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A WEATHER APPLICATION ON INFOTAINMENT SYSTEM

SYSTEM COMPONENTS

▸ Front-end

   ▸ HTML 5 client

▸ Local back-end

   ▸ Database

   ▸ Snapshots

▸ Remote back-end

   ▸ Weather server

FRAMEWORK

▸ Django

  ▸ Model:

    ▸ Retrieve data from local database and snapshots

    ▸ Retrieve data from remote weather server and update database

  ▸ Template

    ▸ HTML and CSS

  ▸ View

    ▸ Render template given retrieved data from model

INTERFACES

▸ Case 1:

  ▸ Only current location is presented

▸ Case 2:

  ▸ Both current and destination locations are presented

▸ Location search

  ▸ Fuzzy search of available locations

    ▸ Request the remote back-end for each letter user type in

PERMISSIONS

▸ Location service

▸ Notification

    ▸ Alarm the driver when the back-end retrieves a change of weather on current location or destination

▸ Connection with navigation system

    ▸ Set destination automatically if the navigation is running

BACK–END: DATABASE OR SNAPSHOT

▸ Three categories of locations

  ▸ Current location

    ▸ Update automatically in high frequency; query by longitude and latitude

  ▸ Destination location

    ▸ Automatically update in lower frequency; query by the location name

  ▸ Others

    ▸ Update manually; query by the location name

RESTFUL API

▸ Resource Representational State Transfer

  ▸ Resource: a backend weather server supporting URL query

  ▸ Representational: JSON

  ▸ State Transfer: HTTP methods

    ▸ The back-end in infotainment using only GET method

    ▸ POST and PUT methods are used by remote back-end

RESTFUL API: URL DESIGN

▸ URL root

　▸ Specifying API, like api.jlr.com/weather

▸ HTTP Method:

　▸ Like GET api.jrl.com/weather/shanghai

▸ Well designed status code

RESTFUL API

▸ GET: api.jlr.com/weather/locations/shang

  ▸ Retrieve a list of locations with prefix "shang".

▸ GET: api.jlr.com/weather/shanghai

  ▸ Retrieve weather given a location.

▸ GET: api.jlr.com/weather/@31.297344,121.5030465

  ▸ Retrieve weather given a longitude and latitude

THANKS