CareCompanion

hackaTUM X – Reply Challenge
Nov 23, 2024

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Problem Statement:

Caregiving for someone with a serious illness is overwhelming. It's not just about being there emotionally—it's about managing an entire ecosystem of responsibilities. Doctors, medications, appointments, and critical documents are often scattered across different channels. Information is fragmented: everyone knows a little, but no one has the full picture.

This lack of coordination turns caregiving into a second full-time job—one that demands your time, energy, and life without compensation. In the chaos, things slip through the cracks, and the stress of organization adds to an already heavy emotional burden.

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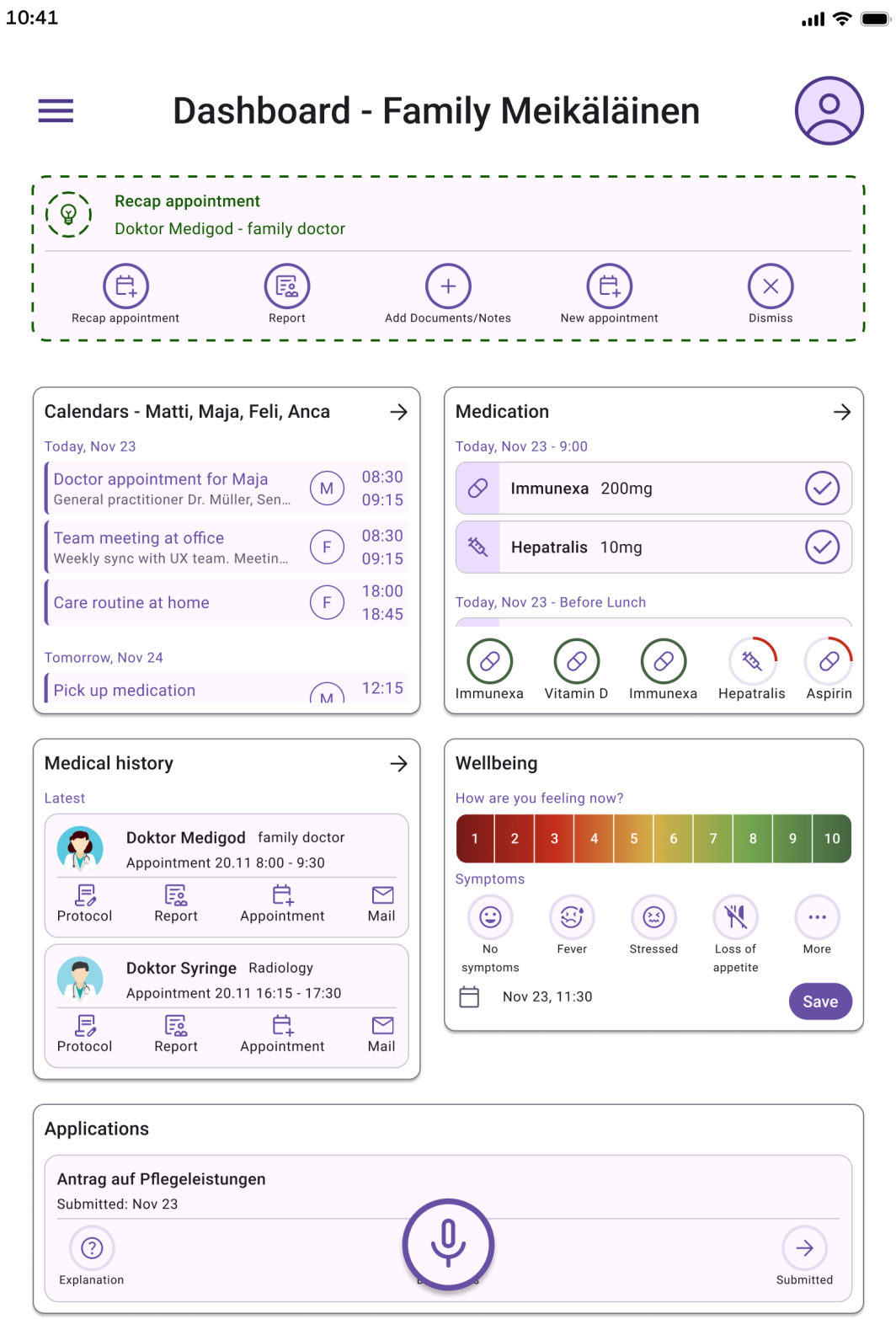
Solution

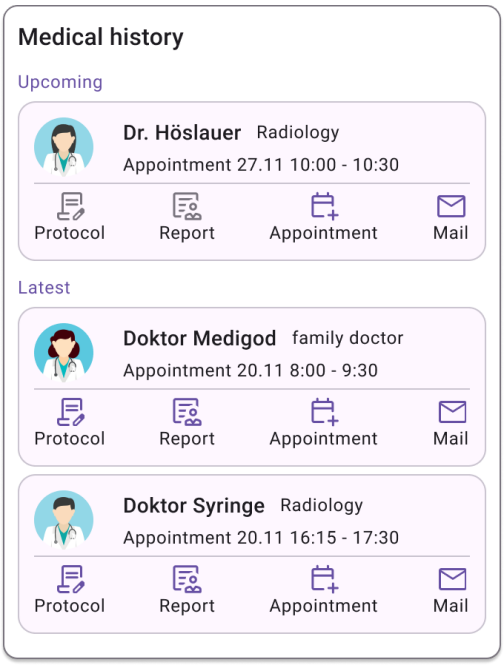
Imagine a digital companion that takes the chaos out of caregiving. It brings everything together—appointments, medications, documents, and family coordination—into one intelligent system. It doesn't just organize; it anticipates. By syncing calendars, distributing tasks, and sending proactive reminders, it makes caregiving predictable, less stressful, and truly collaborative.



Let’s have a look at the features:

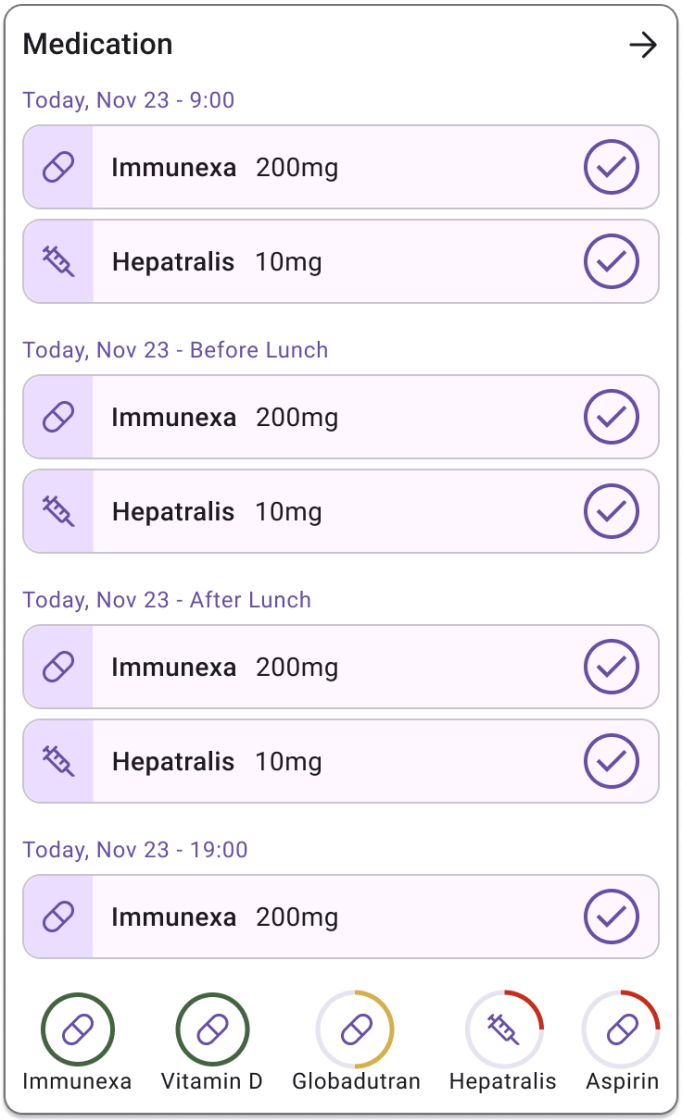
Medical Appointment Agent – Key Functions

1. **Capture and Organize Conversations**
    - Records doctor consultations for reference and clarity.
    - Converts spoken information into structured notes.
2. **Extract and Interpret Medical Reports**
    - Reads and processes medical documents automatically.
    - Highlights key findings and updates patient history.
3. **Analyze Information & Answer Questions**
    - Uses historical data and upcoming appointments to provide context.
    - Answers patient or caregiver questions based on current status and past records.
4. **Prepare for Appointments**
    - Generates a checklist of required documents and items.
    - Links to relevant files or previous reports for easy access.



Medication Agent – Key Functions

1. **Track Prescriptions**
    - Monitors all prescribed medications based on user input and data extracted from medical reports.
    - Updates automatically when new prescriptions are added.
2. **Manage Dosage and Inventory**
    - Keeps an accurate record of dosage schedules.
    - Tracks remaining supply to prevent running out unexpectedly.
3. **Proactive Reminders**
    - Alerts caregivers and patients when it's time to request repeat prescriptions.
    - Suggests actions like scheduling a doctor visit or contacting the pharmacy (in sync with the Scheduling Agent).



Scheduling Agent – Key Functions

1. **Read and Sync Family Calendars**
    - Connects to calendars of all caregivers and family members.
    - Creates a unified view of availability and commitments.
2. **Detect Recurring Appointments**
    - Identifies patterns in medical visits and other care-related events.
    - Suggests adding missing recurring appointments to avoid gaps.
3. **Proactive Reminders**
    - Alerts when important appointments are not scheduled.
    - Ensures no critical check-up or follow-up is overlooked.
4. **Smart Appointment Booking**
    - Syncs with doctors' available slots via platforms like Doctolib.
    - Suggests optimal times based on family availability.
    - Offers alternatives: reschedule, call the doctor, or adjust plans.

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Calendar

Make an appointment
Dr. Höslauer - Radiology

Change doctor | link appointment | Not relevant

Today, Nov 23

- Doctor appointment for Maja — 08:30 – 09:15
  General practitioner Dr. Müller, Sendlinger Str. 45, Munich. Blood pressure check and prescription renewal
- Team meeting at office — 08:30 – 09:15
  Weekly sync with UX team. Meeting room “Design Lab”, 3rd floor.
- Care routine at home — 18:00 – 18:45

Tomorrow, Nov 24

- Pick up medication — 12:15 – 12:45
  Pharmacy at Viktualienmarkt. Collect painkillers and blood pressure meds
- Care routine at home — 18:00 – 18:45
- Video call with sister — 20:15 – 20:45
  The thing you don’t want to think of

Tuesday, Nov 25

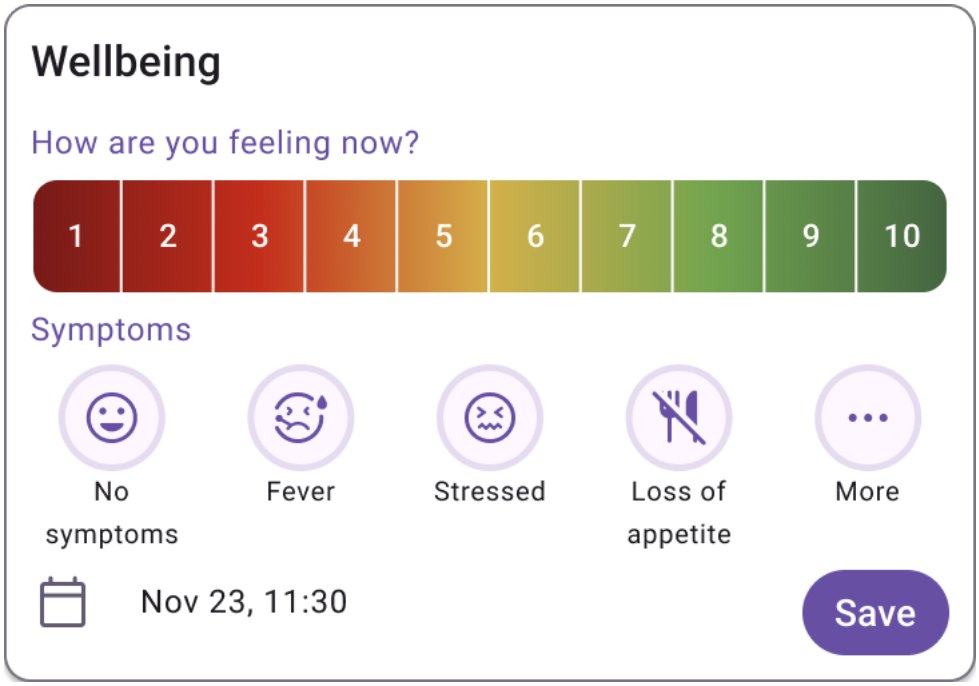
- Appointment Dr. Höslauer - Radiology — 15:00 – 15:30
- Shopping for Meal Prep — 17:00 – 18:00
- Care routine at home — 18:00 – 18:45
- Weekly Food Prep — 19:00 – 22:00
  Light meal for both: vegetable stir-fry + rice

Wednesday, Nov 26

- Physiotherapy for Maja — 09:00 – 09:45
  Bring referral.
- Project review — 10:00 – 11:30
- Lunch break with Steven — 12:00 – 12:45
- Care routine at home — 18:00 – 18:45
- Leftover work — 19:00 – 22:00
  Bring referral

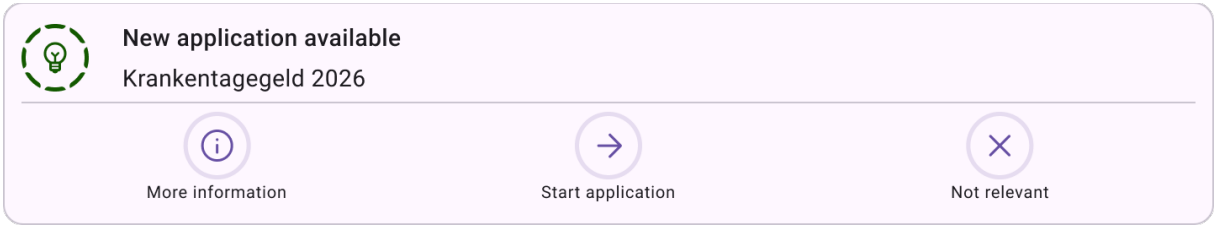
Mood Agent – Key Functions

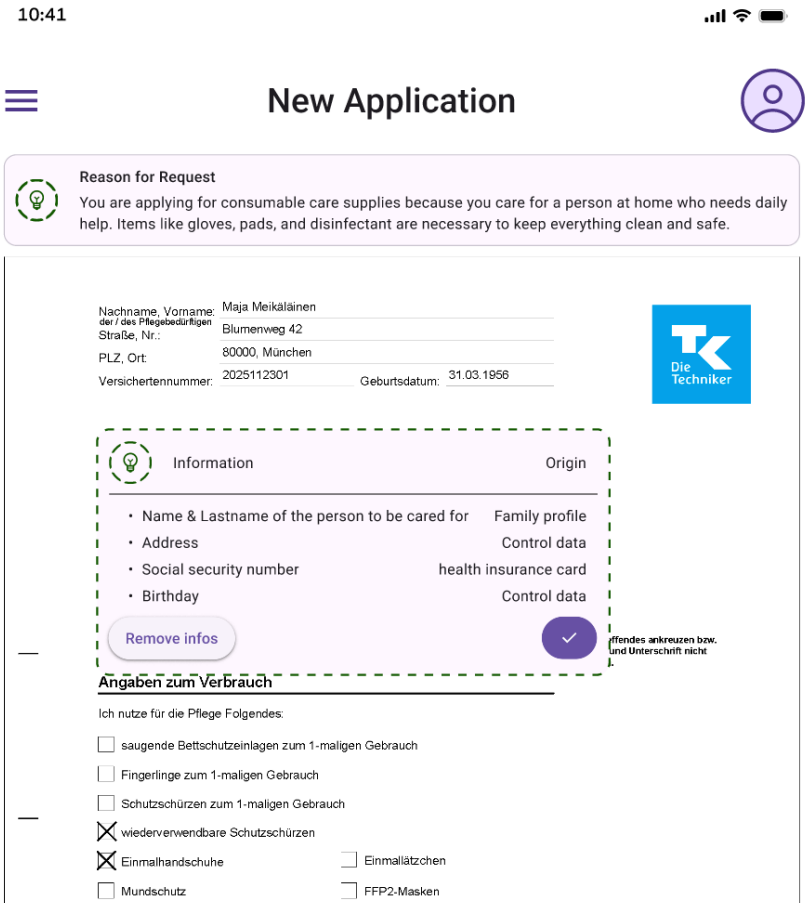
1. **Track Emotional and Physical State**
    - Monitors current mood and symptoms through simple, user-friendly input.
    - Builds a timeline of well-being trends for better long-term insights.
2. **Generate Automatic Well-being Reports**
    - Creates clear summaries of mood and symptom data.
    - Prepares these reports for upcoming medical appointments (integrates with the Medical Appointment Agent).
    - Ensures doctors receive a holistic view beyond clinical metrics.



Application Agent – Key Functions

1. **Proactive Recommendations**
    - Identifies relevant benefits, financial aid, or support programs based on medical context.
    - Suggests applications that could ease the caregiving burden (e.g., insurance claims, home care support).
2. **Automated Form Completion**
    - Pre-fills applications and official documents using verified medical data.
    - Reduces manual effort and minimizes errors by leveraging information from the Medical Appointment Agent or other supporting data.





How the Agents Build on Each Other

The agents are designed to share data and amplify each other's capabilities, reducing duplication and creating a smarter, connected system:

Medical Appointment Agent ↔ Mood Agent: The Medical Appointment Agent uses well-being reports generated by the Mood Agent to prepare for consultations. This ensures doctors receive a complete picture—clinical data plus emotional and symptom trends.

Medical Appointment Agent ↔ Application Agent: Information captured and analyzed during appointments (e.g., diagnoses, treatment plans) feeds directly into the Application Agent, which uses it to recommend relevant benefits and auto-fill forms. No need to re-enter data manually.

Medication Agent ↔ Scheduling Agent: When medication supplies run low, the Medication Agent triggers the Scheduling Agent to book follow-up appointments or prescription renewals. This prevents last-minute stress and missed doses.

Scheduling Agent ↔ Medical Appointment Agent: The Scheduling Agent provides upcoming appointment details to the Medical Appointment Agent, so preparation checklists and document links are always aligned with the next visit.

Core Functionality

The core purpose of this system is to **dramatically reduce mental load for caregivers**.
It achieves this by:

- **Consolidating scattered information** (medical data, appointments, mood, documents).
- **Analyzing and connecting these data points** to maintain clarity and control.
- **Proactively suggesting next steps**, so caregivers can move from reactive firefighting to confident planning.

Result:

Less stress and more time for what truly matters—
the people you care for

Disclaimer

This concept intentionally focuses on the user experience and the potential impact of the solution, without addressing the regulatory and technical challenges of implementation in Germany—such as compliance with GDPR and other data protection laws.
We are fully aware of the sensitivity of medical and personal data and recognize that any real-world deployment would require strict adherence to privacy regulations, robust security measures, and transparent consent management.