**Weather API Documentation**

**Base URL:**

http://localhost:8000

**Endpoints**

**1. Get List of Cities**

**Endpoint:**

GET /cities

**Description:** Fetch a list of cities available in the database.

**Response:**

* **200 OK**

{

**"list\_cities": [**

**"Bangkok",**

**"Beijing",**

**"Berlin",**

**"Buenos Aires",**

**"Cairo",**

**"Cape Town",**

**"Dubai",**

**"Istanbul",**

**"Lagos",**

**"London",**

**"Los Angeles",**

**"Mexico City",**

**"Moscow",**

**"New York County",**

**"Paris",**

**"Rome",**

**"Seoul",**

**"Shanghai",**

**"Sydney",**

**"Tokyo"**

**]**

}

**2. Get Weather Forecast for a City**

**Endpoint:**

GET /forecast/{city}

**Description:** Fetch weather forecast for a specific city, including average temperature and forecast dates starting from today.

**Path Parameters:**

* **city** (string): Name of the city.

**Response:**

* **200 OK**

{

"city": "Tokyo",

"country": "JP",

"avg\_temperature": 30.25,

"forecasts\_dates": [

"2024-08-11 12:00:00",

"2024-08-11 15:00:00",

"2024-08-11 18:00:00",

…

] }

* **404 Not Found**

{

"detail": "City 'CityName' not found"

}

**3. Get Detailed Weather Forecast for a City on a Specific Date**

**Endpoint:**

GET /forecast/{city}/{date}

**Description:** Fetch detailed weather forecast for a specific city on a specific date.

**Path Parameters:**

* **city** (string): Name of the city.
* **date** (string): Date in the format YYYY-MM-DD HH:MM:SS.

**Response:**

* **200 OK**

{

**"dt": 1723388400,**

**"main": {**

**"temp": 30.6,**

**"feels\_like": 34.25,**

**"temp\_min": 30.6,**

**"temp\_max": 30.6,**

**"pressure": 998,**

**"sea\_level": 998,**

**"grnd\_level": 996,**

**"humidity": 61,**

**"temp\_kf": 0**

**},**

**"weather": [**

**{**

**"id": 500,**

**"main": "Rain",**

**"description": "light rain",**

**"icon": "10n"**

**}**

**],**

**"clouds": {**

**"all": 100**

**},**

**"wind": {**

**"speed": 3.83,**

**"deg": 287,**

**"gust": 7.11**

**},**

**"visibility": 10000,**

**"pop": 0.74,**

**"sys": {**

**"pod": "n"**

**},**

**"dt\_txt": "2024-08-11 15:00:00"**

}

* **400 Bad Request**

json

Копировать код

{

"detail": "Incorrect date format. Expected format: YYYY-MM-DD HH:MM:SS"

}

* **404 Not Found**

json

Копировать код

{

"detail": "City 'CityName' not found"

}

or

{

"detail": "No weather data found for date '2024-08-10 15:00:00' in city 'CityName'"

}

**Data Models**

**City**

**Description:** Model representing a list of cities.

**Fields:**

* **list\_cities** (List[str]): List of city names.

**CityForecast**

**Description:** Model representing weather forecast for a city.

**Fields:**

* **city** (str): Name of the city.
* **country** (str): Country of the city.
* **avg\_temperature** (float): Average temperature.
* **forecasts\_dates** (List[str]): List of forecast dates starting from today.

**DetailedForecast**

**Description:** Model representing detailed weather forecast for a specific date.

**Fields:**

* **date** (str): Date of the forecast.
* **temp** (float): Temperature.
* **humidity** (int): Humidity percentage.
* **wind\_speed** (float): Wind speed.

**Weather**

**Description:** Model representing weather conditions.

**Fields:**

* **id** (int): Weather condition id.
* **main** (str): Group of weather parameters (Rain, Snow, Extreme etc.).
* **description** (str): Weather condition within the group.
* **icon** (str): Weather icon id.

**Main**

**Description:** Model representing main weather data.

**Fields:**

* **temp** (float): Temperature.
* **feels\_like** (float): Temperature as perceived by humans.
* **temp\_min** (float): Minimum temperature.
* **temp\_max** (float): Maximum temperature.
* **pressure** (int): Atmospheric pressure.
* **sea\_level** (int): Atmospheric pressure at sea level.
* **grnd\_level** (int): Atmospheric pressure at ground level.
* **humidity** (int): Humidity percentage.
* **temp\_kf** (int): Temperature coefficient.

**Clouds**

**Description:** Model representing cloud data.

**Fields:**

* **all** (int): Cloudiness percentage.

**Wind**

**Description:** Model representing wind data.

**Fields:**

* **speed** (float): Wind speed.
* **deg** (int): Wind direction in degrees.
* **gust** (float): Wind gust speed.

**Sys**

**Description:** Model representing system data.

**Fields:**

* **pod** (str): Part of the day (n: night, d: day).

**WeatherForecast**

**Description:** Model representing a detailed weather forecast for a specific date and city.

**Fields:**

* **dt** (int): Date and time of the forecast in Unix format.
* **main** (Main): Main weather data.
* **weather** (List[Weather]): List of weather conditions.
* **clouds** (Clouds): Cloud data.
* **wind** (Wind): Wind data.
* **visibility** (int): Visibility in meters.
* **pop** (float): Probability of precipitation.
* **sys** (Sys): System data.
* **dt\_txt** (str): Date and time of the forecast in human-readable format.

**Error Handling**

**HTTP 400 Bad Request:**

* **Description:** Incorrect date format.
* **Example:**

{

"detail": "Incorrect date format. Expected format: YYYY-MM-DD HH:MM:SS"

}

**HTTP 404 Not Found:**

* **Description:** City not found or no forecast available for the specified city and date.
* **Examples:**

{

"detail": "City 'CityName' not found"

}

or

{

"detail": "No weather data found for date '2024-08-10 15:00:00' in city 'CityName'"

}

**HTTP 500 Internal Server Error:**

* **Description:** An unexpected error occurred on the server.
* **Example:**

{

"detail": "Internal server error"

}

**Running the Application**

To run the FastAPI application, use the following command:

uvicorn API:app --host 0.0.0.0 --port 8000

This starts the server and makes the API available at http://localhost:8000.