



DEVELOPMENT OF MOBILE SEARCH APPLICATIONS OVER STRUCTURED WEB DATA THROUGH DOMAIN-SPECIFIC MODELING LANGUAGES

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Introduction

- Usage of mobile applications is increasing.
 - Devices are widespread.
 - Connection speeds are high.
- Importance of searching is increasing as well.
 - Users need answers to more complex queries.
- The aim of the project is to fulfill these needs by developing the mobile web application of The Search Computing (SeCo) project.

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Multi-domain Search

- Multi-domain search applications handle data coming from different semantic fields of interest.
- Its result set may also contain different data types for each domain of interest.
 - Q1: “Washington D.C.” (mono-domain)
 - Q2: “rock concert Washington July 2010 good restaurant” (multi-domain: city, restaurant, concert)

Exploratory Search

- Exploratory search applications support following phases of information acquisition:
 - Formulating users' interest
 - Exploring most relevant and credited information sources
 - Establishing of relationships among relevant information elements.

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The Search Computing Project

- «Search Computing is a multi-disciplinary science which will provide the abstractions, foundations, methods, and tools required to answer multi-domain queries over heterogeneous data sources.»
- «Its aim is finding answers to complex search queries such as “Where can I attend an interesting conference in my field close to a sunny beach?” by cooperating search services, user ranking and joining of results.»

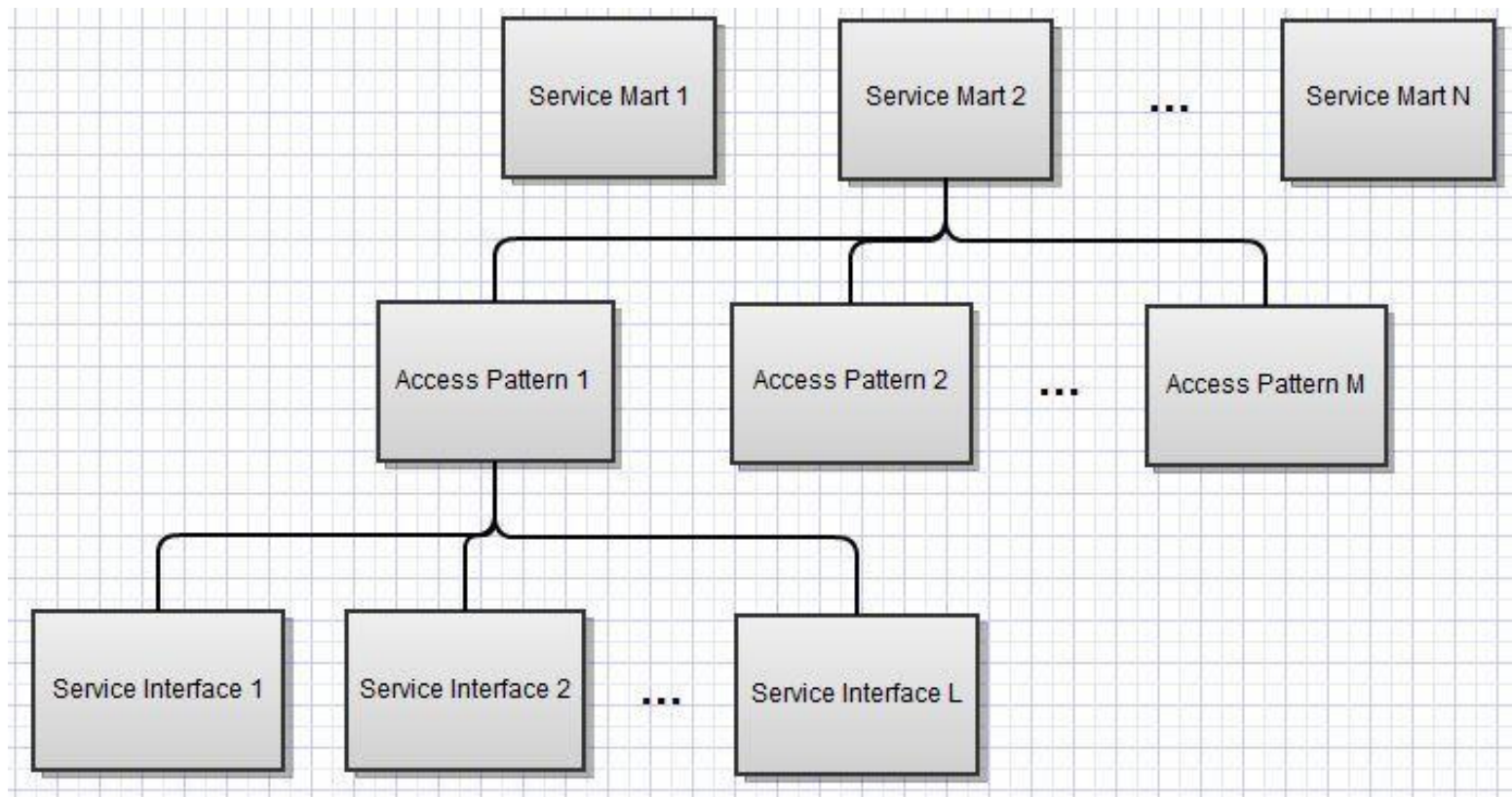
The Search Computing Project

- In our thesis project, two ReST APIs have been used:
 - Mart Repository ReST API: It contains the structural data of the searching system.
 - Query Processor ReST API: It manages operations which are needed to answer queries.

Mart Repository

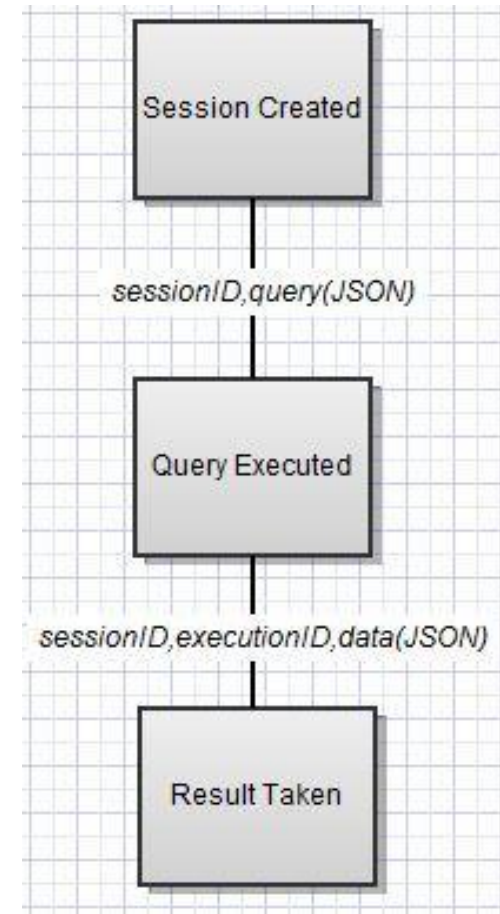
- Four different elements of the repository have been used:
 - Service Marts: They are the conceptual type which the user is looking for.
 - Access Patterns: They express the road that can be used to access the Service Mart.
 - Service Interfaces: They map concrete data sources.
 - Connection Patterns: They introduce a pair-wise coupling of Service Marts.

Hierarchy of Mart Repository Elements



Query Processor Repository

- Following operations have been carried out using the Query Processor:
 - Session creation
 - Query submission
 - Result acquiring



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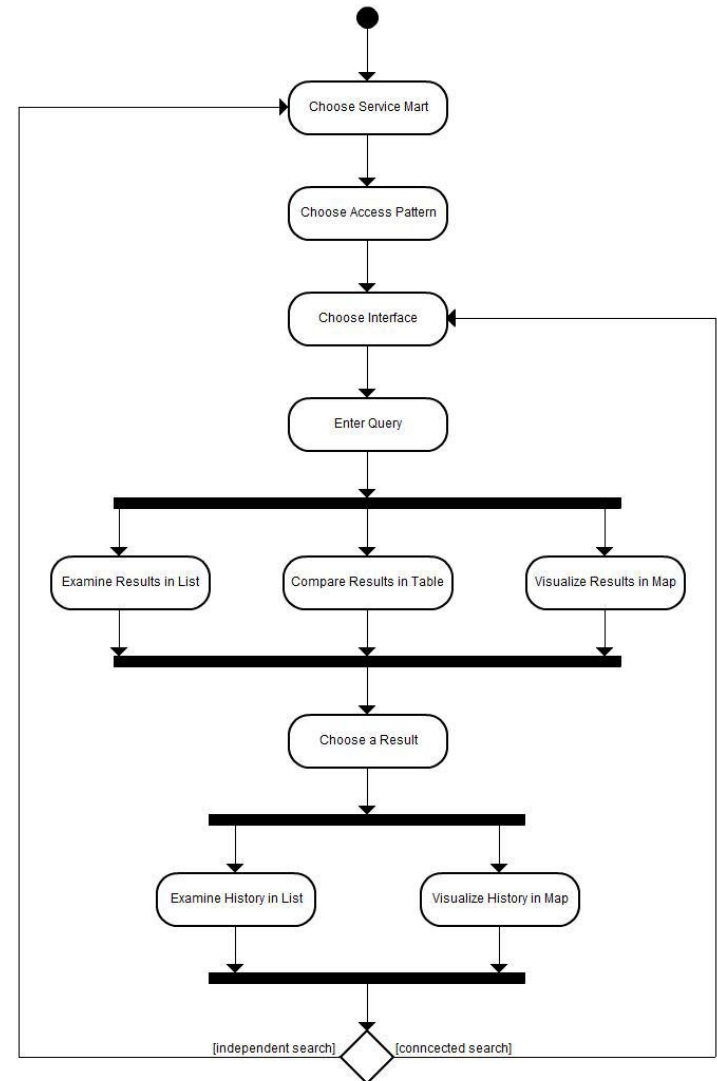
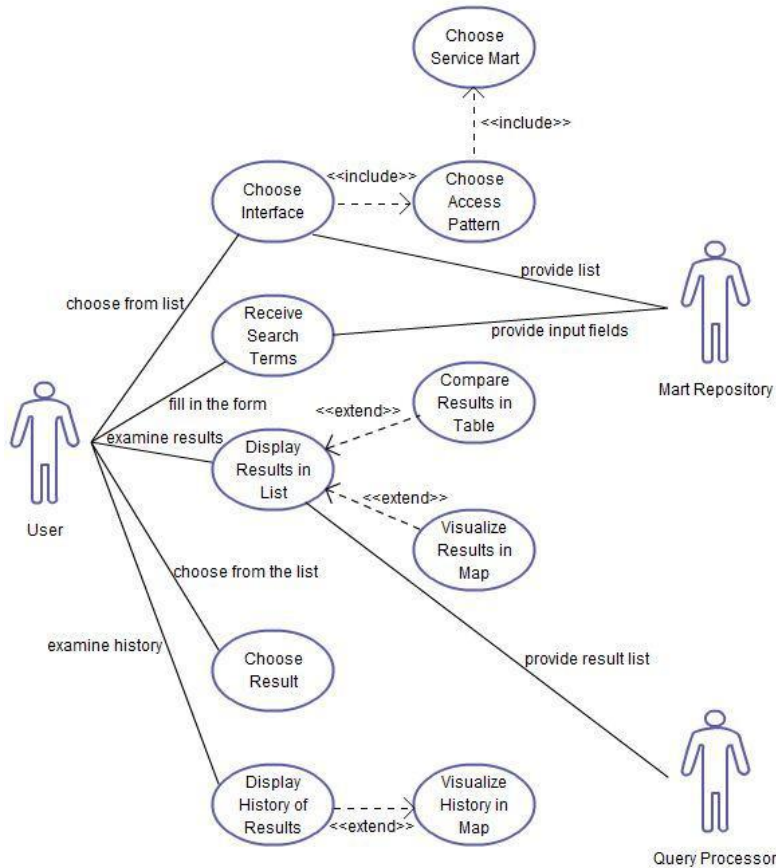
mobl

- mobl is a free and open source language designed especially to speed up building mobile applications.
- Some principal features of the language are:
 - iOS, Android, WebOS, Safari and Chrome support the applications developed with mobl.
 - It allows to access existing JavaScript libraries and widgets easily.
 - It can access to web services through AJAX easily and import JSON data.
 - All aspects are integrated into a single language.

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Analysis and Design

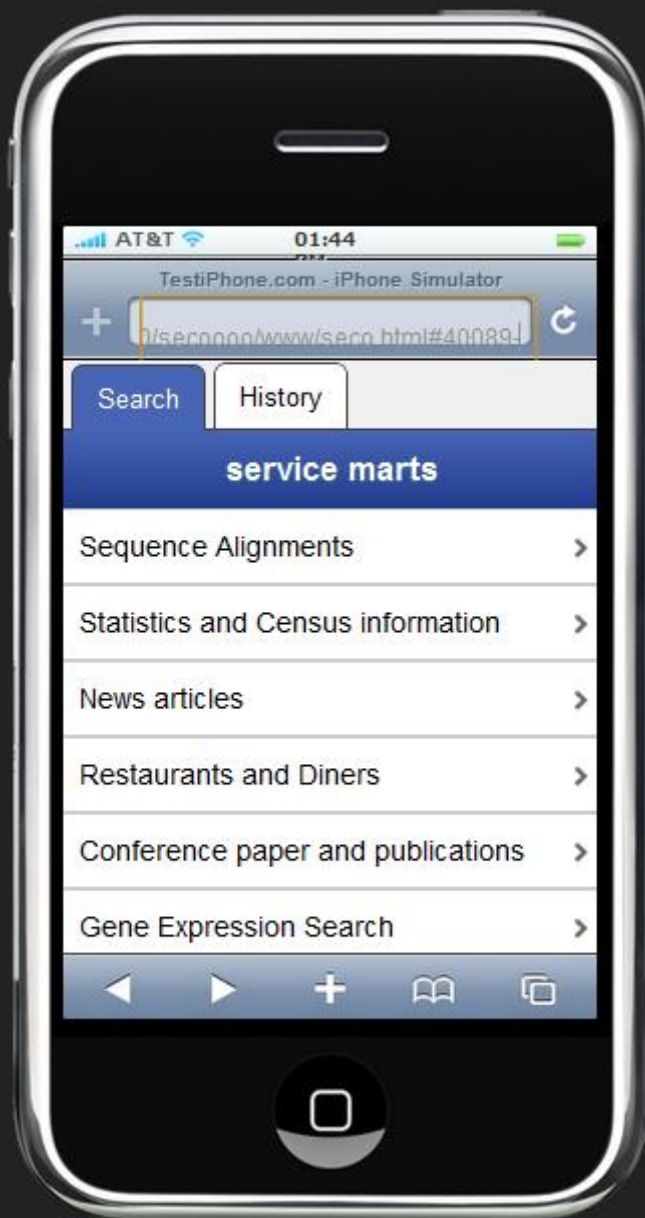


User Interface Elements

- Accordion List
 - to see the main attributes at a glance
 - to hide large amount of data
- Map View
 - to visualize location data
- Table View
 - to allow comparison between the attributes
- Tab Set
 - to separate different states of the application
 - to let user being able to access history without losing its state

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AT&T 01:44

TestiPhone.com - iPhone Simulator

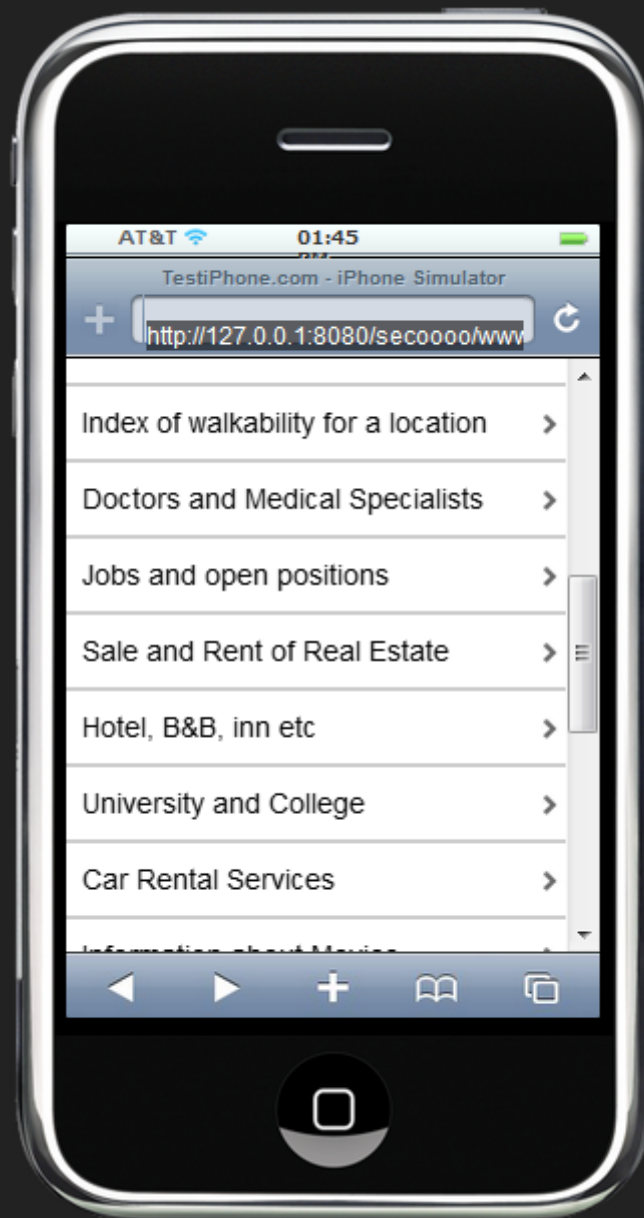
http://secoooooo/www/seco.html#40089!

Search History

service marts

- Sequence Alignments >
- Statistics and Census information >
- News articles >
- Restaurants and Diners >
- Conference paper and publications >
- Gene Expression Search >

Navigation icons: back, forward, home, search, share



AT&T

01:45

TestiPhone.com - iPhone Simulator



http://127.0.0.1:8080/sec0000/www



Index of walkability for a location >

Doctors and Medical Specialists >

Jobs and open positions >

Sale and Rent of Real Estate >

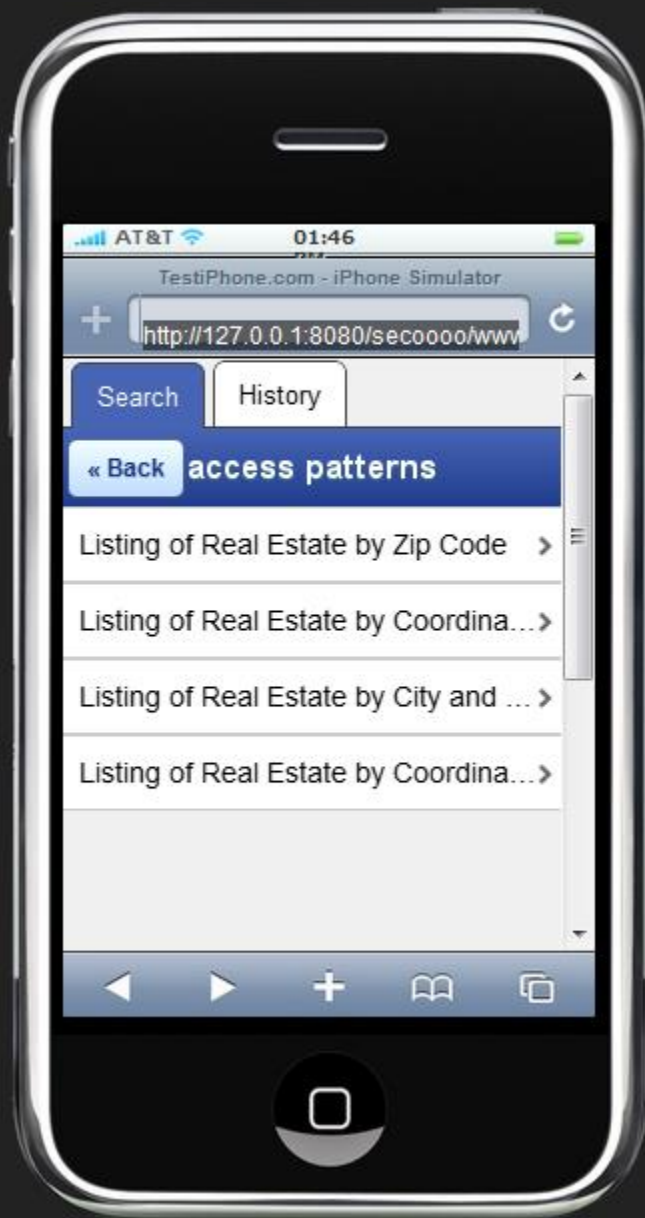
Hotel, B&B, inn etc >

University and College >

Car Rental Services >

Information about Mexico





AT&T 01:46

TestiPhone.com - iPhone Simulator

http://127.0.0.1:8080/sec0000/www

Search History

« Back access patterns

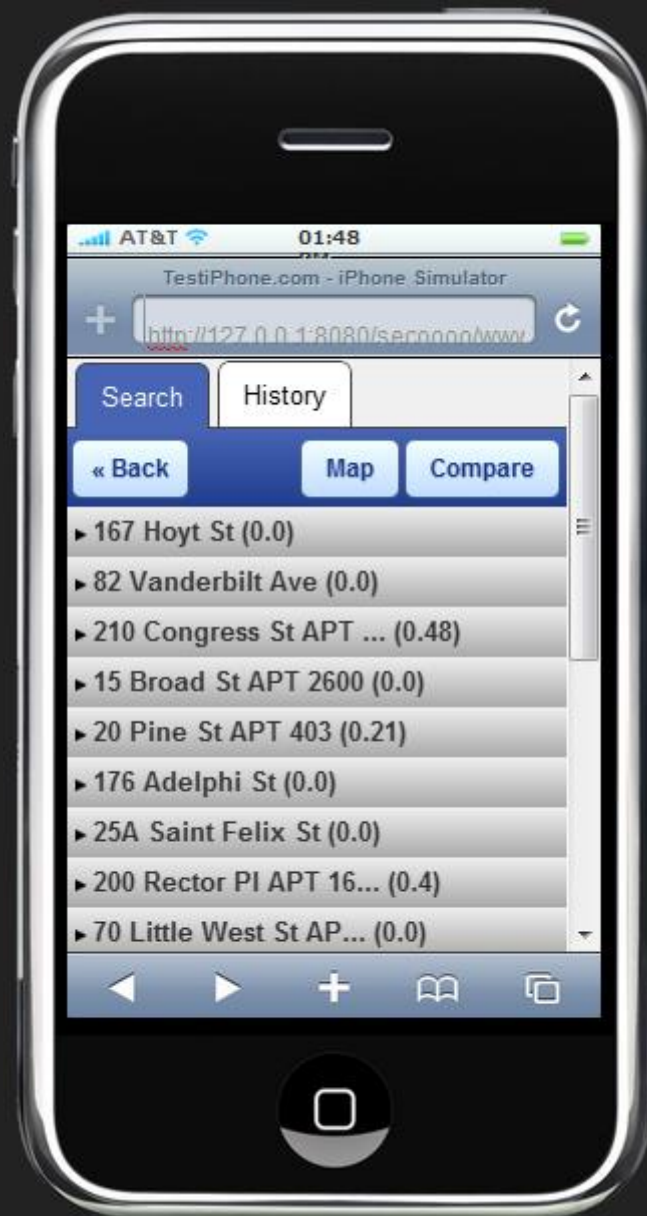
- Listing of Real Estate by Zip Code >
- Listing of Real Estate by Coordina...>
- Listing of Real Estate by City and ...>
- Listing of Real Estate by Coordina...>

Navigation icons: back, forward, home, search, refresh









AT&T 01:48

TestiPhone.com - iPhone Simulator

http://127.0.0.1:8080/serooooo/www

Search History

« Back Map Compare

- ▶ 167 Hoyt St (0.0)
- ▶ 82 Vanderbilt Ave (0.0)
- ▶ 210 Congress St APT ... (0.48)
- ▶ 15 Broad St APT 2600 (0.0)
- ▶ 20 Pine St APT 403 (0.21)
- ▶ 176 Adelphi St (0.0)
- ▶ 25A Saint Felix St (0.0)
- ▶ 200 Rector PI APT 16... (0.4)
- ▶ 70 Little West St AP... (0.0)

Navigation icons: back, forward, home, search







AT&T

01:50

TestiPhone.com - iPhone Simulator

http://127.0.0.1:8080/secondpage/www

Search

History

« Back 57 Montague ...

state: NY

zipcode: 11201

city: Brooklyn

street: 57 Montague St APT 2F

longitude: -73.99723815917969

latitude: 40.69566345214844

type: makeMeMove

useCode: Cooperative

details:

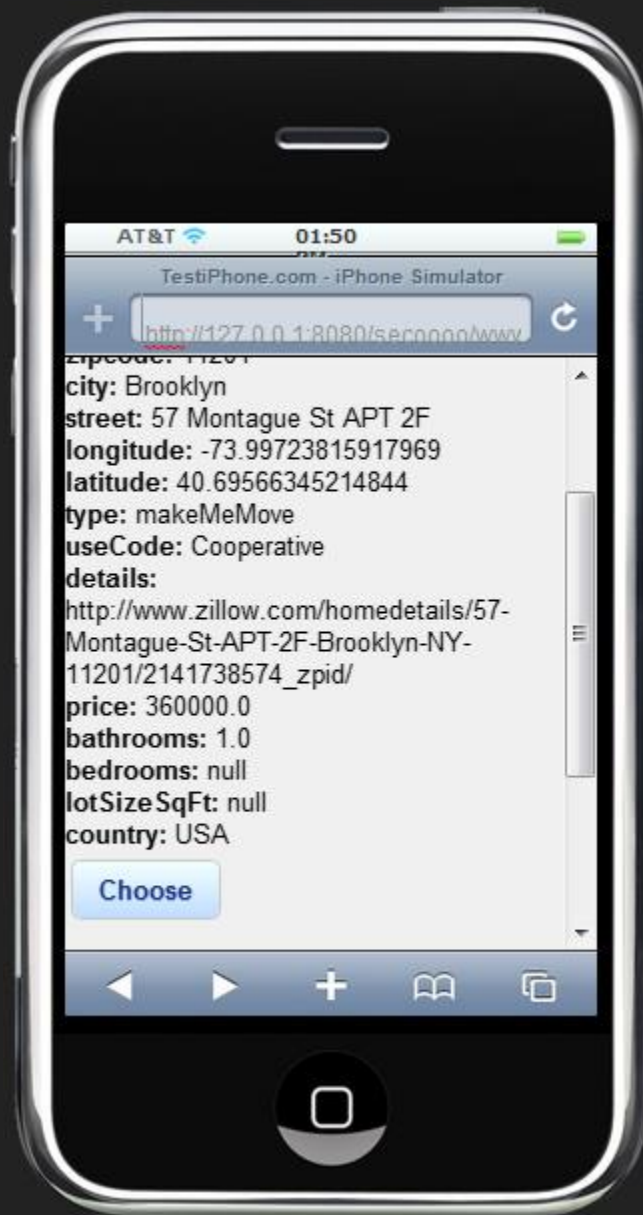
http://www.zillow.com/homedetails/57-

Montague-St-APT-2F-Brooklyn-NY-

11201/2141738574_zpid/

price: 360000.0

bathrooms: 1.0



AT&T 01:50

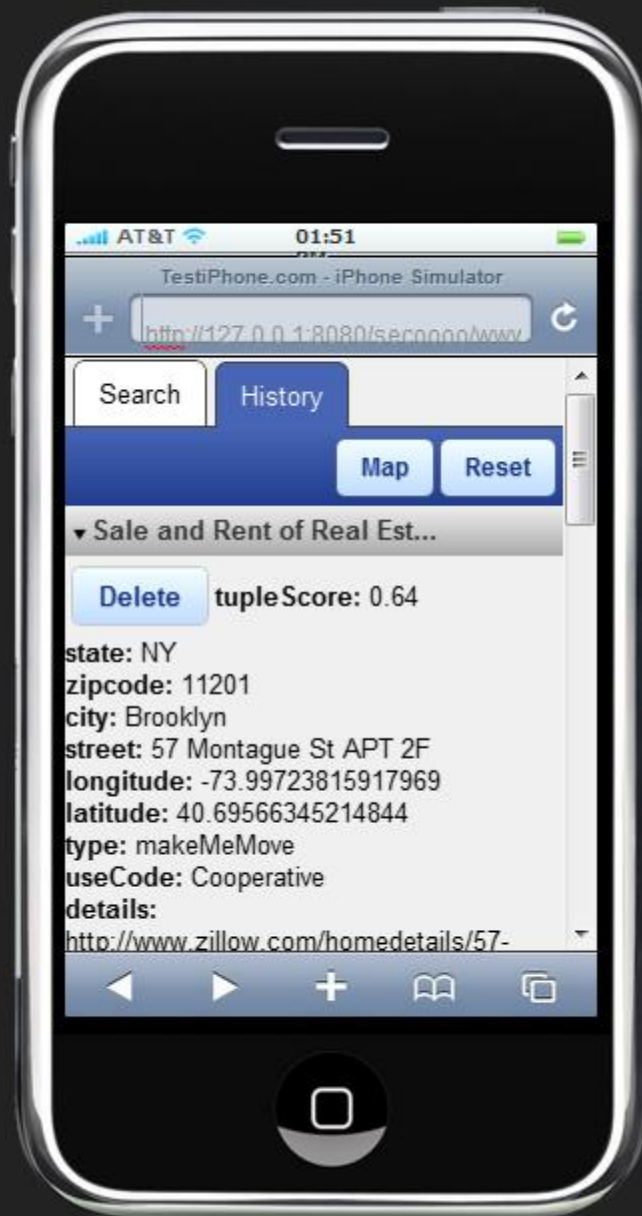
TestiPhone.com - iPhone Simulator

http://127.0.0.1:8080/sero0000/www

zipCode: 11201
city: Brooklyn
street: 57 Montague St APT 2F
longitude: -73.99723815917969
latitude: 40.69566345214844
type: makeMeMove
useCode: Cooperative
details:
http://www.zillow.com/homedetails/57-Montague-St-APT-2F-Brooklyn-NY-11201/2141738574_zpid/
price: 360000.0
bathrooms: 1.0
bedrooms: null
lotSize SqFt: null
country: USA

Choose

Navigation icons: back, forward, home, search



AT&T 01:51

TestiPhone.com - iPhone Simulator

http://127.0.0.1:8080/secondo/www

Search History

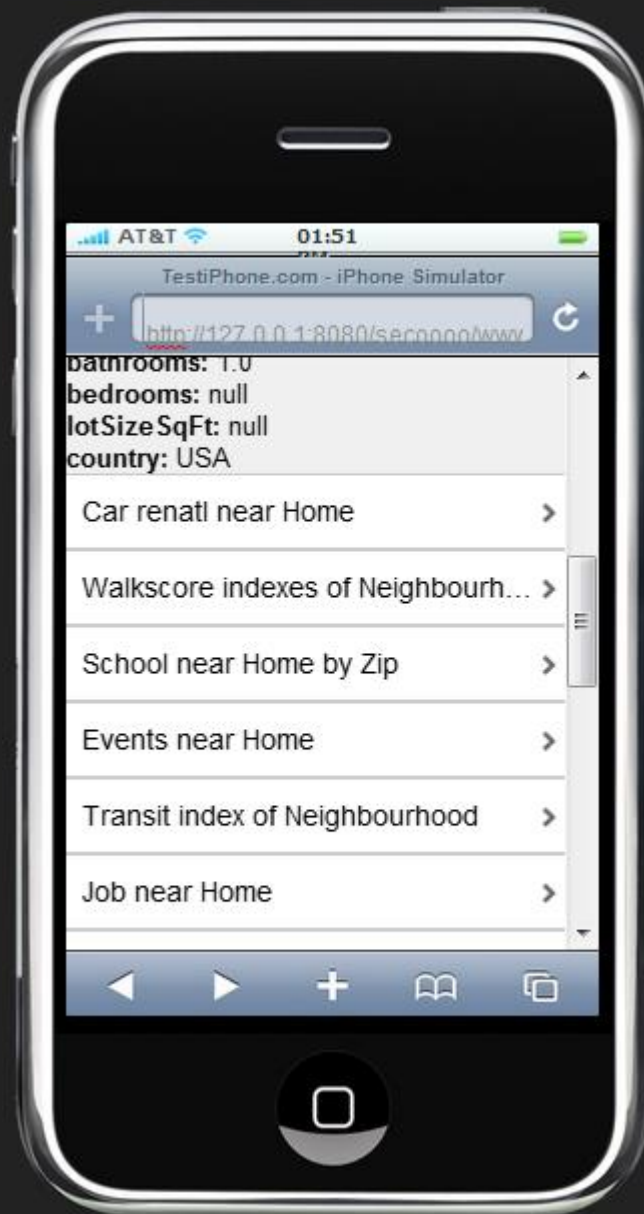
Map Reset

▼ Sale and Rent of Real Est...

Delete tupleScore: 0.64

state: NY
zipcode: 11201
city: Brooklyn
street: 57 Montague St APT 2F
longitude: -73.99723815917969
latitude: 40.69566345214844
type: makeMeMove
useCode: Cooperative
details:
<http://www.zillow.com/homedetails/57->

Navigation icons: back, forward, home, multitasking



AT&T 01:51

TestiPhone.com - iPhone Simulator

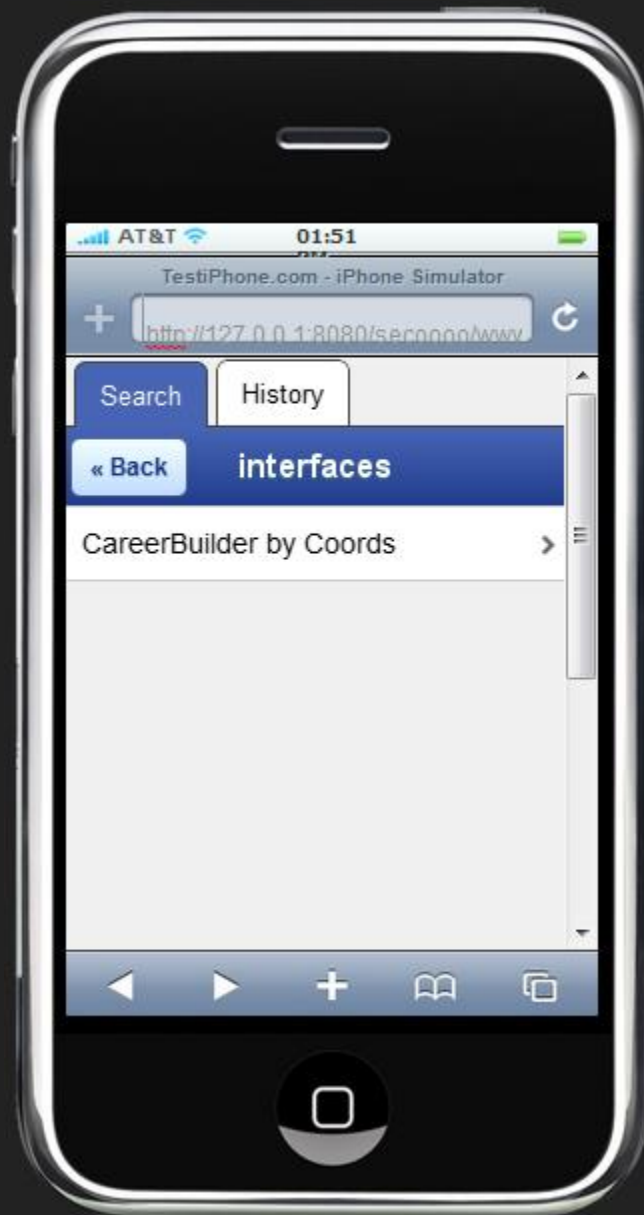
http://127.0.0.1:8080/securewww/

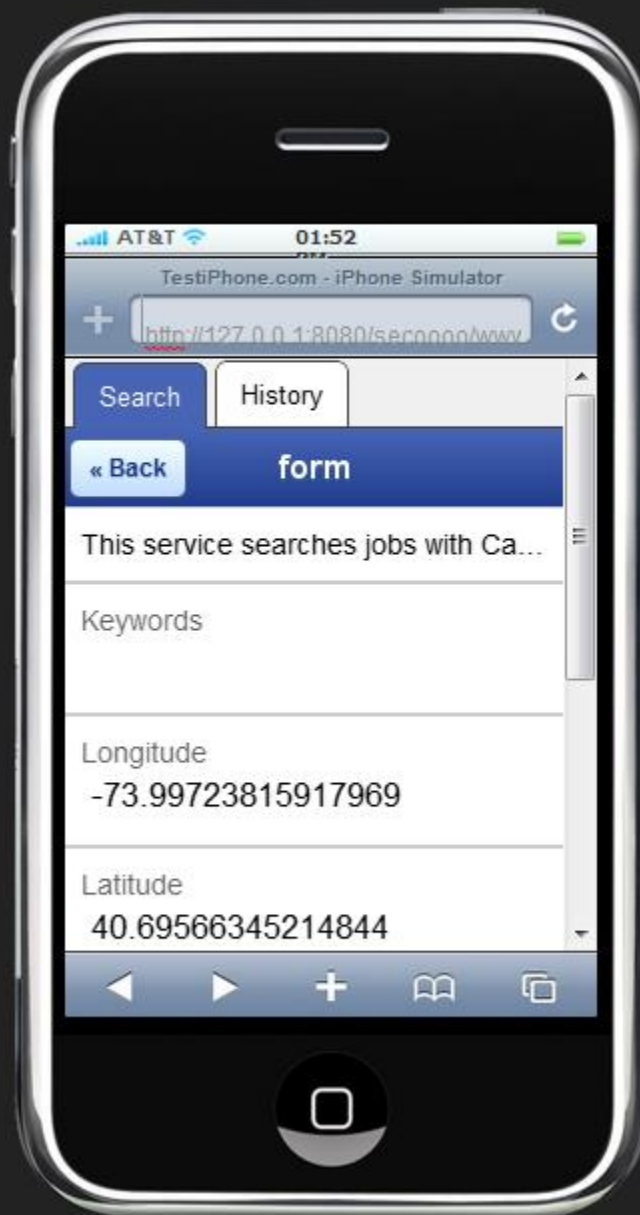
bathrooms: 1.0
bedrooms: null
lotSizeSqFt: null
country: USA

- Car rental near Home >
- Walkscore indexes of Neighbourh... >
- School near Home by Zip >
- Events near Home >
- Transit index of Neighbourhood >
- Job near Home >

Navigation icons: back, forward, add, book, share







AT&T 01:52

TestiPhone.com - iPhone Simulator

http://127.0.0.1:8080/serooooo/www...

Search History

« Back form

This service searches jobs with Ca...

Keywords

Longitude
-73.99723815917969

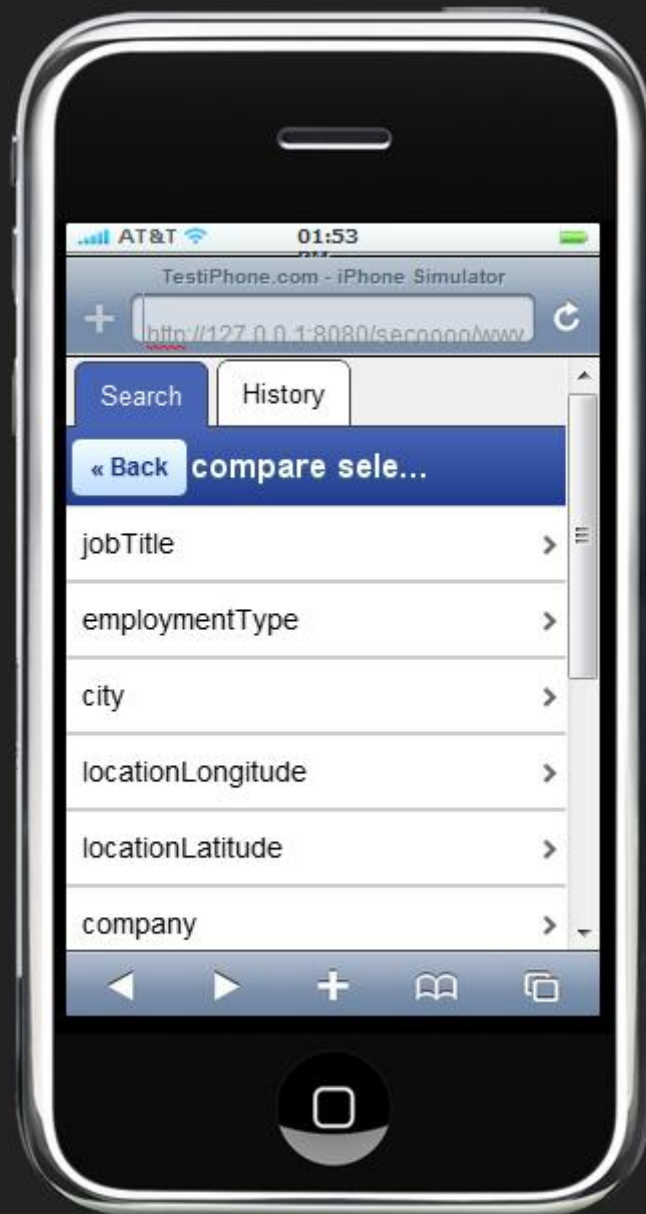
Latitude
40.69566345214844

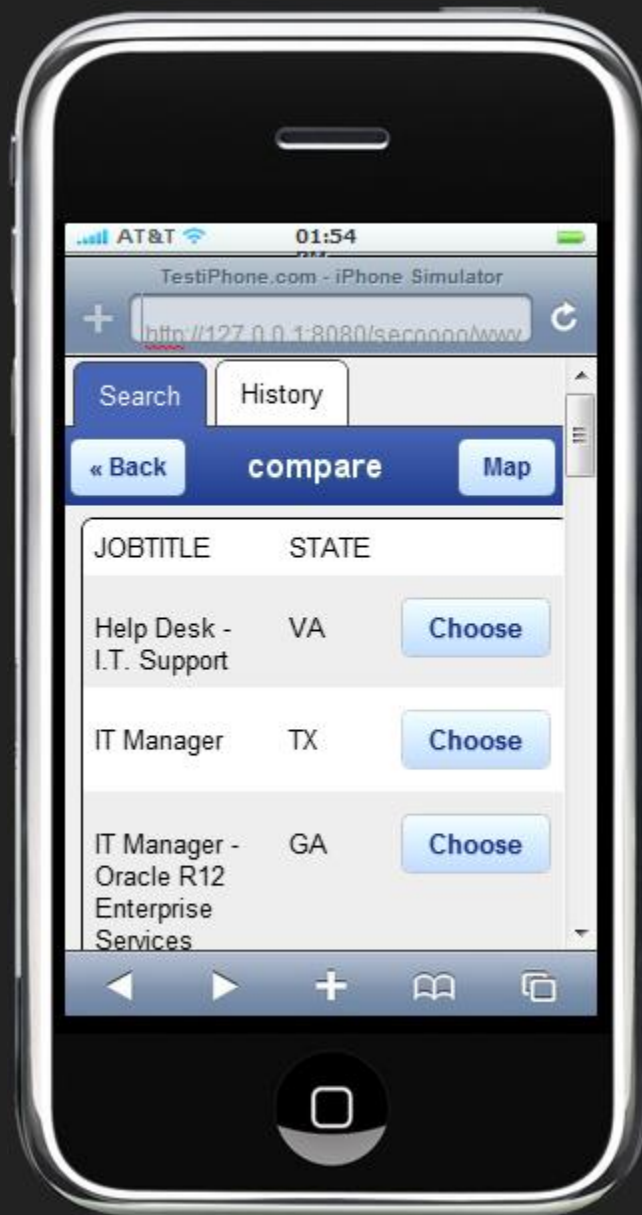
Navigation icons: back, forward, home, search

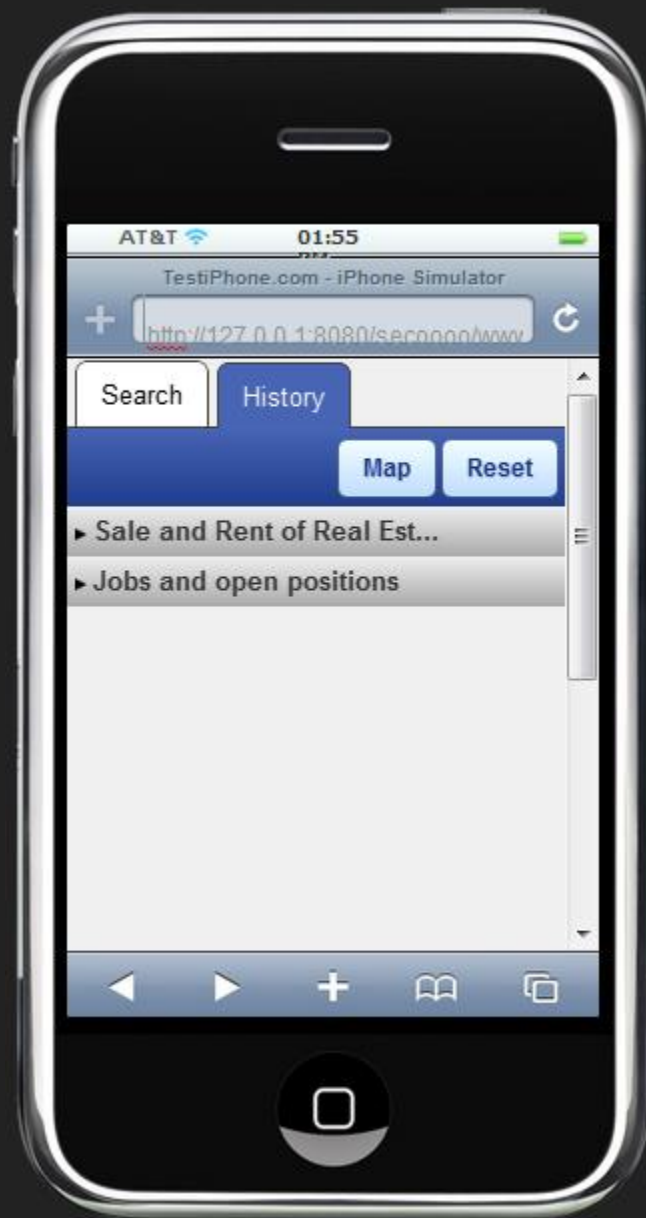




AT&T 01:52
TestiPhone.com - iPhone Simulator
+ http://127.0.0.1:8080/sec0000/www
Search History
« Back Map Compare
▶ Help Desk - I.T. Sup... (1.0)
▶ IT Manager (0.99)
▶ IT Manager - Oracle ... (0.98)
▶ Field IT Engineer - ... (0.97)
▶ IT Specialist and IT... (0.96)
▶ Help Desk Specialist... (0.95)
▶ IT21 - Programmer An... (0.94)
▶ Advisory Services Ma... (0.93)
▶ Chief Information Of... (0.92)











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Conclusion

- A lite version of Search Computing Project has been implemented by keeping the core functions.
- It is observed that mobile devices are very convenient for these type of search platforms.
 - Few number of interactions
 - Location data
- It is also observed that mobile web applications reduce the development time comparing to individual native applications on different operating systems.



THANK YOU FOR LISTENING
