shovelSmart

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Apps for Good

Background

o Shoveling heavy loads of snow increases **risk of physical injury and heart attacks.**
o Climate change contributes to **dangerous storms** and **heavier, wetter snow.**

Target Audience

shovelSmart aims to support **anyone who finds shoveling snow difficult or time consuming.** The app especially benefits the **elderly** and **homeowners**.

App Architecture

Home — Boston, Massachusetts / weather info / temperature / shoveling parameters / Newport, Rhode Island

Home — Boston, Massachusetts / Weather Alert: Start shoveling at **2:45pm** for optimal shoveling. / Newport, Rhode Island

New Home — Name / enter the name of your home / Zip Code / enter your zip code / Preferred Depth / enter your preferred shoveling depth / Shoveling Time / Light Snow: / Medium Snow: / Heavy Snow:

Weather — Homes / Boston, Massachusetts / 30 degrees F / misty / Snow arriving around 6:00pm, expected to last until 6:30am tomorrow / recommended start time : 2:45 pm / snow type

Settings* — achievements / shovel master / chilly traveler / time saver / explore more... / app details / language / location services / achievements / accessibility
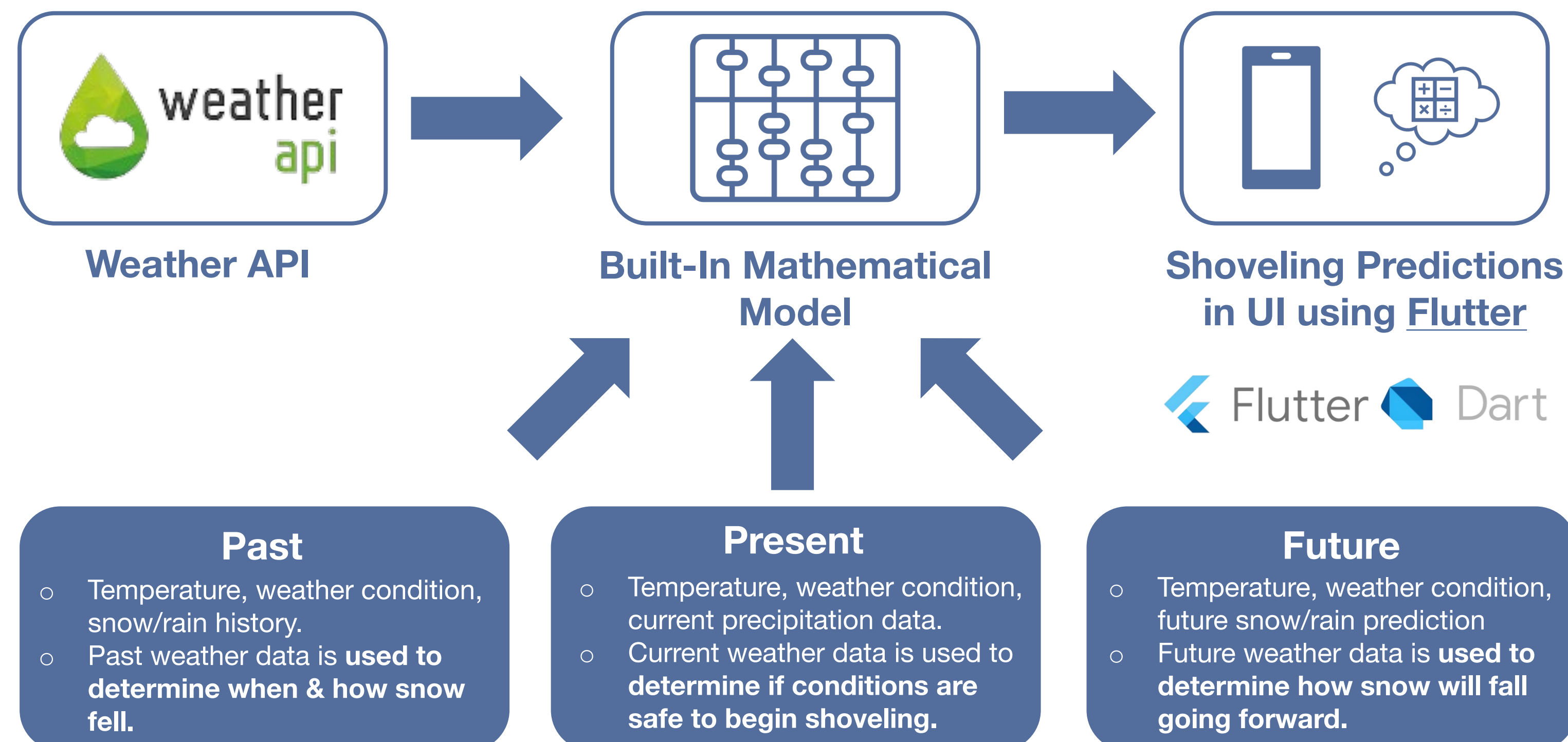
What is ❄ shovelSmart?

shovelSmart is a mobile application that allows its users to **shovel snowfall faster and smarter.**

Features

o Snow weight **prediction**
  o How heavy is the snowfall?
o Shovel time **estimation**
  o How long will it take to shovel?
o Shovel time/effort **optimization**
  o When should I start shoveling?

System Architecture & Models

Weather API → **Built-In Mathematical Model** → **Shoveling Predictions in UI using Flutter**

Flutter Dart

Past
o Temperature, weather condition, snow/rain history.
o Past weather data is **used to determine when & how snow fell.**

Present
o Temperature, weather condition, current precipitation data.
o Current weather data is used to **determine if conditions are safe to begin shoveling.**

Future
o Temperature, weather condition, future snow/rain prediction
o Future weather data is **used to determine how snow will fall going forward.**

Competitors

Shovler, Inc.
o Aims to **connect shovelers** with app users who are **seeking local shoveling services.**
o High-quality dual-UI with in-app purchasing features, rating systems, and order records.
o **Poses risks to homeowners** through **location sharing** and **failure to receive service.**

Quikplow
o Connects shovelers with users who need shoveling services.
o Sleek, profit-based, easy-to-use interface
o **Knowledge gap:** homeowners/shovelers are unable to determine **how they should best approach** the **unpredictable and unforgiving weather circumstances.**

Future Extensions

Winter Testing
o Test in real-world environments.
o Refine the model based upon testing data.

Incorporate ML
o Incorporate Machine Learning (ML) models
o Adaptable predictions for shoveling time & optimization

Pre-Scheduled Pulls
o Use Cron system job-scheduler to pre-pull weather data
o Notifies users of timing and optimization