



Department of Computer Science
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CQAVis: Visual Text Analytics for Community Question Answering

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Community Question Answering



- Means for communities to **share information** and to collectively satisfy their **information needs**.
- Forums organize content in the form of **question–comment threads**
- A **question** posed by a user may be answered by a possibly **long list of comments** from other users.

Community Question Answering: Example

Which is the best bank in Qatar?

What is the best bank to open an account? | Qatar Living

Can anyone recommend me a **bank** that has **good** interest rates on loans and credit

I'm considering Doha **Bank** because of the Lulu card.

www.qatarliving.com/forum/.../what-best-bank-open-account

Labeled [Forums](#)

Please recommend good bank in Qatar | Qatar Living

Kindly give me an idea what is the **best bank in Qatar?** for Current account, credit card, loan, in terms of customer service also. my salary is 10k- Thanks ...

www.qatarliving.com/.../please-recommend-good-bank-qatar

Labeled [Forums](#)

Best Credit Card in Doha | Qatar Living

(PS I understand that i would either need to shift my salary to the **bank** or put a ... are credit cards i came across in **Qatar** /they are not perfect but good

www.qatarliving.com/forum/qa

Labeled [Forums](#)

any advice?i want to change my bank

im planning to change my **ban**

www.qatarliving.com/.../any-ad

Labeled [Forums](#)

Islamic Banks in Qatar |

Any idea about **good** Islamic banks in **Qatar**? Services / products wise? Recommendation /

experiences Is there any Islamic services @ commercial **bank** ?

www.qatarliving.com/forum/advice-help/.../islamic-banks-qatar

Labeled [Forums](#)

Commercial Bank - Cheat | Qatar Living

As per your opinion, which is the **good bank in qatar**? ... it happened to me in Doha bank regarding car installment, and whenever the due date is Saturday they ...

www.qatarliving.com/forum/qatar/.../commercial-bank-cheat

Labeled [Forums](#)

What is the best bank to open an account?

 By 9chimera11 • 2 years 4 months ago.

Seems like all the banks need the salary to be credited to their accounts [where I came from that was not a necessity]

Can any one

So far I

Kindly give me an idea what is the best bank in Qatar? for Current account, credit card, and car loan, in

terms of cust

Thanks in ad

[SHARE](#) [TWEET](#)

 18 comments

 By Paj • 2 years 4 months ago.

any advice?i want to change bank,which one is good?

[SHARE](#) [TWEET](#)

 4 comments

 By d3liefulpinay • 3 years 2 weeks ago.

im planning to change my bank,any suggestions?is barwa bank good?thanks.

[SHARE](#) [TWEET](#)

 3 comments

 By bawa_099 • 2 years 9 months ago.

Hello,

recently joined an IT firm in Qatar and have been asked to chose any bank for my

prominent names I have heard are

Doha Bank / QNB / HSBC / Few Islamic Banks.

ID is still under processing and I need a bank which can offer my ATM & Cheque b

: I can issue PDC's for rental accommodation.

oking for advice on which Bank to go for.

S.

[SHARE](#) [TWEET](#)

 14 comments

 Sort by rating

Ratings calculated automatically using technology de

Banking in Qatar - Which one to choose

 By bawa_099 • 2 years 9 months ago.

Hello,

recently joined an IT firm in Qatar and have been asked to chose any bank for my prominent names I have heard are

Doha Bank / QNB / HSBC / Few Islamic Banks.

ID is still under processing and I need a bank which can offer my ATM & Cheque book : I can issue PDC's for rental accommodation.

oking for advice on which Bank to go for.

S.

 SHARE  TWEET

 14 comments

 Sort by rating

Ratings calculated automatically using technology de

 By qatman • 2 years 9 months ago.

QNB

Our Approach

1) Combine **Search** and **NLP** techniques to:

- Find **related question** threads in the forum
- Rank the **comments** within each question thread

2) Introduce a novel **interactive visual interface** to:

- Navigate through the **comments** to satisfy the **information needs**

Outline



- **Analyze** user requirements in CQA forums
identify use cases, tasks and design needs



- **The system**
 - Combine **NLP** and **search** techniques
 - Design CQAVis using **user-centered** methodologies
- **Evaluate** CQAVis:
 - Online user study among hundreds of users in an **ecologically valid way**
 - **Lessons** learned from the study



User Requirements Analysis

- Analyzing existing HCI literature
 - What types of questions are asked?
 - *Many questions are subjective in nature*
 - Who answers and why?
 - *Slower responses*
 - What is the quality of answers?
 - Lots of variability
- Interviewing Qatar Living admins and users
 - Many naive users
 - Users want to find useful answers quickly
 - Difficulty in finding good answers
 - Screen space constraints

Summary of requirements:

- We need a comment **classification** technique to find good answers
- Interface should support users in identifying **good answers** quickly
- Interface should be **simple** and **intuitive**.

Outline



- **Analyze** User requirements in CQA forums
identify use cases, tasks, and design needs

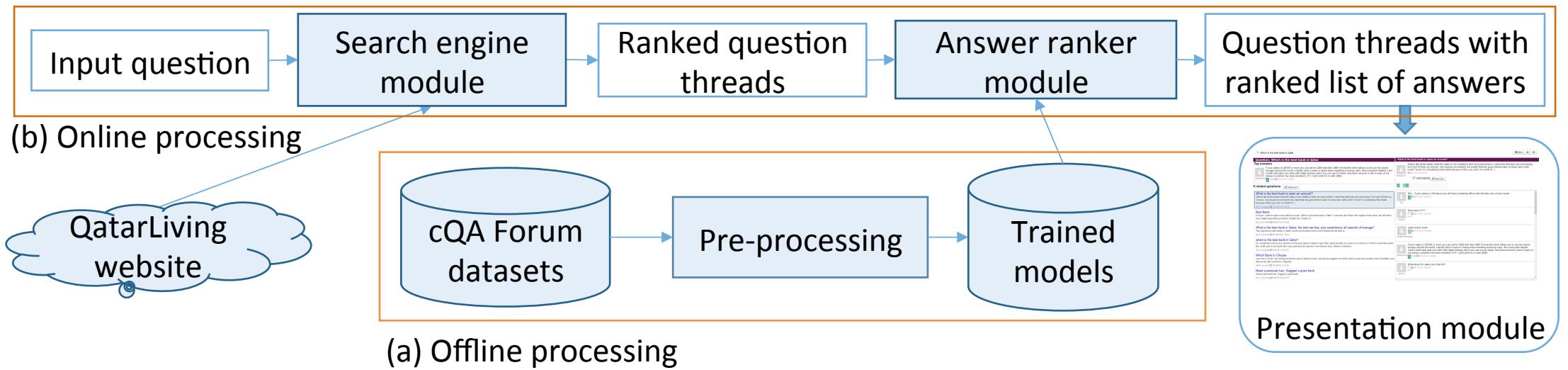


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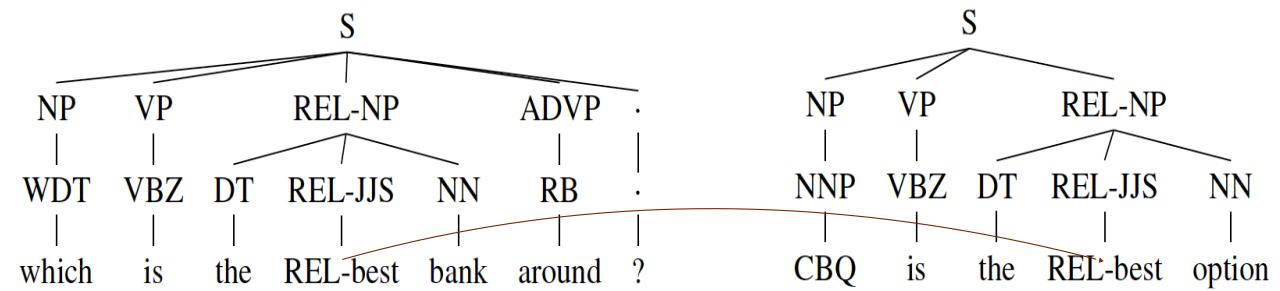
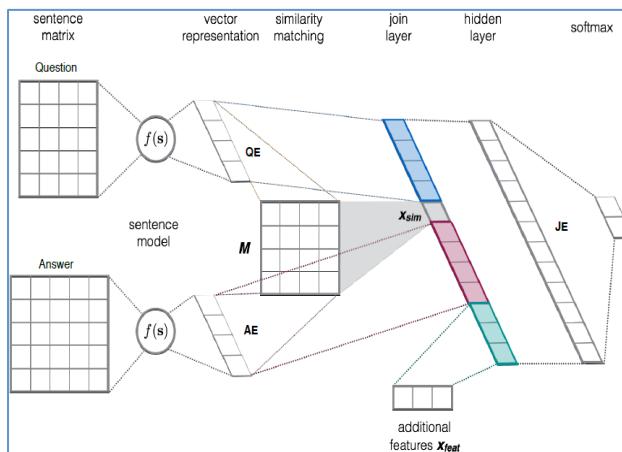
- Online user study among hundreds of users in an **ecologically valid way**
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System Overview



NLP Analysis: The Comment Classifier

- **The task:** Given a thread question and a list of comments associated with it, the task of the comment classifier is to assign a relevance score to each of the comments according to their goodness at answering the thread question.
- **SVM Classifier:**
 - Linear kernels over numeric and embedding features
 - Tree kernel over shallow syntactic trees of question and comment



NLP Analysis: Classification Performance

SemEval 2016 Dataset

- *Train:*
 - 2,669 questions
 - 17,900 comments
- *Test:*
 - 700 questions
 - 7,000 comments

SemEval 2016 Results

A	MAP	AvgRec	MRR	F ₁	Acc
Baseline	59.53	72.60	67.83	-	-
Average	73.54	84.61	81.54	-	-
Our	77.66	88.05	84.93	66.16	75.54
Top	79.19	88.82	86.42	64.36	75.11

Outline



- **Analyze** User requirements in CQA forums
identify use cases, tasks, and design needs



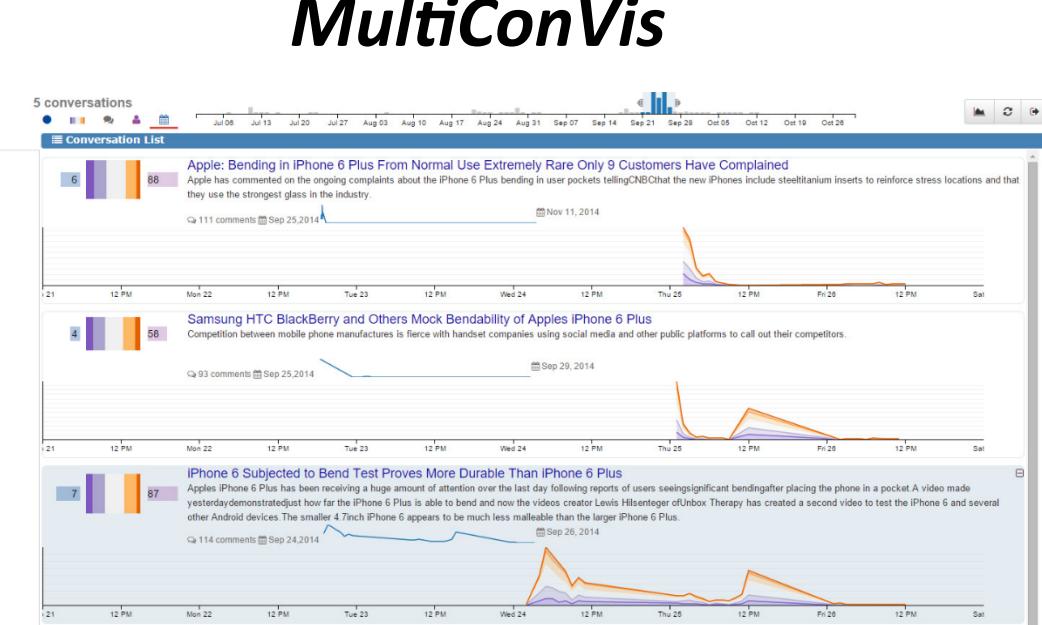
- **The system**
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- **Evaluate** CQAVis:
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Design of CQAVis

- Guided by previous work on visualizing multiple conversations.
- Simplified and tailored to CQA data and tasks.



Enamul Hoque and Giuseppe Carenini (*IUI 2016*).

Designing CQAVis: What Information Should be Presented?

<p><i>q: Which is the best bank in Qatar?</i></p>
<p><i>q₁: what is the best bank in qatar for small business</i></p>
<p>C_{1₁}: IBQ.if your salary is 25k above you will have...</p>
<p>C_{1₂}: West bank ????</p>
<p>...</p>
<p>C_{1n}: Thanks CBQ; I in fact applied for an account...</p>
<p><i>q₂: What is the best bank to open an account?</i></p>
<p>C_{2₁}</p>
<p>C_{2₂}</p>
<p>...</p>
<p>C_{2n}</p>
<p>...</p>
<p><i>q_m: Need a personal loan. Suggest a good bank</i></p>
<p>C_{m₁}</p>
<p>C_{m₂}</p>
<p>...</p>
<p>C_{m_n}</p>

Related question

- **relatedness score** w.r.t. new question [0,1]

Comment

- **classifier score** normalized to a value between [0,1]

Top answers

- combine **relatedness** and **classifier** scores

Qatar Living forum dump (from March 2016):

Total conversations: 202,304

Total comments: 2,043,022

Avg. comments per conversations: **10.21**

Design of CQAVis: Iterative Prototyping

Question: Which is a good bank
2013-05-02 19:43:00
10 related questions Order by ▾

Best Bank
Hi Guys, I need to open a new bank account. Which is the best bank in Qatar ? I assume all of them will roughly be the same; but still which has a slight edge (Money transfer, benefits etc) Thanks !!!
ankukuma 05/02/2013 19:43:00

What is the best bank to open an account?
Seems like all the banks need the salary to be credited to their accounts [where I came from that was not a necessity]. So it sort of limits my choices. Can anyone recommend me a bank that has good interest rates on loans and credit cards? So far I'm considering Doha Bank because of the Lulu card. Is it worth it?
Dilgeer 05/02/2013 19:43:32

Which Bank to use in Qatar?
Hi Does anyone have recommendations for which bank to use in Qatar? The account will be used to get my salary paid into and transfer funds overseas. Thanks
Speedysid 05/02/2013 19:43:21

Which is the best bank around??
Hi everybody, I need to open a bank account as soon as possible. Can you please advise on the best bank to deal with here? Thanks
Speedysid 05/02/2013 19:43:36

Best Credit Card in Doha
I would like to apply for a credit card that gives me Points when I spend and not just a simple card that does not get me anything in return for using it. Which card would you recommend gives the most reward for using the card and which card should I stay away from? (PS I understand that I would either need to shift my salary to the bank or put a deposit of some sort...) thanks!!
puru1600 05/02/2013 19:43:36

Best Bank.
Hi if all QL's, What bank you are using? and why? Are you using this bank just because it has an affiliate at home? Regards;
usmi 05/02/2013 19:43:08

V1 (based on training corpus)

Related questions

Question: Which is a good bank in Qatar?
10 comments Order by ▾

Best answer
The best bank in Qatar for you would be the one that fits in your requirements. I suggest you visit the major banks here, and approach the Customer Relations person there to guide you with the facilities the bank offers. They include: -Current Accounts facilities -Savings Account facilities - Money Transfer (However, I highly recommend using bank transfer only in emergency cases. There are money transfer agents which offer better exchange rates, and lower service fees) - Tie-ups with any bank in your home country to ease transfers
Speedysid 05/02/2013 19:43:21

7 related questions Order by ▾

Best Bank
Hi Guys, I need to open a new bank account. Which is the best bank in Qatar ? I assume all of them will roughly be the same; but still which has a slight edge (Money transfer, benefits etc) Thanks !!!
puru1600 05/02/2013 19:43:21

What is the best bank to open an account?
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usmi 05/02/2013 19:43:08

Need a personal loan. Suggest a good bank
Need a personal loan. Suggest a good bank
puru1600 05/02/2013 19:43:21

Which Bank to Choose
I am new in Doha; I am looking forward to open a bank account; can anyone suggest me which bank is good and provides max of facilities; and deal nicely with customers. Regards.
usmi 05/02/2013 19:43:08

what is your worst BANK in Qatar? and why?
Guys/Gals; Mind if you voice out your worst bank in QATAR? my top worst bank nowadays is MAS BANK why? i just came today to reset my PIN code for my credit card then suddenly it saysyyyy V CHARGE 50.00 Qrs to re-issue a PIN code! i said what the...? it is suppose the right of each of the to change their PERSONAL CODE however they made a point to charge? wow! btw mashreq bank got the worst customer services as well.. they are just good in throwing flowery words if they need something from you ie. L O A N S ? afterward? you are just in h i c h i

V2 (first live demo)
iyas.qcir.org/demo

QatarLIVING.COM

Call 1-855-586-4486 to book a test drive.

Properties Vehicles Items & Services Jobs Pages Forums Events Groups

Search Highly useful Not useful Give Feedback on the new tool

Top suggested answer
by Speedysid more than six months ago
The best bank in Qatar for you would be the one that fits in your requirements. I suggest you visit the major banks here, and approach the Customer Relations person there to guide you with the facilities the bank offers. They include: -Current Accounts facilities -Savings Account facilities - Money Transfer (However, I highly recommend using bank transfer only in emergency cases. There are money transfer agents which offer better exchange rates, and lower service fees) - Tie-ups with any bank in your home country to ease transfers

Question: Which is the best bank in Qatar?
10 related questions Relevance

Best Bank
Hi Guys, I need to open a new bank account. Which is the best bank in Qatar ? I assume all of them will roughly be the same; but still which has a slight edge (Money transfer, benefits etc) Thanks !!!
Showing 32 comments Time

32 comments more than six months ago

What is the best bank to open an account?
Seems like all the banks need the salary to be credited to their accounts [where I came from that was not a necessity]. So it sort of limits my choices. Can anyone recommend me a bank that has good interest rates on loans and credit cards? So far I'm considering Doha Bank because of the Lulu card. Is it worth it?
17 comments more than six months ago

Need a personal loan. Suggest a good bank
Need a personal loan. Suggest a good bank
17 comments more than six months ago

Islamic Banks in Qatar
Any idea about good Islamic banks in Qatar? Services / products wise? Recommendation / experiences Is there any Islamic services...
32 comments more than six months ago

Best Credit Card in Doha
I would like to apply for a credit card that gives me Points when I spend and not just a simple card that does not get me anything in return for using it. Which card would you recommend gives the most reward for using the card and which card should I stay away from? (PS I understand that I would either need to shift my salary to the bank or put a deposit of some sort...) thanks!!
33 comments more than six months ago

what is your worst BANK in Qatar? and why?
Guys/Gals; Mind if you voice out your worst bank in QATAR? my top worst bank nowadays is MASHREQ BANK why? i just came today to reset my PIN code for my credit card then suddenly it saysyyyy V CHARGE 50.00 Qrs to re-issue a PIN code! i said what the...? it is suppose the right of each of the to change their PERSONAL CODE however they made a point to charge? wow! btw mashreq bank got the worst customer services as well.. they are just good in throwing flowery words if they need something from you ie. L O A N S ? afterward? you are just in h i c h i

which is the best bank in Qatar?
Hi, I would like to know your opinions on the best bank in Qatar to open their salary transfer accounts in (current acc)? which would...
54 comments more than six months ago

QNB is now strongest bank in the world <http://dohanews.co/post/49438355258/bloomberg-qatar-beats-outsingapore-as-home-of-worlds>

V3 (Qatar Living beta version)
Qatarliving.com/betasearch

Final Design of CQAVis

Related questions

Question: Which is a good bank in Qatar?

Best answer

The best bank in Qatar for you would be the one that fits in your requirements. I suggest you visit the major banks here, and approach the Customer Relations person there to guide you with the facilities the bank offers. They include: -Current Accounts facilities -Savings Account facilities - Money Transfer (However, I highly recommend using the bank transfer only in emergency cases. There are money transfer agents which offer better exchange rates; and lower service fees) - Tie-ups with any bank in your home country to ease transfers

Speedysid 2013-05-03 12:58:13

7 related questions Order by ▾

Best Bank

Hi Guys; I need to open a new bank account. Which is the best bank in Qatar ? I assume all of them will roughly be the same; but still which has a slight edge (Money transfer; benefits etc) Thanks !!!

32 comments (10 useful comments) 05/02/2013 19:43:00

What is the best bank to open an account?

Seems like all the banks need the salary to be credited to their accounts [where I came from that was not a necessity]. So it sort of limits my choices. Can anyone recommend me a bank that has good interest rates on loans and credit cards? So far I'm considering Doha Bank because of the Lulu card. Is it worth it? :)

17 comments (3 useful comments) 12/31/2013 10:19:32

Need a personal loan. Suggest a good bank

Need a personal loan. Suggest a good bank

17 comments (3 useful comments) 09/29/2014 08:23:53

Which Bank to Choose

I am new in Doha; I am looking forward to open a bank account; can anyone suggest me which bank is good and provides max of facilities; and deal nicely with customers. Regards.

40 comments (7 useful comments) 11/05/2006 13:36:20

what is your worst BANK in Qatar? and why?

Guys/Gals; Mind if you voice out your worst bank in QATAR? my top worst bank nowadays is MASHREQ BANK why? i just came today to reset my PIN code for my credit card then suddenly it sayyyyyy WE CHARGE 50.00 Qrs to re-issue a PIN code! i said what the....? it is suppose the right of each of their client to change their PERSONAL CODE however they made a point to charge? wow! btw mashreq bank now got the worst customer services as well.. they are just good in throwing flowery words

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Hi Guys; I need to open a new bank account. Which is the best bank in Qatar ? I assume all of them will roughly be the same; but still which has a slight edge (Money transfer; benefits etc) Thanks !!!

2013-05-02 19:43:00

32 comments Order by ▾

Commercial bank/IBQ 2013-05-03 07:23:20

Dilgeer

The best bank in Qatar for you would be the one that fits in your requirements. I suggest you visit the major banks here, and approach the Customer Relations person there to guide you with the facilities the bank offers. They include: -Current Accounts facilities -Savings Account facilities - Money Transfer (However, I highly recommend using the bank transfer only in emergency cases. There are money transfer agents which offer better exchange rates; and lower service fees) - Tie-ups with any bank in your home country to ease transfers

Speedysid 2013-05-03 12:58:13

- Credit / Debit card facilities - Customer Care services - Promotional services - Bank Loans facilities; etc. I recommend that you visit the nearest banks and gather all info. It'll just take you a couple of days to arrive at the decision.

Speedysid 2013-05-03 12:58:25

Commercial Bank 2013-05-03 22:25:47

puru1600

Any bank other than Doha Bank ;)

2013-05-04 07:04:50

Thread Overview

Conversation view

Live Demo

Outline



- **Analyze** User requirements **in** CQA forums

identify use cases, tasks, and design needs

- **The system**



- Combine **NLP** and **search** techniques

- Design CQAVis using **user-centered** methodologies

- **Evaluate** CQAVis:



- Online user study among hundreds of users in an

- ecologically valid way**

- **Lessons** learned from the study

User Evaluation of CQAVis

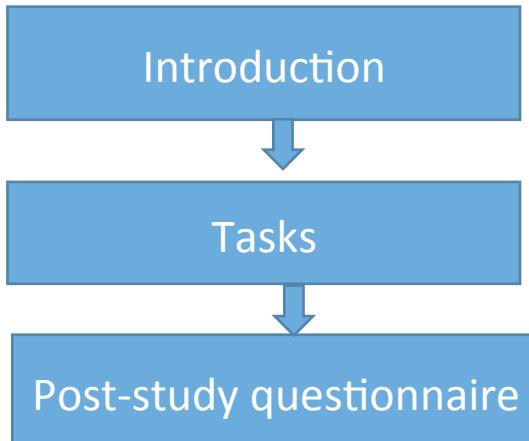
Online User Study

Real users, real data and real tasks

- To enhance ecological validity
- Uncontrolled, less incentives for users

Pilot (lab) study

- To revise the study



The screenshot shows the beta version of the QatarLiving forum search tool. The top navigation bar includes links for Properties, Vehicles, Items & Services, Jobs, Pages, Forums, and Help. A banner for a personal loan offer is visible. The main content area displays a search result for "Where can i buy tyres?". It shows several posts, including one from IMI and another from plipanselmo. The right side of the screen features a feedback form with sections for rating the tool's usefulness, enjoyment, and preference over regular forums. It also includes fields for general impressions, additional comments, and a submit button.

Welcome to the beta version of Qatarliving forum search tool!

Where can i buy tyres?

Top suggested answer

Question: Where can i buy tyres?

8 related questions

Where can i buy Tyres for my Car???

HELP - Cheapest Rate Tires

Honda Civic Bridge Stone Tyres....

New tyres

Tyres

which tires

Thanks for using our new tool for querying QatarLiving!
Your feedback would be greatly appreciated.

Please rate how strongly you agree or disagree with each of the following statements with respect to the tool you have used (more stars means higher agreement).

I found this tool to be useful ★★★★★

I found this tool easy to use ★★★★★

I found this tool enjoyable to use ★★★★★

This tool enabled me to find answers relevant to my questions. ★★★★★

Would you prefer this tool over the regular one? *

Yes

No

Can't tell

Having used the tool for searching online forums, what are your impressions and comments?

Do you have any additional comments and suggestions for improving the tool?

Submit Feedback

<http://www.Qatar Living.com/betasearch>

Online User Study: Results Analysis

- **User statistics:**
 - 768 participants
- **Data Collection:**
 - Query log
 - Interface actions
 - Questionnaires (measured on Likert scale)
 - Open-ended comments

User Evaluation of CQAVis: Questionnaires

- Subjective ratings
From 56 users

Thanks for using our new tool for querying QatarLiving!
Your feedback would be greatly appreciated.

Please rate how strongly you agree or disagree with each of the following statements with respect to the tool you have used (**more stars means higher agreement**).

I found this tool to be useful 

I found this tool easy to use 

I found this tool enjoyable to use 

This tool enabled me to find answers relevant to my questions. 

Would you prefer this tool over the regular one? *

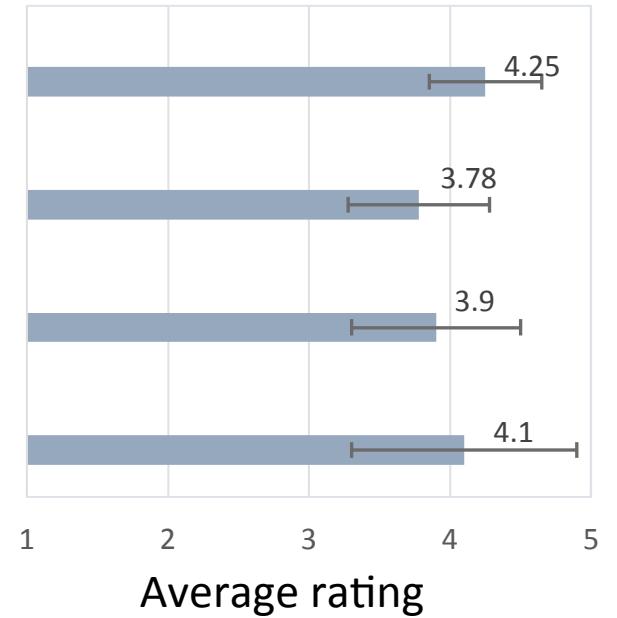
Yes
 No
 Can't tell

This tool enabled me to find answers relevant to my questions

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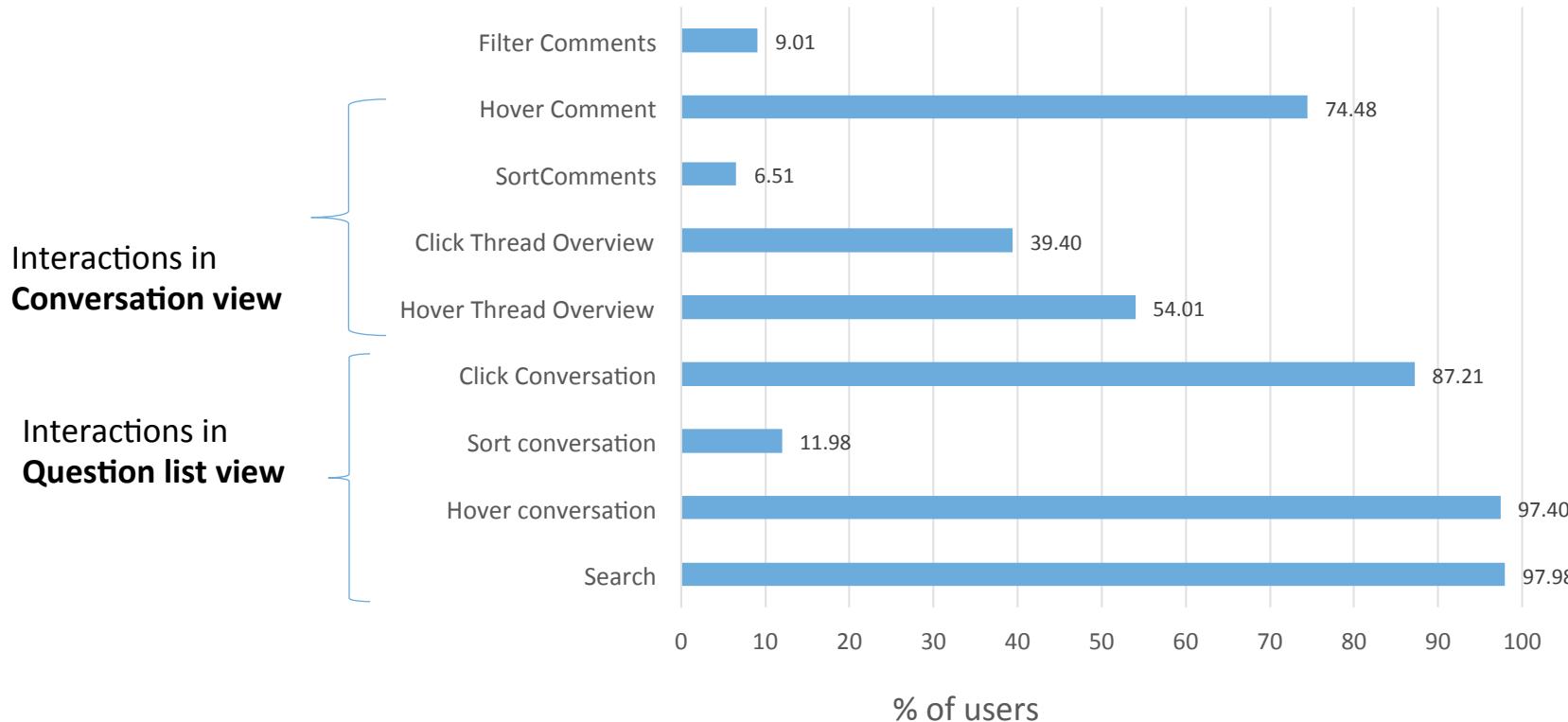
I found this tool easy to use

I found this tool to be useful



Would you prefer this tool over the regular one? *
Yes: 75%, No: 6.25, Can't tell: 18.75%

User Evaluation of CQAVis: Interaction Statistics



Time spent: 155 sec (median), 2483 sec (average)

Lessons Learned

Design

- Less is more
- Enhance learnability
- Introduce familiar visualizations

Evaluation

- Challenges in collecting feedback from users

Conclusions

- We successfully integrate **NLP** and **InfoVis** for CQA
 - **NLP**: retrieve and rank comments given a new questions
 - **InfoVis** : helps the user in rapidly navigating the comments
- Used by a **population** with possibly **low visualization literacy**
- **Lessons** learned from the study
- Future work:
 - Further improve the **comment classifier**
 - Apply CQAVis in other forum conversations



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QCRI
معهد قطر لبحوث الحوسبة
Qatar Computing Research Institute

جامعة محمد بن خليفة
HAMAD BIN KHALIFA UNIVERSITY



Thank you!

Check out the live demo:

iyas.qcri.org

Supplementary slides

User requirements analysis

- Analyzing Existing HCI literature

- What types of questions are asked?
 - *Many questions are subjective in nature*
- Who answers and why?
 - *Slower responses*
- What is the quality of answers?
 - Lots of variability

- We need a comment **classification** technique to find good answers

- Interviewing **Qatar Living admins and users**

- Many naive users
- Users want to find useful answers quickly
- Difficulty in finding good answers
- Screen space constraints

- Interface should be **simple and intuitive.**

- Interface should support users in identifying **good answers** quickly

User Evaluation of CQAVis

- Some qualitative feedback?
- About limitations?

Literature Review

- Conversation visualization in general
 - Convis and others
- Specific for CQA domain

Future Work

- Further improve the **comment classifier**
- Apply CQAVis in other forum conversations