💧 App Name: WaterWise

A rule-based AI app for early detection of water-borne diseases.

🧩 1. Overall Architecture

Layer	Description
Frontend (UI)	Built with Flet for mobile-first responsive layout. Uses Cards, Columns, Containers, and Buttons.
Logic Layer (Rule Engine)	Pure JSON rule set that matches user symptoms to diseases using simple rule matching.
Data Layer	Stores disease knowledge base (symptoms, remedies, treatments, urgency levels).
UX Flow	Multi-page navigation (Welcome → Symptom Input → Diagnosis → Learn/Prevention → Restart).

🧭 2. Navigation Structure (Multi-Page Flow)

Page 1: Welcome Screen

Purpose: Introduce the app and guide users into diagnosis or learning mode.
Navigation Path:
→ "Start Diagnosis" → **Symptom Input Page**
→ "Learn Prevention Tips" → **Learn Page**

UI Components:

- App title: *"💧 WaterWise"*

- Tagline: "Detect water-borne diseases early using symptom analysis."

- Buttons:

    - **Start Diagnosis** (primary CTA)

    - **Learn Prevention Tips** (secondary)

- Visuals: water drop logo or wave banner background

- Footer: version info / credits ("Built for Hackathon 2025")

Design Theme:

- Background: Light aqua gradient (#E0F7FA → #FFFFFF)

- Primary Button: Teal (#009688)

- Text color: Deep blue (#004D40)

Page 2: Symptom Input Page

Purpose: Collect symptoms and basic details from user.

Navigation Path:
← "Back" → Welcome
→ "Detect Disease" → Result Page

UI Components:

- **Header:** "Select Your Symptoms"

- **Symptom Checklist:**
  Scrollable CheckboxGroup listing ~15–20 common symptoms such as:
  Diarrhea, vomiting, fever, dehydration, yellow eyes, fatigue, stomach cramps, loss of appetite, dark urine, nausea, body pain, headache, etc.

- **Optional Inputs:**

  ○ Age group (dropdown: child / adult / elderly)

  ○ Duration (text or dropdown: <1 day / 1–3 days / >3 days)

  ○ Recent water source (dropdown: tap / well / tanker / river / unknown)

- **Button:** "Detect Disease" (Teal accent)

- **Back Button:** "← Return to Home"

Additional Functionality:

- Inputs stored temporarily in state variables.

- Can show symptom suggestions (auto-grouping common combos).

- Tooltip/info icon for unclear symptoms.

Design Theme:

- Clean white background.

- Symptom cards with soft shadows.

- Section dividers with cyan highlight (#00BCD4).

Page 3: Diagnosis Result Page

Purpose: Display probable disease(s) based on rule matches.

Navigation Path:
← "Back to Symptoms"
→ "Restart Diagnosis" → Welcome Page
→ "Learn More" → Learn/Prevention Page

UI Components:

- **Header:** "Diagnosis Result"

- **Detected Disease Card:**

    - Disease Name (bold, large font)

    - Confidence/Match score (percentage based on symptom overlap)

    - Urgency Indicator (color-coded badge):

        - 🟥 High (immediate doctor visit)

        - 🟧 Medium (soon consult)

        - 🟩 Low (home care sufficient)

- **Sections:**

    - **Matched Symptoms:** bullet list of overlapping ones.

    - **Home Remedies:** concise, actionable steps.

- ○ **Common Treatments:** general, non-prescriptive guidance.

  - ○ **When to See a Doctor:** urgency note.

- ● **Buttons:**

  - ○ "🔄 Restart Diagnosis"

  - ○ "ℹ️ Learn Prevention Tips"

Additional Features:

- ● Visual cues (icons for hydration, rest, medicine).

- ● Display confidence as progress ring or bar.

- ● Option to share or save result (for hackathon demo only).

Design Theme:

Element	Color	Purpose
Header	Teal (#009688)	Contrast
Urgency High	Red (#E53935)	Danger
Urgency Medium	Orange (#FB8C00)	Caution
Urgency Low	Green (#43A047)	Safe
Background	Off-white (#F5F5F5)	Clean readibility

Page 4: Learn & Prevention Page

Purpose: Educate users about prevention and hygiene practices.

Navigation Path:
← "Back" → Welcome or Diagnosis Page

Sections:

- ● **Intro Card:** "Why water safety matters"

- ● **Tips Section:**

- ○ " 💧 Always boil or filter water before drinking."

- ○ " 🧴 Wash hands with soap before eating."

- ○ "🍽️ Avoid raw food washed with unsafe water."

- ○ "🚰 Clean water tanks regularly."

- ○ "📦 Store water in closed containers."

- **Quick Facts:**

  - ○ Annual deaths due to water-borne diseases (for awareness)

  - ○ Rural vs. urban stats (infographic style)

- **Links (optional):**

  - ○ WHO & UNICEF articles (for extra credibility)

- **Buttons:**

  - ○ "Back to Home"

  - ○ "Start Diagnosis"

Design Theme:

- Background: soft green gradient (#E8F5E9 → #FFFFFF)

- Cards: light green accent borders.

- Icons: colored (water drop, filter, soap, etc.)

Page 5: Settings / About (Optional for hackathon bonus)

Purpose: Show app info and credits.

Navigation Path:
→ "About" from footer or header menu

Sections:

- About WaterWise (short blurb)

- Credits (developers, hackathon name)

- Disclaimer: "This app is for informational purposes only."

- Feedback button (optional form popup)

Design Theme:

Muted grey background with teal accents for text.

⚙️ 3. App Logic Flow Summary

Step	Action	Result
1	User selects symptoms	Symptoms stored
2	User clicks "Detect Disease"	Rule engine compares with database
3	Matches scored by symptom overlap	Highest score = predicted disease
4	UI displays matched disease, remedies, urgency	Result page rendered
5	User navigates to Learn Page or restarts	Flow resets

📱 4. Mobile-First Design Principles

- **Single-column layout:** All screens vertically scrollable for phones.

- **Touch-friendly buttons:** Large, rounded, shadowed.

- **Consistent top headers:** Teal strip with title and optional back button.

- **Minimal text:** Use icons + color-coded indicators instead of paragraphs.

- **Auto-resizing text & containers:** Responsive for mobile width (320–420px).

🧠 5. Future Enhancements (if time permits in hackathon)

Feature	Description
Symptom Severity Slider	Allow intensity input to refine diagnosis.
Multi-Disease Suggestion	If overlap is close, suggest top 2 likely diseases.
Offline Data Persistence	Store last diagnosis locally (JSON file).
Dark Mode	Switch color scheme for comfort.
Local Language Toggle	English + Hindi/Regional options for accessibility.

🧩 6. Example User Journey

1. **User opens app** → Sees *Welcome Screen*.

2. Taps **"Start Diagnosis."**

3. Selects symptoms: *diarrhea, vomiting, dehydration.*

4. Taps **"Detect Disease."**

5. **Result Page:** *Likely Cholera* → urgency: *High*.

6. Reads remedies → taps **"Learn Prevention Tips."**

7. Reads hygiene steps → returns to home → restarts.