ClaClass Location:

o Attributes:

- city (string)
- state (string) (optional)
- country (string) (optional)
- latitude (float)
- longitude (float)

Methods:

- get_city(): Returns the city name.
- get state(): Returns the state name (if applicable).
- get country(): Returns the country code.
- get_coordinates(): Returns a tuple containing latitude and longitude.

Class WeatherData:

Attributes:

- timestamp (datetime)
- temperature (float)
- feels like (float) (optional)
- humidity (int) (%)
- pressure (float) (hPa)
- wind speed (float) (m/s)
- wind direction (string) (e.g., "N", "NE")
- weather_condition (string) (e.g., "sunny", "rainy", "cloudy")
- icon (string) (URL to weather icon) (optional)

Methods:

- get timestamp(): Returns the time the data was retrieved.
- get temperature(): Returns the current temperature.
- get_feels_like(): Returns the "feels like" temperature (optional).
- get humidity(): Returns the humidity percentage.
- get pressure(): Returns the atmospheric pressure.
- get wind speed(): Returns the wind speed.
- get wind direction(): Returns the wind direction.
- get_weather_condition(): Returns the current weather condition.
- get_icon(): Returns the URL to the weather icon (optional).

Class Forecast:

Attributes:

- date (datetime)
- weather data (WeatherData object)

Methods:

- get date(): Returns the forecast date.
- get_weather_data(): Returns the associated WeatherData object.

Class WeatherService:

Methods:

- get_current_weather(location): Returns current WeatherData for a given location.
- get_forecast(location, days): Returns a list of Forecast objects for the next 'days' at a given location.

Class Alert:

- Attributes:
 - type (string) (e.g., "severe weather", "flash flood")
 - severity (string) (e.g., "warning", "watch")
 - description (string)
 - issued_at (datetime)

Methods:

- get_type(): Returns the alert type.
- get severity(): Returns the alert severity.
- get description(): Returns the alert description.
- get issued at(): Returns the time the alert was issued.

Relationships

- Composition: Forecast has a WeatherData object. The WeatherData object is part of the Forecast and wouldn't exist without it.
 - Multiplicity: Forecast "1" *-- "1" WeatherData (A Forecast has exactly one WeatherData object).
- **Dependency:** WeatherService *uses* other classes to perform its functions. It takes Location as a parameter and returns WeatherData and Forecast objects.
 - WeatherService ..> Location
 - WeatherService ..> WeatherData
 - WeatherService ..> Forecast
- **Isolated Class:** Based on the provided methods, Alert is not currently connected to any other class in this system.

Alert -type: string WeatherService -severity: string -description: string -issued_at: datetime +get_current_weather(location: Location):: WeatherData +get_type()::string +get_forecast(location: Location, days: int) : : list<Forecast> +get_severity()::string +get_description()::string +get_issued_at():: datetime uses > returns > WeatherData -timestamp: datetime -temperature: float -feels_like: float Location -humidity: int -pressure: float -city: string -wind_speed: float -state: string -wind_direction: string -country: string -weather_condition: string -latitude: float -icon: string returns > -longitude: float +get_timestamp() : : datetime +get_city() : : string +get_temperature()::float +get_state() : : string +get_feels_like()::float +get_country()::string +get_humidity()::int +get_coordinates()::tuple +get_pressure()::float +get_wind_speed()::float $+ {\sf get_wind_direction()} :: {\sf string}$ +get_weather_condition()::string +get_icon()::string Forecast -date: datetime -weather_data: WeatherData +get_date()::datetime +get_weather_data():: WeatherData