, fitness, wellness packs)
- Accountability partners with shared streaks
- Correlation insights (sleep vs gym adherence)