CAL maps

The graphs below were extracted from OSM and represent several portuguese cities, which can be used for the group projects in the CAL course unit (Algorithm Design and Analysis), a 2nd-year module of the MIEIC MSc Programme @FEUP.
Note: when cloning, there are some large files in the `graphs_by_theme` folder (about 2.3 GB of size).

Graphs' metrics

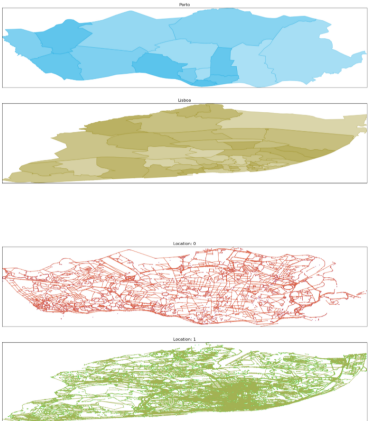| City	Number of Nodes	Number of Edges
Aveiro	3294	3135
Braga	20063	20371
Coimbra	21262	21729
Ermesinde	2949	3134
Fafe	2383	2504
Gondomar	7340	7504
Lisboa	74622	91587
Maia	8505	8692
Porto	10176	10765
Viseu	6193	6175
Portugal	**1803214**	**1874296**

Theme names and tags associated with them

Theme code	Theme name
TH01	RideSharing: partilha de viagens
TH02	EcoPonto: recolha seletiva de lixo
TH03	City Sightseeing: trilhas turísticas urbanas
TH04	Smart Delivery: empresa de distribuição de mercadorias
TH05	SchoolBus: transporte escolar
TH06	AirShuttle: transfer em aeroportos
TH07	HealthCarrier: transportes de doentes entre centros de saúde
TH08	CarroForte: entrega de valores
TH09	SpeedMail: correio prioritário
TH10	Smartafeta: serviço de estafeta inteligente
TH11	TripMate: planeador de viagens multimodais

Theme code	Tags from OSM
TH01	"cycleway=shared_lane", "share_taxi=*", "cycleway=share_busway", "route=share_taxi", "amenity=boat_sharing", "amenity=car_sharing", "amenity=car_rental", "amenity=car_pooling", "amenity=bicycle_rental"
TH02	"amenity=waste_basket", "amenity=recycling", "amenity=waste_disposal", "bin=*", "landuse=landfill", "recycling_type=container", "recycling_type=centre", "amenity=waste_transfer_station", "waste=*"
TH03	"tourism=information", "tourism=hotel", "tourism=attraction", "tourism=viewpoint", "tourism=guest_house", "tourism=picnic_site", "tourism=artwork", "tourism=camp_site", "tourism=museum", "tourism=*"
TH04	"building=warehouse", "industrial=warehouse", "landuse=industrial", "amenity=loading_dock", "shop=department_store", "shop=variety_store", "shop=supermarket", "shop=doityourself", "shop=convenience", "shop=clothes", "shop=hardware", "shop=furniture", "shop=electronics", "shop=mobile_phone", "shop=shoes", "shop=alcohol"
TH05	"amenity=school", "building=school", "amenity=driving_school", "school=*", "amenity=music_school", "amenity=language_school", "amenity=dancing_school", "amenity=ski_school"
TH06	"aeroway=aerodrome", "aeroway=gate", "aeroway=terminal", "aerodrome:type=*", "aeroway=heliport", "iata=*", "landuse=military"
TH07	"healthcare=*", "healthcare:speciality=*", "health_facility:type=*", "healthcare=dentist"
TH08	"amenity=bank", "barrier=hedge_bank", "amenity=financial_advice", "amenity=atm", "office=tax_advisor", "government=audit", "shop=money_lender", "amenity=money_transfer", "shop=moneylender"
TH09	"vending=parcel_mail_in", "amenity=post_box", "amenity=post_office", "post_box:type=*", "post_office=*", "amenity=post_depot"
TH10	"building=construction", "construction=*", "landuse=construction", "highway=construction", "amenity=restaurant", "amenity=cafe", "amenity=fast_food", "amenity=bank", "amenity=pharmacy", "amenity=bar", "amenity=pub", "landuse=commercial"
TH11	"railway=subway", "railway=subway_entrance", "subway=*", "station=subway", "station=subway", "public_transport=platform", "railway=station", "building=train_station", "highway=bus_stop", "bus=*", "route=bus", "amenity=bus_station", "train=*", "building=train_station", "bicycle=*", "amenity=bicycle_parking", "bicycle_parking=*", "amenity=bicycle_rental", "aeroway=taxiway", "amenity=taxi", "taxi=*", "share_taxi=*"

Visualization of data

Below you find some snapshots of the redered data (just because an image is worth more than a thousand words :-)

Porto

Lisboa

Location: 0

Location: 1

How things are stored

As a way to facilitate reading the data, all maps are separated into 3 files: one for **nodes**; one for **edges**; and, one for the nodes' **tags**. **Note**: As a bonus, there are two **nodes** files, one with latitudes and longitudes and another with coordinates translated into X/Y pairs to ease portability.

Example for Porto's data and TH01:

T01_nodes_lat_lon_Porto.txt:

```
10176                                  -- number of nodes
(90379359, 41.1552865, -8.6721342)     -- (ID of node, latitude, longitude)
(90379613, 41.1555912, -8.6727197)     -- ...
(90379614, 41.1553799, -8.6731542)
(90379615, 41.155288, -8.6732049)
```

T01_nodes_X_Y_Porto.txt:

```
10176                                              -- number of nodes
(90379359, 527509.2187047654, 4556047.36820414)    -- (ID of node, latitude, longitude)
(90379613, 527549.9657422074, 4556081.008946291)   -- ...
(90379614, 527423.5976763209, 4556057.414999209)
(90379615, 527419.3820432525, 4556047.196960005)
```

T01_edges_Porto.txt:

```
10765                            -- number of edges
(560409305, 560409296)           -- (ID node origin, ID node destiny)
(1104140057, 428208843)          -- ...
(114312650, 114312651)
(428215421, 428215422)
```

T01_tags_Porto.txt:

```
9                          -- number of tags
cycleway=shared_lane       -- tag name
101                        -- number of nodes in this tag
475561986                  -- ID of node
1097394695                 -- ...
```

Future work

- We plan to improve the quality of data (eventually gathering data from other sources as well); please feel free to suggest other improvements! :-)

Questions and Doubts

Please contact **Xavier Fontes** (up201503145@fe.up.pt), the CAL teaching assistant in charge of maintaining this repository.