

Alexandria University - Faculty of Engineering
Electrical Engineering Department

Summer Research Project - 2015

Weekly Report Num. 5

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Research Fields:

databases, android/web development and machine learning.

Research Goals:

Developing an intelligent application for efficient database management.

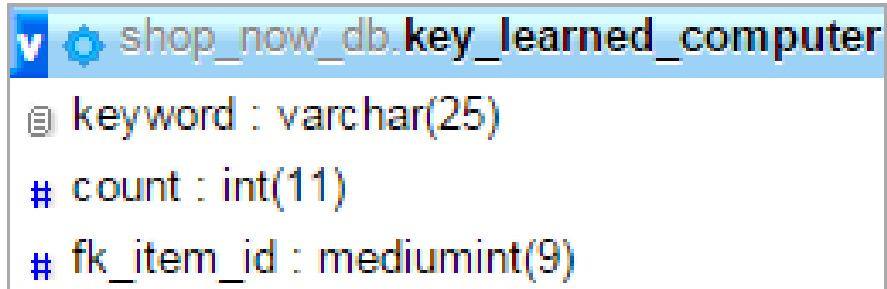
Development of a front-end (android/web app) and back-end prototype, and the design of a database to store various data with a large set of attributes.

Capability of applying intelligent data management techniques on the stored data.

Week-5 approach

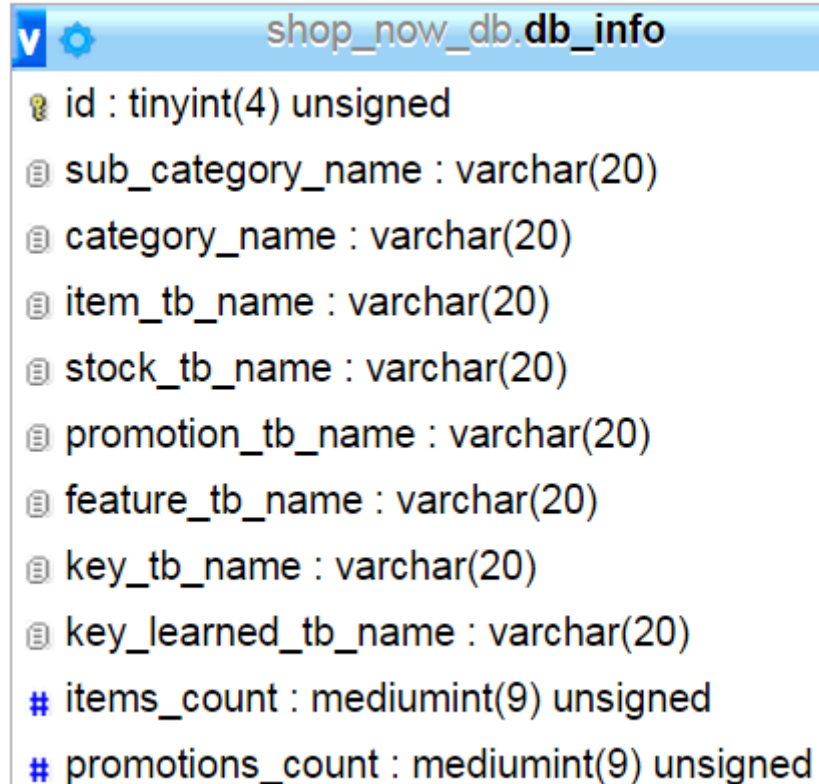
- User interface modifications.
- Optimizing custom search performance.
- Implementing smart search user interface and http requests and responses.
- Implementing the two-level smart search (matching subcategory then matching an item) in the server side.
- Parsing user's input to catch keywords and add new keywords as candidates to the new learned keywords list.

Database design modifications



shop_now_db.key_learned_computer

- keyword : varchar(25)
- # count : int(11)
- # fk_item_id : mediumint(9)



shop_now_db.db_info

- id : tinyint(4) unsigned
- sub_category_name : varchar(20)
- category_name : varchar(20)
- item_tb_name : varchar(20)
- stock_tb_name : varchar(20)
- promotion_tb_name : varchar(20)
- feature_tb_name : varchar(20)
- key_tb_name : varchar(20)
- key_learned_tb_name : varchar(20)
- # items_count : mediumint(9) unsigned
- # promotions_count : mediumint(9) unsigned

Performance Study

- Optimizing the custom search performance

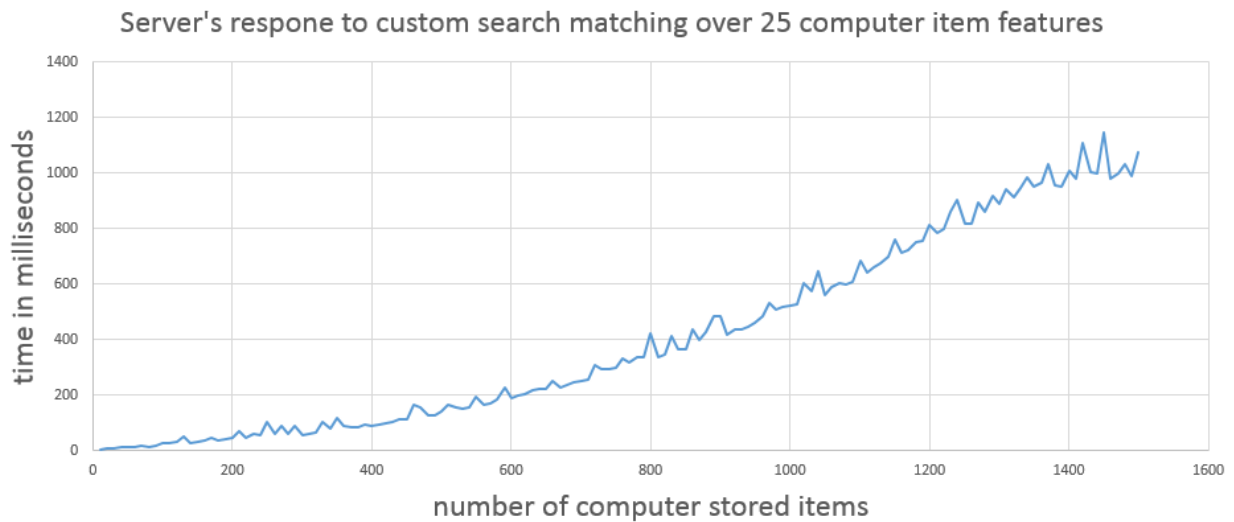


Figure 1

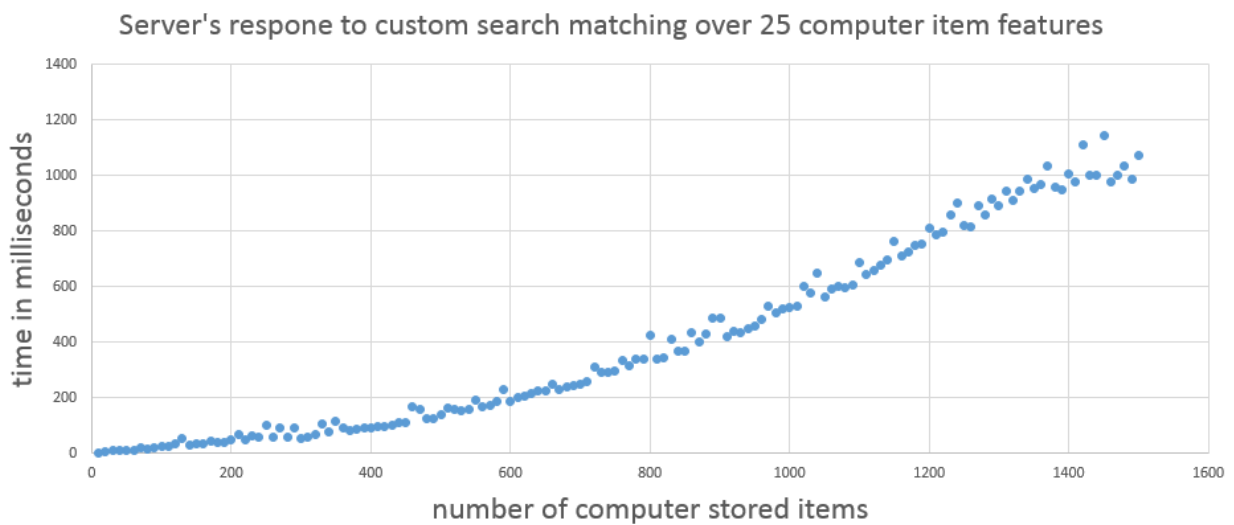


Figure 2

Figure 1 and 2 illustrate server's response time to match required features (25 features) with items table versus the total number of stored items in this subcategory table.

The total number of items in this subcategory ranges 0 – 1600. Server's response increases exponentially.

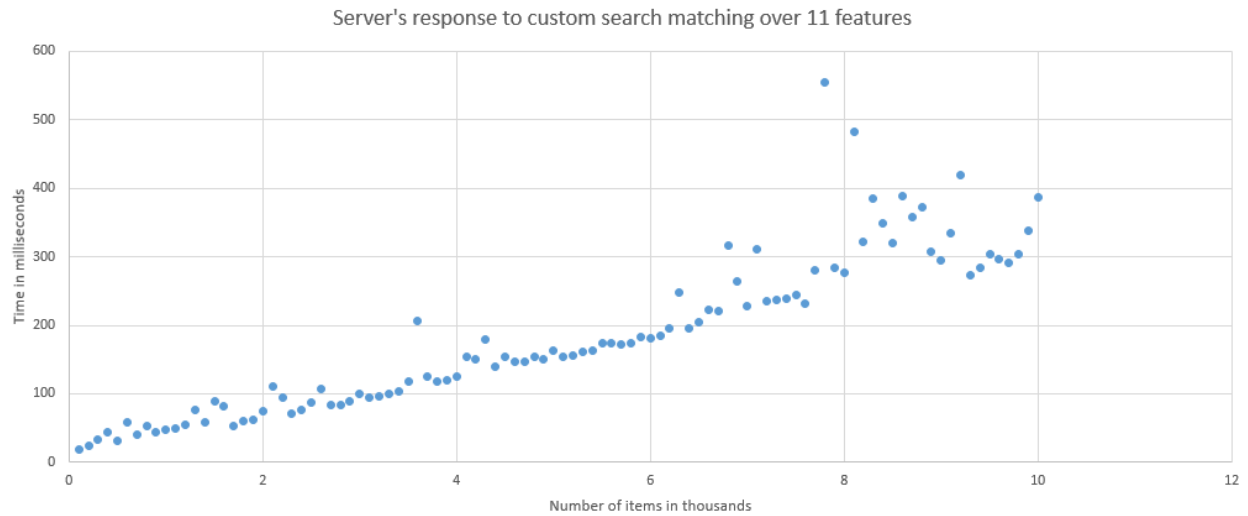


Figure 3

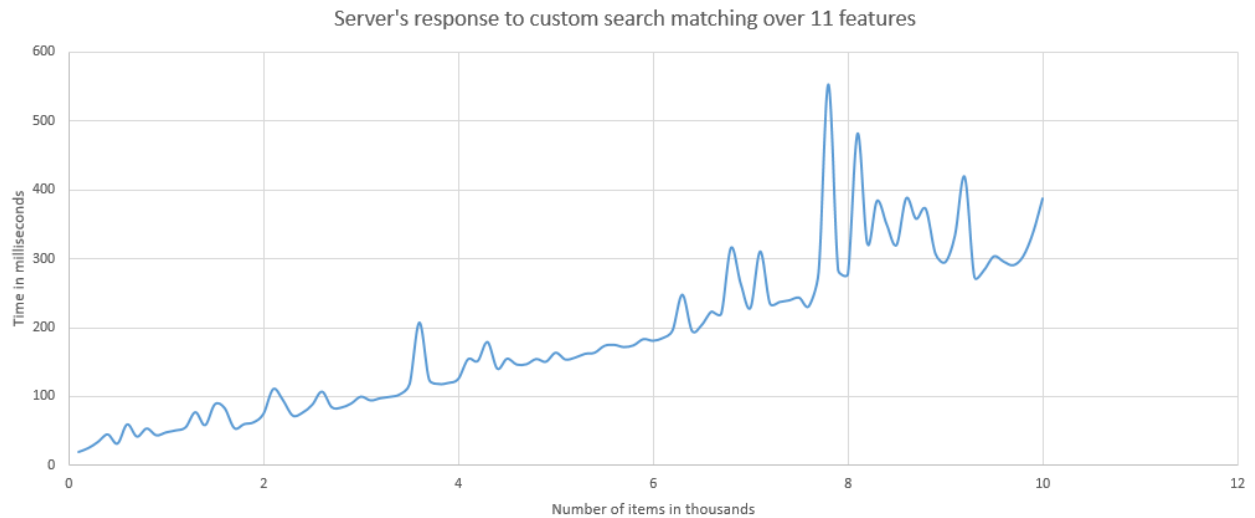
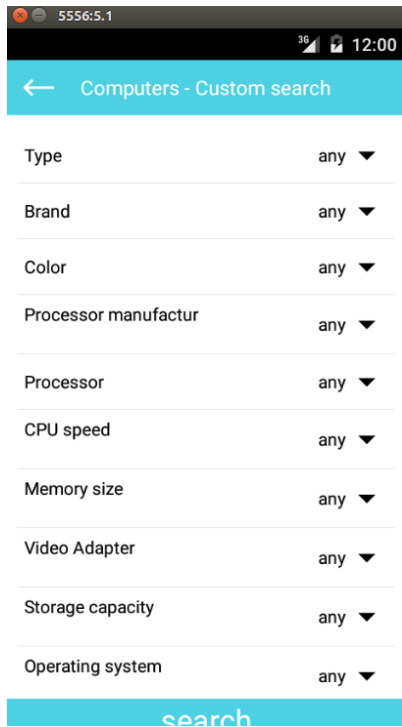


Figure 4

Figure 3 and 4 illustrate the optimization in the server's response time to match required features (11 features) with items table versus the total number of stored items in this subcategory table.

The total number of items in this subcategory ranges 0 – 10,000.

Custom Search

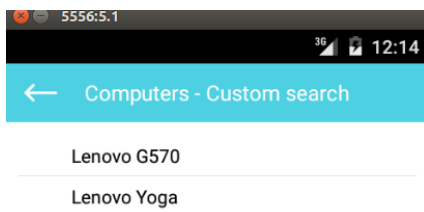


5556:5.1 36 12:00

← Computers - Custom search

Type	any ▼
Brand	any ▼
Color	any ▼
Processor manufactur	any ▼
Processor	any ▼
CPU speed	any ▼
Memory size	any ▼
Video Adapter	any ▼
Storage capacity	any ▼
Operating system	any ▼

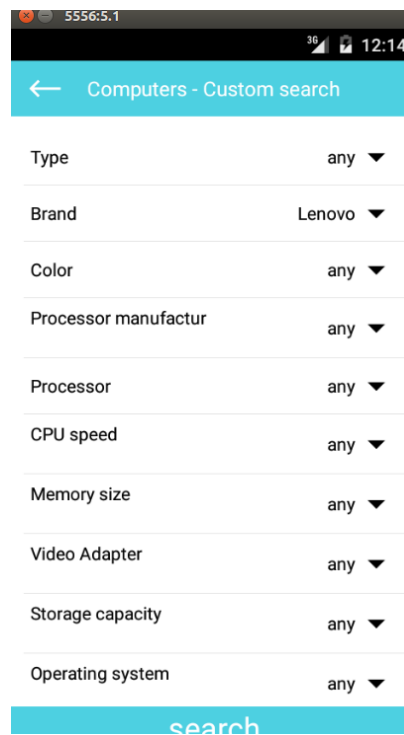
search



5556:5.1 36 12:14

← Computers - Custom search

Lenovo G570
Lenovo Yoga

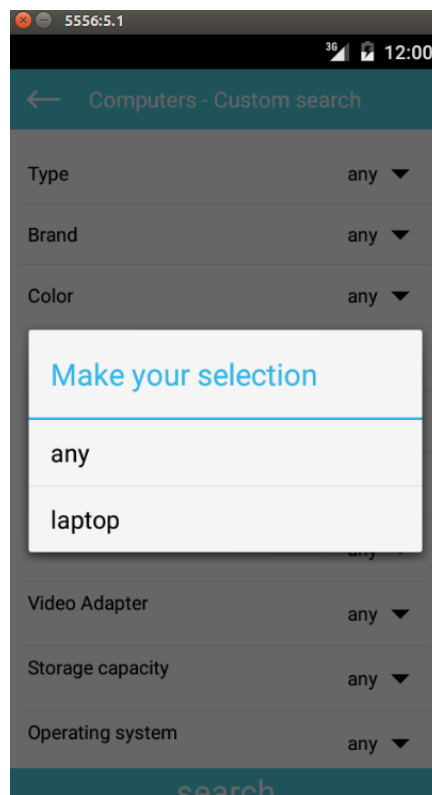


5556:5.1 36 12:14

← Computers - Custom search

Type	any ▼
Brand	Lenovo ▼
Color	any ▼
Processor manufactur	any ▼
Processor	any ▼
CPU speed	any ▼
Memory size	any ▼
Video Adapter	any ▼
Storage capacity	any ▼
Operating system	any ▼

search



5556:5.1 36 12:00

← Computers - Custom search

Type	any ▼
Brand	any ▼
Color	any ▼
Processor manufactur	any ▼
Processor	any ▼
CPU speed	any ▼
Memory size	any ▼
Video Adapter	any ▼
Storage capacity	any ▼
Operating system	any ▼

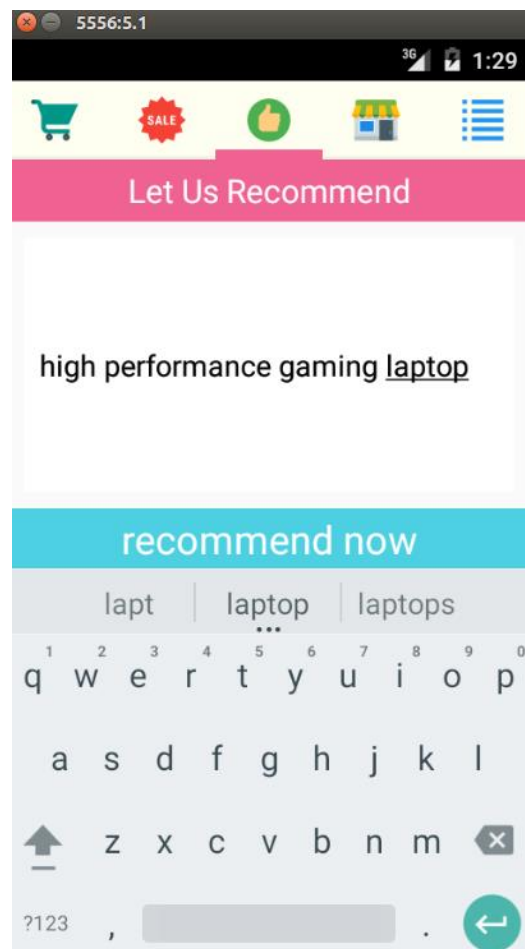
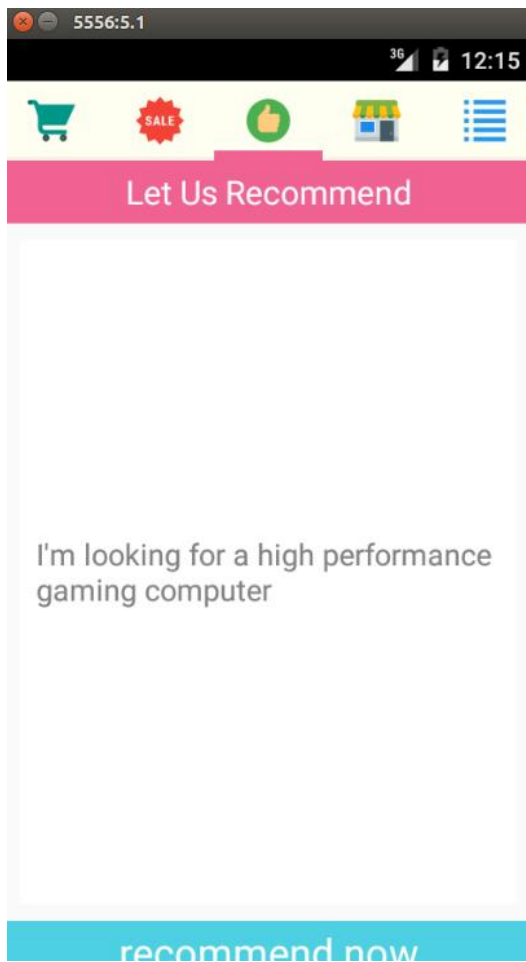
Make your selection

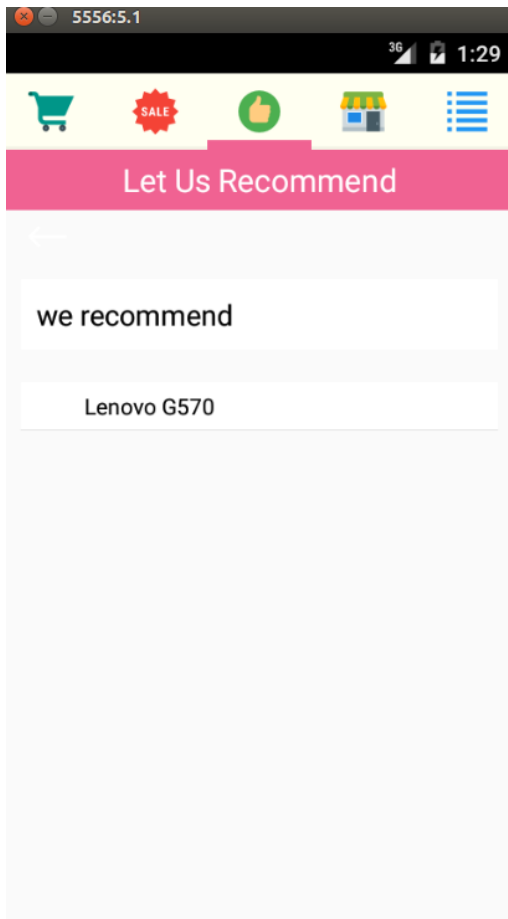
any

laptop

search

Recommendations





The screenshot shows a mobile application interface for the details of a Lenovo G570 laptop. At the top, there is a status bar with the time 1:29 and a 3G signal indicator. Below the status bar is a blue header with a back arrow and the text 'Lenovo G570'. Below the header is a pink header with the text 'details'. Underneath the header is a table with the following data:

Type	laptop
Brand	Lenovo
Color	black
Processor manufactur	intel
Processor	i5
CPU speed	2.8 gh
Memory size	4 GB
Video Adapter	ATI radeon 1 GB
Storage capacity	500 GB
Operating system	DOS
Screen size	15.4 inch
Display resolution	null
Battery	6-cell Lithium-ion batter
Weight	3.75 Kg
Wireless	802.11g