Software modelling and design
project 3-design submission

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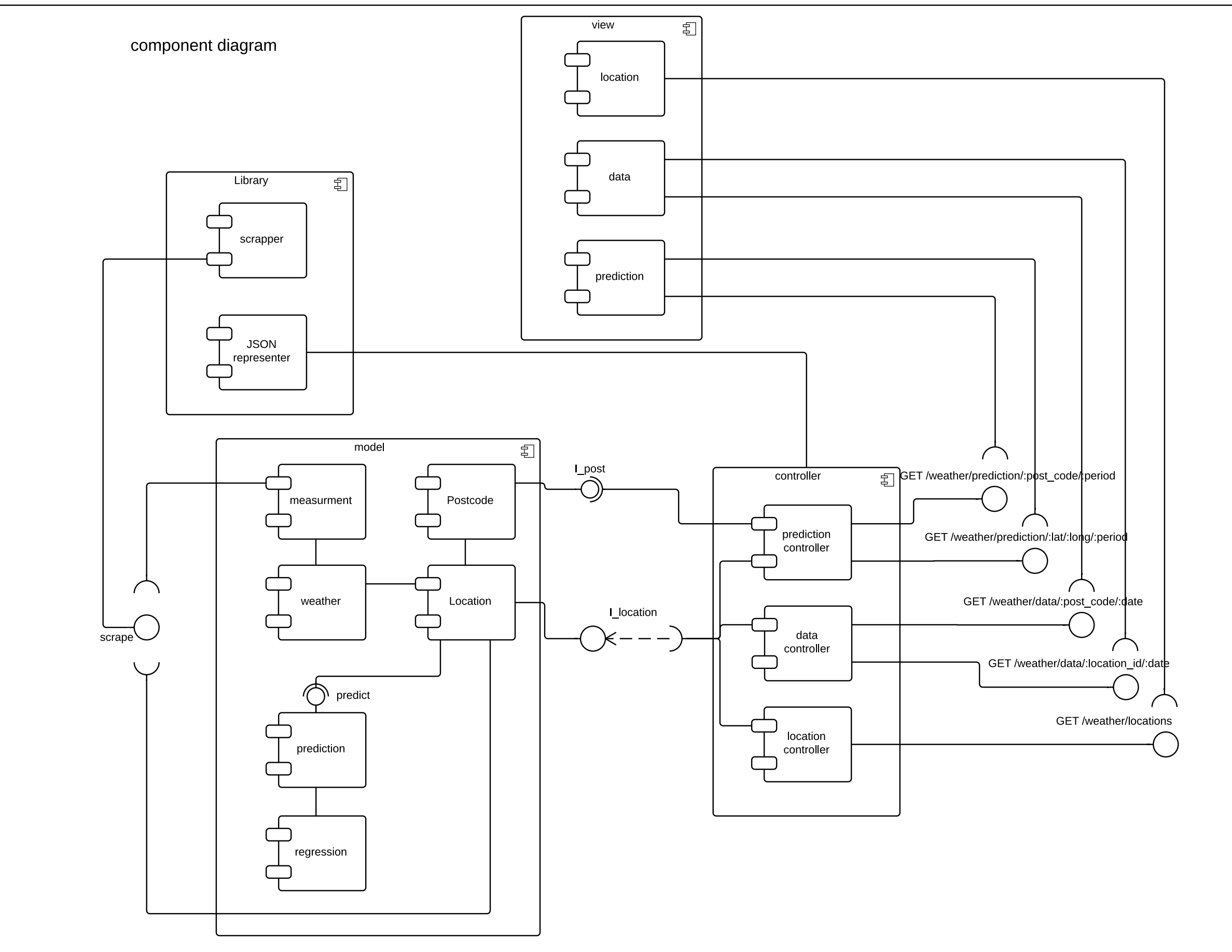
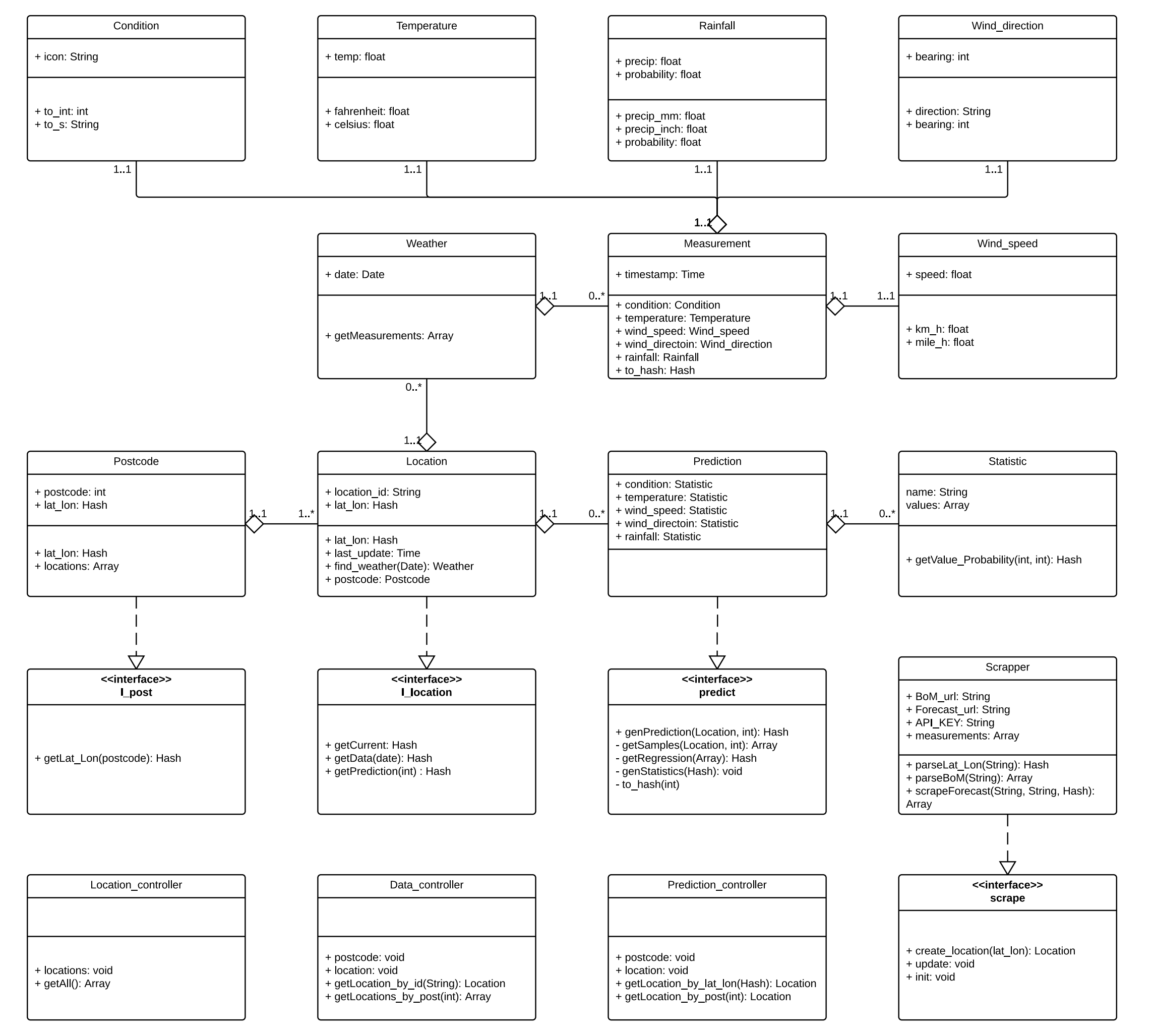
component diagram



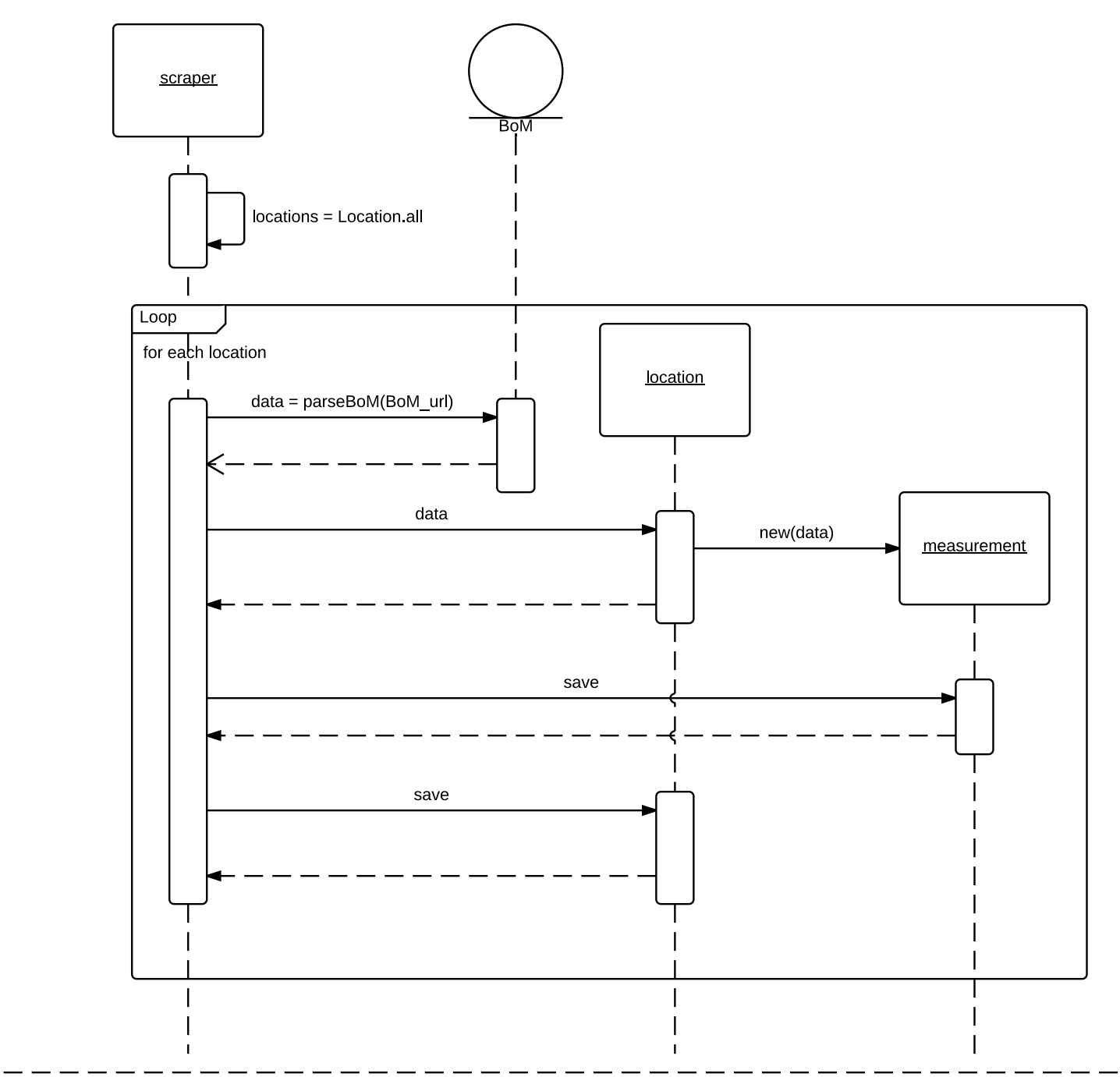
interface	implement by	method	semantics
I_location	Location	getData(date)	returns one day's(specified by date) measurements of this location.
		getCurrent	returns a hash contains current temperature and condition.
		getPrediction(period)	returns prediction of this location for period time.
I_post	Postcode	getLat_Lon(postcode)	returns latitude and longitude of postcode.
scrape	Scrapper	create_location(lat_lon)	create location using lat_lon and return it, also create and save weather and measurements of this location using data from Forecast.io
		init	create and save locations for all stations of BoM and measurements of last 72 hours for each station, also create and save weather for each location if weather does not exist.
		update	create and save the newest measurements for each station of BoM, also create and save weather if weather does not exist.
predict	Prediction	genPrediction(location, period)	returns a hash contains prediction result of location for period time.
		getSamples(location, period)	returns an array of measurement samples.
		getRegression(samples)	returns regression formula(Hash) for array of measurement samples.
		genStatistics	generate statistics for prediction
		to_hash(period)	returns a hash contains several prediction statistics for the next period minutes, each of them is a prediction for 10 minutes.
GET /weather/prediction/:post_code/:period	prediction_controller	postcode	returns weather prediction of location pointed by postcode for period time. Information format could be HTML or JSON, depends on which format the user asked.
GET /weather/prediction/:lat/:long/:period		location	returns weather prediction of location pointed by lat and lon for period time. Information format could be HTML or JSON, depends on which format the user asked.
GET /weather/data/:post_code/:date	data_controller	postcode	returns one day's(specified by date) measurements of locations belong to postcode. Information format could be HTML or JSON, depends on which format the user asked.
GET /weather/data/:location_id/:date		location	returns one day's(specified by date) measurements of location(specified by locatoin_id). Information format could be HTML or JSON, depends on which format the user asked.
GET /weather/locations	location_controller	locations	returns all locations information. Information format could be HTML or JSON, depends on which format the user asked.

class diagram

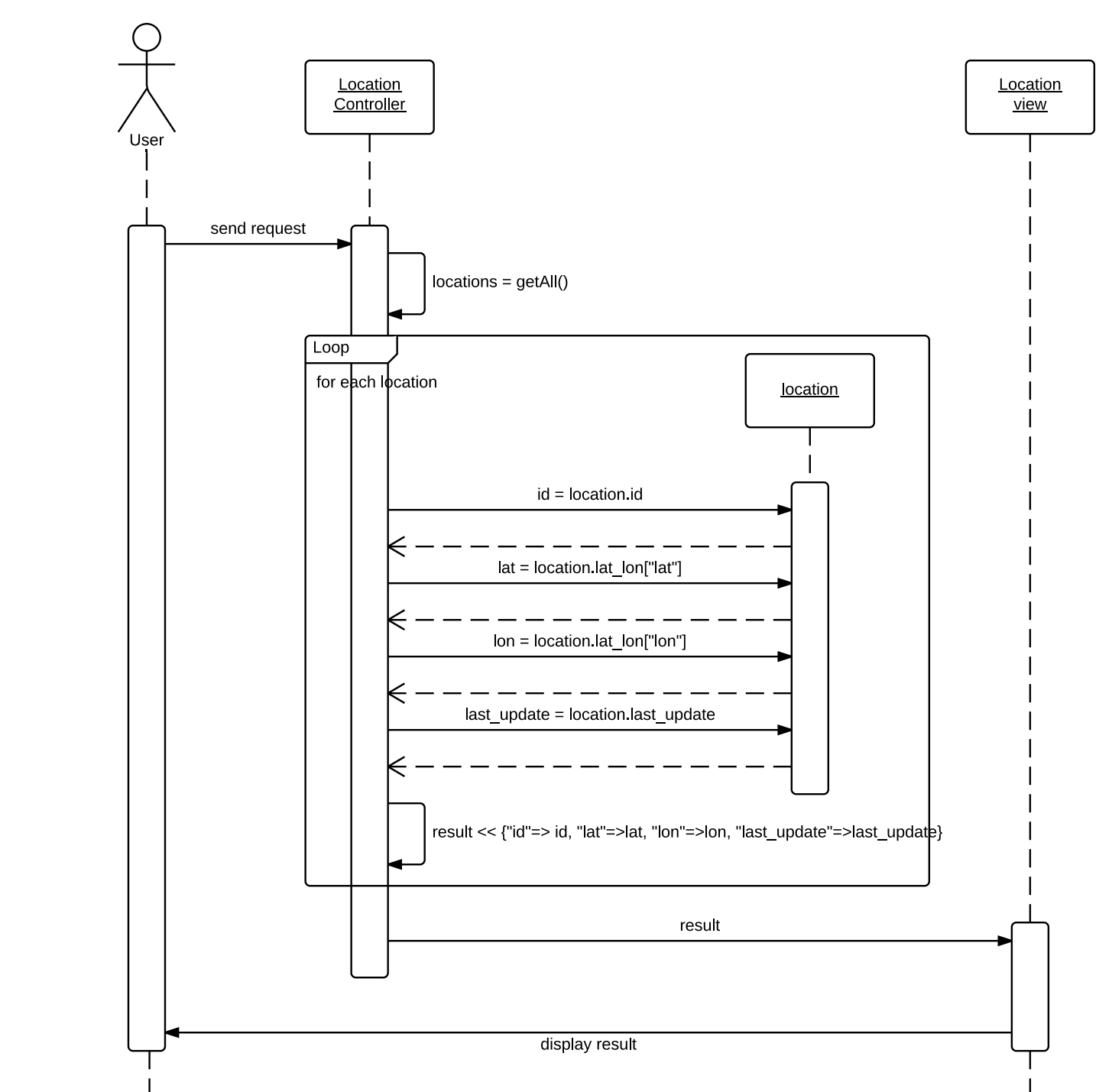


sequence diagrams

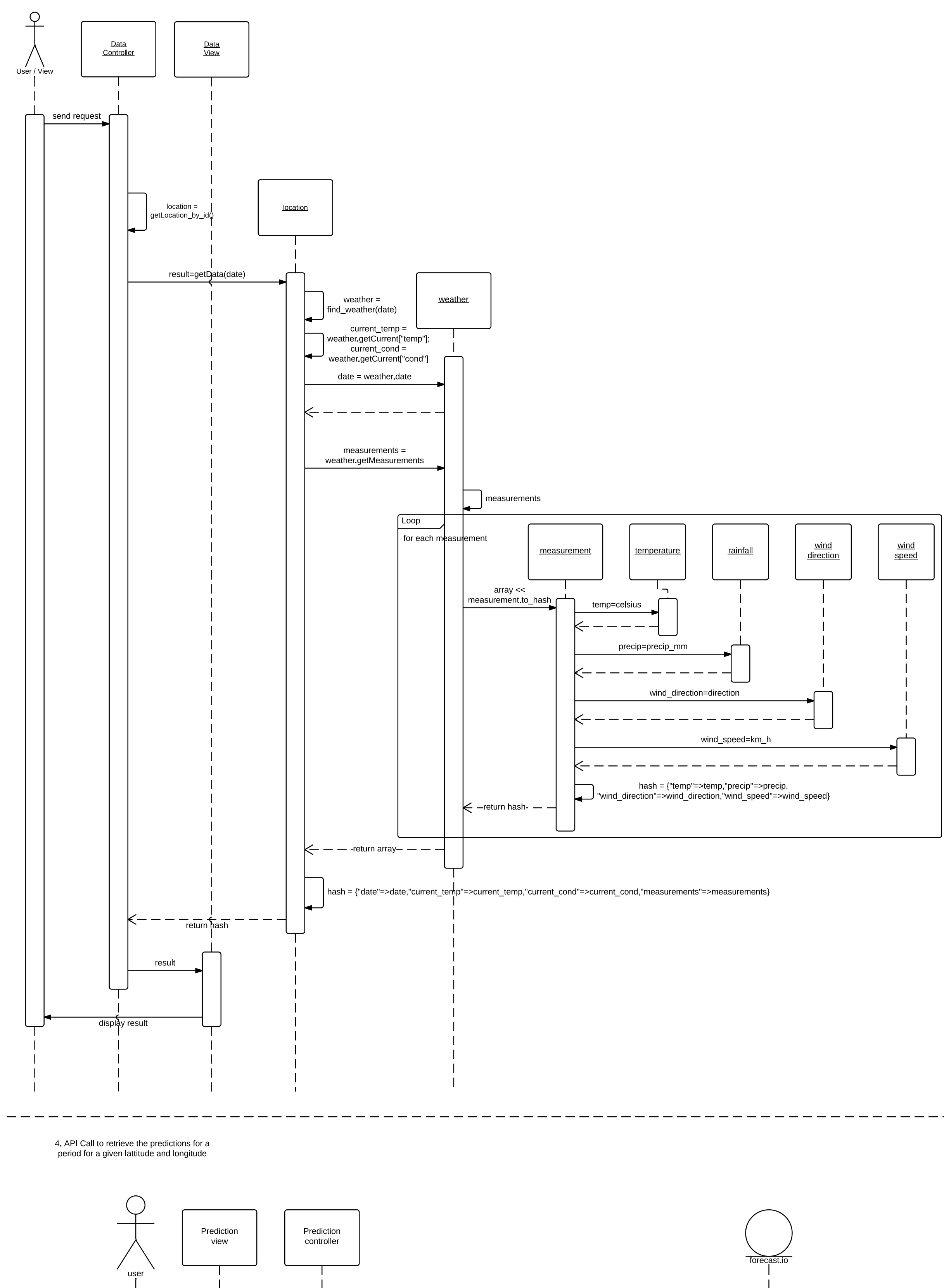
1. Background data retrieval



2. API Call to retrieve all locations



3. API Call to retrieve data for a location id



4. API Call to retrieve the predictions for a period for a given lattitude and longitude