IMPORT DEL GRAFO DI RAGGIUNGIBILITA' DI TUTTA GENOVA

1. IMPORTO I NODI POINT CON LA RELAZIONE RELATED DEL GRAFO ORIGINALE

```
:auto USING PERIODIC COMMIT 1000
LOAD CSV WITH HEADERS FROM "file:///grafo.csv" AS line
WITH line
WHERE line.label = "RELATED"
MERGE (p:Point {idPoint : toInteger(line.source)})
MERGE (p1:Point {idPoint : toInteger(line.target)})
MERGE (p)-[r:RELATED]->(p1)
SET r.area=line.area,
r.junction=line.junction,
r.access=line.access,
r.maxspeed=line.maxspeed,
r.length=toFloat(line.length),
r.oneway=line.oneway,
r.ref=line.ref,
r.osmid=line.osmid,
r.name=line.name,
r.lanes=line.lanes,
r.width=line.width,
r.est_width=line.est_width,
r.geometry=line.geometry,
r.highway=line.highway,
r.bridge=line.bridge,
r.tunnel=line.tunnel,
r.reversed=line.reversed
```

```
Added 8977 labels, created 8977 nodes, set 294004 properties, created 17862 relationships, completed after 179001 ms.
```

2. IMPORT LE RELAZIONI REACHABLE CON LA DISTANZA PER OGNI COPPIA DI NODI RAGGIUNGIBILE

```
:auto USING PERIODIC COMMIT 1000
LOAD CSV WITH HEADERS FROM "file:///grafo.csv" AS line
WITH line
WHERE line.label = "REACHABLE"
MATCH (p:Point {idPoint : toInteger(line.source)})
MATCH (p1:Point {idPoint : toInteger(line.target)})
MERGE (p)-[r:REACHABLE]->(p1)
SET
r.distance=toFloat(line.length)
```

```
:auto USING PERIODIC COMMIT 2000
LOAD CSV WITH HEADERS FROM "file:///grafo.csv" AS line
WITH line
WHERE line.label = "REACHABLE"
MATCH (p:Point {idPoint : toInteger(line.source)})
MATCH (p1:Point {idPoint : toInteger(line.target)})
MERGE (p)-[r:REACHABLE]→(p1)
SET r.distance=toFloat(line.length)
```

Set 6092321 properties, created 6083330 relationships, completed after 595701 ms.

LINEE COORDINATE PER RELAZIONI

```
:auto MATCH (:Point)-[r:RELATED]->(:Point)
CALL {
WITH r
WITH replace(split(r.geometry, "(")[1],")","") as coordinates, r
WITH split(coordinates, ",") as coordinates, r
UNWIND coordinates as coord
WITH split(trim(coord), " ") as coord, r
WITH COLLECT (point({longitude:toFloat(coord[0]), latitude: toFloat(coord[1])})) as
coordinates, r
SET r.coordinates = coordinates
} IN TRANSACTIONS OF 1000 ROWS
```

LINEE COORDINATE PER I NODI

```
:auto MATCH (start:Point)-[r:RELATED]->(end:Point)
CALL {
WITH start, end, r
SET start.coordinates = r.coordinates[0]
SET end.coordinates = r.coordinates[-1]
} IN TRANSACTIONS OF 1000 ROWS
```

EXPORT DEL GRAFO DI RAGGIUNGIBILITA’

```
match (p:Point)-[r:REACHABLE]->(p1:Point)
WITH collect(DISTINCT p) AS start, collect(DISTINCT r) AS raggiungibile, collect(p1)
AS end
CALL apoc.export.graphml.data(start + end, raggiungibile,
"raggiungibilitàGenova.graphml", {stream: true})
YIELD file, nodes, relationships, properties, data
RETURN file, nodes, relationships, properties, data;
```

| | file | nodes | relationships | properties | data |
|---|---|---|---|---|---|
| 1 | "raggiungibilitàGenova.graphml" | 6101255 | 6092321 | 12193576 | *null* |