**Power BI Live Weather Forecast Dashboard Documentation**

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This documentation explains the step-by-step process of building a **Live Weather Forecast Dashboard** in Power BI using data from **WeatherAPI**. It includes API integration, data transformation, DAX calculations, and visualization logic.  
  
  
  
**🔗 API Integration**  
  
Base API URL (for each city):

<http://api.weatherapi.com/v1/forecast.json?key=YOUR_API_KEY&q=CITY_NAME&days=7&aqi=yes>

**Example:**  
Json.Document(Web.Contents("http://api.weatherapi.com/v1/forecast.json?key=b4a2f665078d425ea0a114145252307&q=HYDERABAD&days=7&aqi=yes"))

Repeat the same for:  
- BANGALORE  
- MUMBAI  
- CHENNAI  
- NOIDA  
  
  
**📥 Power Query Transformations**  
  
1. Import each city's API data using `Web.Contents()`  
2. Append Queries as New\*\* to combine all 5 into one table → name it `Master`  
3. Create three Reference Tables:  
 - `Current` → keep only current weather + location  
 - `Forecast\_day` → keep only 7-day forecast + location  
 - `Forecast\_hour` → keep only hourly forecast + location  
4. Remove unnecessary columns  
5. Remove Duplicates in each reference table

**📍 Location Table Creation**  
  
DAX Formula:  
Locations = SUMMARIZE('Current','Current'[location.name])  
  
  
  
**🗓️ Add New Columns in Forecast\_day**  
Day\_name = FORMAT(Forecast\_day[forecast.forecastday.date],"dddd")  
Sunrise\_date = FORMAT(Forecast\_day[forecast.forecastday.astro.sunrise],"hh:mm AM/PM")  
Sunset\_date = FORMAT(Forecast\_day[forecast.forecastday.astro.sunset],"hh:mm AM/PM")  
  
  
  
 **📊 DAX Measures Used**

**📅 Date & Status**  
Max value = 300  
Last\_updated\_date = "Last Updated, "& FORMAT(FIRSTNONBLANK('Current'[current.last\_updated],""),"dd mmm")  
  
🌧️ **Rain and PM10**Left\_value\_PM10 = [Max value] - SUM('Current'[current.air\_quality.pm10])  
Left\_value\_rain = 100 - SUM(Forecast\_day[forecast.forecastday.day.daily\_chance\_of\_rain])  
  
🌬️ **Weather Metrics**  
Current\_temp\_c = SUM('Current'[current.temp\_c]) & "°C"  
Forecast\_temp = AVERAGE(Forecast\_day[forecast.forecastday.day.avgtemp\_c]) & " °C"  
Visibility = SUM('Current'[current.vis\_km]) & " Km"  
Wind\_speed = SUM('Current'[current.wind\_kph]) & " Kph"

**🌫️ AQI Color Logic (sample for CO)**Co\_color =   
VAR AQI = ROUND(SELECTEDVALUE('Current'[current.air\_quality.co]),0)  
RETURN SWITCH(TRUE(),  
 AQI <= 50, "#43d946",  
 AQI <= 100, "#fff570",  
 AQI <= 150, "#ff9800",  
 AQI <= 200, "#d99343",  
 AQI <= 300, "#ff5b0f",  
 "#d95243"  
)  
  
(Repeat for NO2, SO2, PM10, PM2.5, O3)  
  
**🧠 AQI Status and Suggestion**  
AQI Status =   
VAR AQI = ROUND(SELECTEDVALUE('Current'[current.air\_quality.pm10]),0)  
RETURN SWITCH(TRUE(),  
 AQI <= 50, "Good",  
 AQI <= 100, "Moderate",  
 AQI <= 150, "Unhealthy for Sensitive",  
 AQI <= 200, "Unhealthy",  
 AQI <= 300, "Very Unhealthy",  
 "Hazardous"  
)  
  
AQI Suggestion =   
VAR AQI = ROUND(SELECTEDVALUE('Current'[current.air\_quality.pm10]),0)  
RETURN SWITCH(TRUE(),  
 AQI <= 50, "Air is clean and healthy",  
 AQI <= 100, "Acceptable air quality, stay active",  
 AQI <= 150, "Sensitive groups should reduce outdoor time",  
 AQI <= 200, "Limit prolonged outdoor exertion",  
 AQI <= 300, "Avoid outdoor activity if possible",  
 "Stay indoors, wear a mask if outside"  
)  
  
  
**🧱 Visualization Structure**  
**📌 Visuals Used:**  
- Slicers: City and Day (Day\_name)  
- KPI Cards: Temperature, AQI, Wind, Humidity, Pressure, Sunrise, Sunset  
- Line Chart: 7-Day Forecast Temperature  
- Bar Chart: Rain Chance  
- Donut Chart: PM10, PM2.5, CO, SO2, NO2, O3  
- Circular Gauge/Arc: AQI % and Left Values  
- Icons: Mapped using URL fields from data  
  
**🎨 Design Tips:**- Use Dark Theme  
- Set proper alignment, use `fx` for conditional colors  
- Hide unnecessary tables using “Table View” → Eye icon  
- Keep visuals grouped for better layout  
  
  
  
 **🔁 Auto Refresh Setup**  
- Publish report to Power BI Service  
- Set scheduled refresh using your API key (if allowed)  
  
  
  
 **✅ Result**- Real-time dynamic dashboard with interactive visuals for multiple cities  
- API-based automated updates for live forecasting and air quality tracking  
- Production-quality project with clean UI/UX, icons, DAX, and transformations  
  
  
  
 **🔗 Credits**- API by [weatherapi.com](https://www.weatherapi.com/)  
- Built by: Sonta Ramesh