

# Usability Study

## IR Toolbox

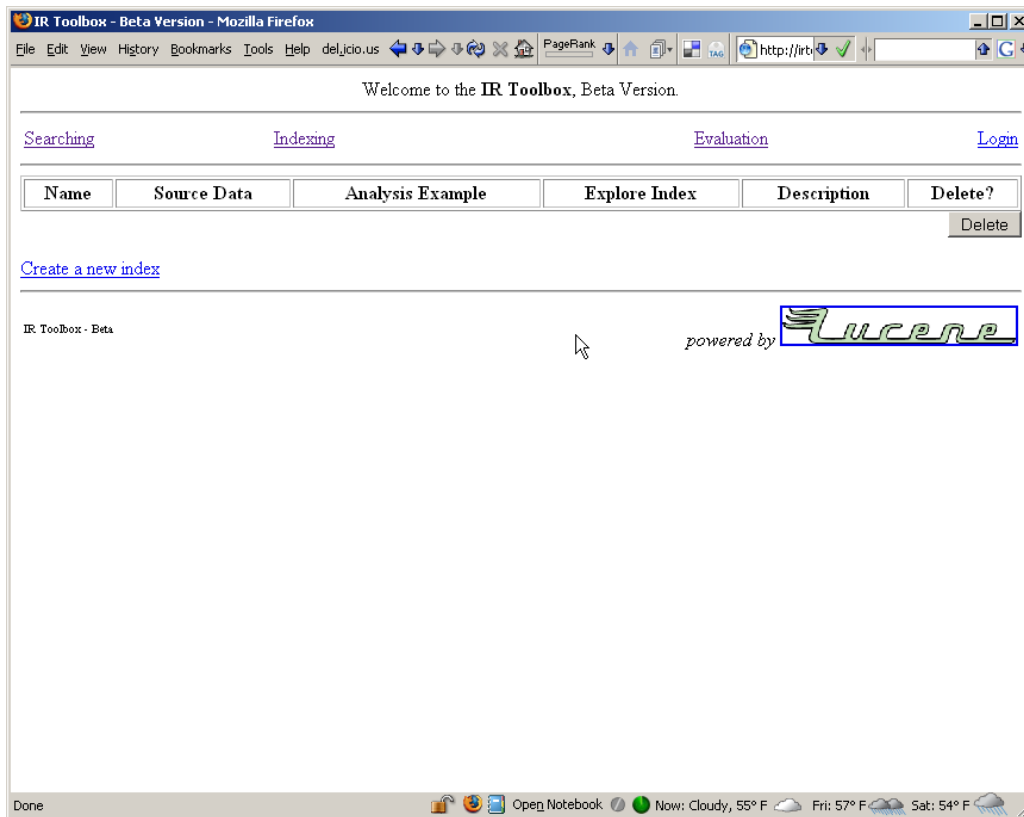
TC 517

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## Administrator Checklist

Data Recorder(s)	Technician
<b>One Day Before</b>	
<input type="checkbox"/> Confirm reservation of MGH lab room. <input type="checkbox"/> Confirm appointment with participant.	<input type="checkbox"/> Pick up digital video recorder. <input type="checkbox"/> Get digital video recorder media. <input type="checkbox"/> Ensure digital video recorder charged. <input type="checkbox"/> Prepare box of supplies.
<b>One Hour Before</b>	
<input type="checkbox"/> Get water bottle for participant <input type="checkbox"/> Prepare test materials (see list below). <input type="checkbox"/> Ensure participant computer is working and IR Toolbox website is accessible.	<input type="checkbox"/> Prepare digital video recorder. <input type="checkbox"/> Test digital video recorder (record and playback to verify).
<b>When Participant Arrives</b>	
<input type="checkbox"/> Follow Administrator script.	<input type="checkbox"/> Turn on digital video recorder.

Box of supplies contains:

- 3 Note pads
- 4 Pens
- Stapler
- Staples
- Water bottle
- Administrator Checklist
- Administrator Script
- 3 Data Collection forms
- 1 Interview Script
- 1 Consent form
- 1 Participant Profile form
- 1 Participant Task List

# Administrator Script

## Greetings and Introductions

[Shake hands] Hello \_\_\_\_\_, and thank you for participating in our usability test today. I'm \_\_\_\_\_ and I'll be conducting this test. These are my colleagues [indicate colleagues] \_\_\_\_\_ and \_\_\_\_\_ who'll be assisting me, operating the equipment and observing. Please have a seat at the computer. Are you comfortable? We have a bottle of water here for you if you get thirsty [indicate water bottle].

## Introduce IR Toolbox and Usability Testing

Today we are going to have you perform some task with the web application IR Toolbox. Keep in mind that we are not testing you and there is no such thing as a correct answer. We are testing the IR Toolbox. Our focus today will be to assess how usable IR Toolbox is for you. We will do this as you perform a set list of tasks. Your actions will help us identify possible trouble areas and indicate places where we might improve the design.

## Introduce Testing Mechanisms

We will be recording your actions by taking notes [indicate note pad] and using a video camera [indicate camera]. In order to assist us in understanding your thought process and your choice of what actions to take, we would like you to employ what we call, thinking-aloud protocol. This is a method where you speak aloud your internal thoughts to express why you have chosen certain actions and why you might be having trouble with a certain task. Don't worry, I will demonstrate this in a few moments.

## Consent Form

To be able to use the information we gather from you during this test we need you to fill out this consent form. You are not obligated to sign this form and can at any time decide to change your mind. Additionally, once the test starts you can end it at any time for any reason. This is done completely with your permission and entirely at your discretion.

[Give participant Consent Form] Please fill this out and do not hesitate to ask any questions you might have.

## Questionnaire

Before we begin the test we need to administer a pretest questionnaire. This may look similar to the screener questions; we just need to have these questions documented with your file.

[Give participant Pre-test Questionnaire] Please fill this out and do not hesitate to ask any questions you might have.

## Think Aloud Protocol Exercise

The Think Aloud Protocol, is simply verbalizing the thought process in your head and expressing the reason for making the decisions you make and why. I will demonstrate what we are looking for with this simple task \_\_\_\_\_. I will use Think Aloud Protocol to explain each of the actions I take and my reasoning. Then I will ask you to do a similar task, using Think Aloud Protocol to warm up.

[Begin short Think Aloud Protocol example]

Now I would like you to do the same using Think Aloud Protocol.

[Prompt participant to begin Think Aloud Protocol example]

Now that we are warmed up, we will proceed to the main test.

## Introduce Task Packet and Test Procedure

Here is IR Toolbox [direct participant to the computer screen]. Today we are going to have you perform a series of tasks using IR Toolbox. We have all the tasks written on the sheets of paper directly to your right [indicate task packet]. When we proceed, you will turn over the first sheet and only the first sheet, read the task and attempt to perform the task to the best of your ability, while implementing the Think Aloud Protocol. Please try and complete the tasks, on your own, to the best of your ability. When you believe you have completed each task, please directly inform me, and I will then prompt you when it is time to continue to the next task sheet. Most people get so absorbed in the tasks that they will sometimes forget to continue to talk aloud. Forgetting is completely normal but this is a very valuable method to use in gaining insight into the design of IR Toolbox. I may, periodically, remind you to use the think aloud protocol by saying, "Please continue to think aloud." (Facilitator: use only as a last resort, making sure to try and use inline prompting)

After we administer the sequence of tasks, we will take a short amount of time to conduct a debriefing interview. This will give you a chance to express your overall impressions and experience.

Are you ready? [wait for a positive response] Then please turn over the first task sheet and begin.

[Administer Test]

## Post-Test Questionnaire/Interview

Alright! Thank you for completing the tasks. Now we would like to take just a few more moments of your time and get your impressions of IR Toolbox now that you have used it. We have this short interview for you.

[Administer Post-test Questionnaire/Interview]

Thank you once again for participating in this Usability Test of IR Toolbox. Do you have any further questions or comments you would like to make?

Once again you have our gratitude for helping us out today. Good bye. [Indicate door]

UNIVERSITY OF WASHINGTON  
CONSENT FORM  
Student Project for TC 517: Usability Testing

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**PURPOSE AND BENEFITS**

Today you are being asked to participate in a usability study, which is part of a student project for a class in Usability Testing. This study provides students with the experience of evaluating the usability of technology products, processes and other consumer goods.

**PROCEDURES**

As a participant in this study, you may be asked to do one or more of the following:

- try a set of tasks using a product
- think out loud while performing these tasks
- fill out questionnaires
- take part in an interview.

While you are participating in this study, our team will observe you and record information about the session. Additionally, we may videotape all or some of the study session.

**RISK, STRESS, OR DISCOMFORT**

This study will not expose you to risk, stress, or discomfort beyond that normally encountered when using a computer or other technology, being videotaped, or completing questionnaires.

**OTHER INFORMATION**

Once the results of these studies have been tabulated, your name will be removed from all materials associated with the study in order to ensure confidentiality. No one other than the investigators named above will be viewing the data collected from today's study. Some of the findings from this study may be shared with project sponsors or in an educational setting. You are free to refuse to participate in the study and may withdraw at any time.

If you have any questions, you may ask now or contact a member of the study team at the email addresses provide above.

\_\_\_\_\_  
Signature of Investigator

\_\_\_\_\_  
Date

The study described above has been explained to me, and I voluntarily consent to participate in it. I have had an opportunity to ask questions and understand that future questions I may have about the research or about subjects' rights will be answered by the investigators named above.

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
(please print name)

# Data Collection Form

Please use screenshots to indicate clicking sequences and identifying areas of concern. Specific questions to be answered are included in textboxes on the doc collection sheet.

## Login Observations:

### Task 1a: Building an index (1 of 7)

Welcome to the **IR Toolbox**, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

Name	Source Data	Analysis Example	Explore Index	Description	Delete?

[Create a new index](#)

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Observations:

Follow-up questions:



## Task 1a: Building an index (2 of 7)

Welcome to the **IR Toolbox**, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

### Building an Index

The process of building a new index starts on this page. Here you can assign a name to the new index and select the data source from which the index will be built.

Name of new index:

Select source data:

[Select Data Source](#) → [Define Options](#) → [Build Stop Word List](#) → [Define Document Fields](#) → [Build Index](#)

Does the user enter a valid name the first time: **Yes** | **No**

IF NO

Observation:

### Building an Index

#### Error

- The name provided (not a valid name) is not valid. Please enter a name containing only letters, numbers or the underscore character with no white space.

Name of new index:

Select source data:

How many times does the user enter the name wrong? \_\_\_\_\_

Follow-up questions:

## Task 1a: Building an index (3 of 7)

Welcome to the IR Toolbox, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

### Define Options

You may now choose how the analysis will proceed. Do you want all characters to be forced to lower case? Would you like to stem words using the Porter Stemmer algorithm? How do you want the text parsed?

<b>Text Case</b>	<input type="radio"/> Leave text case as is. <input type="radio"/> Force all text to lowercase.
<b>Tokenizing</b>	<small>[Note: See help window for descriptions.]</small> <input type="radio"/> Simple letter tokenizer. <input type="radio"/> Standard rule-based tokenizer. <input type="radio"/> Whitespace tokenizer.
<b>Stemming</b>	<small>[Note: Porter Stemmer automatically forces text to lowercase regardless of choice above.]</small> <input checked="" type="radio"/> Do not stem tokens. <input type="radio"/> Apply Porter Stemmer.

[Select Data Source](#) → [Define Options](#) → [Build Stop Word List](#) → [Define Document Fields](#) → [Build Index](#)

Observations:

Follow-up questions:

**Task 1a: Building an index** (4 of 7)

## Defining Stop Words

You may choose to not use a stop word list, use a default stop word list, or upload a stop word file.

- Word List**
- Do not apply a stop word list.
  - Basic nine word list. [\[Show\]](#)
  - Lucene's default english stop word list. [\[Show\]](#)
  - SMART's default english stop word list. [\[Show\]](#)
  - Time's default english stop word list. [\[Show\]](#)
  - Upload custom word list. Use file upload below.

The file selected for upload should be an ASCII text file with a single stop word per line. Please do not attempt to upload a WORD document or any other non-ASCII formatted file.

---

[Select Data Source](#) → [Define Options](#) → [Build Stop Word List](#) → [Define Document Fields](#) → [Build Index](#)

Observations:

Follow-up questions:

## Task 1a: Building an index (5 of 7)

Welcome to the **IR Toolbox**, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

### Define Document Fields

The following table will allow you to define a few critical document tags. Please enter the names of the exact tag name for each of the following document fields. To see your data, you may click [here](#) and view the page's source. However, be aware that some of the datasets are rather large and may take a while to download.

Title	<input type="text"/>
Main Body	<input type="text"/>
Document Number	<input type="text"/>

[Select Data Source](#) → [Define Options](#) → [Build Stop Word List](#) → [Define Document Fields](#) → [Build Index](#)

Can the user identify sample document link?: **Yes** | **No**

Can the user identify the correct tags from the XML file?: **Yes** | **No**

Observations:

```
<DOC>
<DOCNO> LA010189-0001 </DOCNO>
<DOCID> 1 </DOCID>
<DATE>
<P>
January 1, 1989, Sunday, Home Edition
</P>
</DATE>
<SECTION>
<P>
Book Review; Page 1; Book Review Desk
</P>
</SECTION>
<LENGTH>
<P>
1206 words
</P>
</LENGTH>
<HEADLINE>
<P>
NEW FALLOUT FROM CHERNOBYL;
</P>
<P>
THE SOCIAL IMPACT OF THE CHERNOBYL DISASTER E
PRESS: $35, CLOTH; $14.95, PAPER; 316 PP., II
</P>
</HEADLINE>
<BYLINE>
<P>
By James E. Oberg , Oberg, a space engineer i
Uncovering Soviet Disasters: Exploring the Li
</P>
</BYLINE>
<TEXT>
<P>
The onset of the new Gorbachev policy of glas
openness but closer in connotation to candor
```

Follow-up questions:

## Task 1a: Building an index (6 of 7)

Welcome to the **IR Toolbox**, Beta Version.

[Indexing](#)

[Evaluation](#)

Name	newindex
Data Source	LA010189
Text Case	All text is forced to lowercase.
Token Settings	Tokens will be defined by white space.
Porter?	Porter Stemmer will be used.
Stop Words	Stop words will be removed from the text. <a href="#">[Show Stop Word List]</a>
Title Tag	HEADLINE
Body Tag	TEXT
Doc. Number Tag	DOCID

You may enter a short description of the index here if you wish.

Please note that this process may take a long time.  
Click the 'Build Index' button only once!

[Select Data Source](#) → [Define Options](#) → [Build Stop Word List](#) → [Define Document Fields](#) → [Build Index](#)

How does the user react to the wait time after clicking the build index button?

Do they click more than once? **Yes** | **No**

Observations:

Follow-up questions:

## Task 1a: Building an index (7 of 7)

Welcome to the **IR Toolbox**, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

Name	Source Data	Analysis Example	Explore Index	Description	Delete?
test	ait.thesis	<a href="#">Example</a>	<a href="#">Explore</a>		<input type="checkbox"/>

[Create a new index](#)

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Observations:

Follow-up questions:

**Task 1b: Building index two**

Observations:

Follow-up questions:

**Task 1c: Building index three**

Observations:

Follow-up questions:



## Task 2a: Identifying an index

Welcome to the **IR Toolbox**, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

Search Criteria  [QUERY SYNTAX](#)

Data Index to Search

Results Per Page  [How does lucene score results?](#)

Can the user correctly identify which index to search? **Yes** | **No**

What method does the user employ?

Observations:

Follow-up questions:

## Task 2b: Querying an index

Welcome to the **IR Toolbox**, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

Search Criteria  [QUERY SYNTAX](#)

Data Index to Search

Results Per Page  [How does lucene score results?](#)

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Observations:

Can the user understand the QUERY SYNTAX help link? **Yes** | **No**

Follow-up questions:

### Task 3a: Exploring an index

## Exploring newindex

Index Description	Term Weights
<b>Name</b>	newindex
<b>Data Source</b>	LA010189
<b>Text Case</b>	All text is forced to lowercase.
<b>Token Settings</b>	Tokens will be defined by white space.
<b>Porter?</b>	Porter Stemmer will be used.
<b>Stop Words</b>	Stop words will be removed from the text. <a href="#">[Show Stop Word List]</a>
<b>Title Tag</b>	HEADLINE
<b>Body Tag</b>	TEXT
<b>Doc. Number Tag</b>	DOCID

**Term Weights**

The following forms allow you to retrieve term weights and the components of those weights for a retrieved set of documents. Enter one or more terms into the text field and click the submit button. Note that these are not formal queries so there is not complex query parsing occurring. Please be patient for the data to load. Some of the calculations can be time consuming. Use the File->Save as... command to save that data. Make sure you change the Save as type: option to Text File (\*.txt). Netscape users can do the same thing but note that the menu and option names slightly differ.

---

**Term Frequencies**

Lists all terms, document frequencies, and total frequencies.

---

**Coordination Experiment**

Number of keywords:

Number of iterations:

Enter the number of keywords to randomly select and the number of times to iterate this experiment. Results will be returned in text form, one line per iteration, where each value represents the coordination level for a given document. As usual, this may take time, please be patient. (See page 103, Exercise 4 of Belew's *Finding Out About* for reference.)

---

Analyze the terms as they are weighted by inverse document frequency:  
 $\log(\text{numDocs}/\text{docsWithTerm})$ .

---

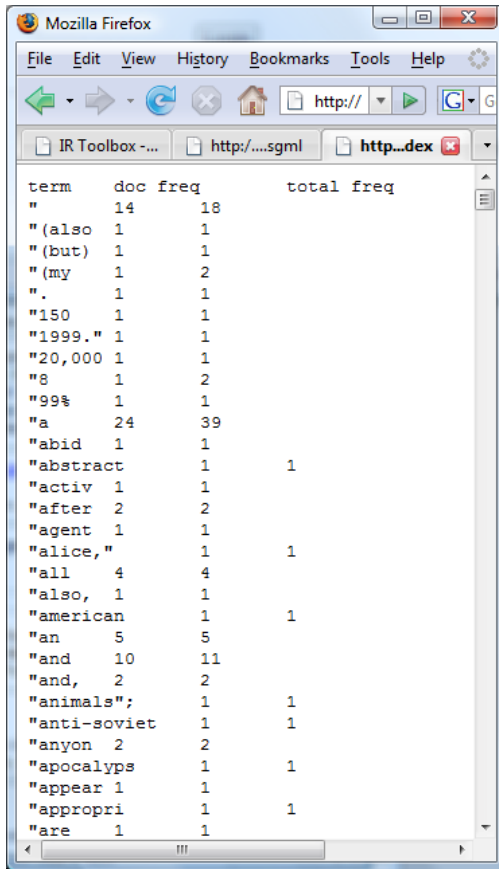
Analyze the terms as they are weighted by the tf-idf algorithm:  
 $\dots ( \dots \text{Norm} \dots )$  where Norm = numDocs

Observations:

Does the user understand the Term Frequency instructions? **Yes** | **No**

Follow-up questions:

### Task 3b: Term frequencies



The screenshot shows a Mozilla Firefox browser window with a table of term frequencies. The table has three columns: 'term', 'doc freq', and 'total freq'. The data is as follows:

term	doc freq	total freq
"	14	18
"(also	1	1
"(but	1	1
"(my	1	2
".	1	1
"150	1	1
"1999."	1	1
"20,000	1	1
"8	1	2
"99%	1	1
"a	24	39
"abid	1	1
"abstract	1	1
"activ	1	1
"after	2	2
"agent	1	1
"alice,"	1	1
"all	4	4
"also,	1	1
"american	1	1
"an	5	5
"and	10	11
"and,	2	2
"animals";	1	1
"anti-soviet	1	1
"anyon	2	2
"apocalyps	1	1
"appear	1	1
"appropri	1	1
"are	1	1

Observations:

Can the user copy and paste the Term Frequency data from the webpage to the excel spreadsheet ? **Yes** | **No**

Follow-up questions:

#### Task 4: Deleting an index

Welcome to the **IR Toolbox**, Beta Version.

[Searching](#)

[Indexing](#)

[Evaluation](#)

[Login](#)

Name	Source Data	Analysis Example	Explore Index	Description	Delete?
test	ait.thesis	<a href="#">Example</a>	<a href="#">Explore</a>		<input type="checkbox"/> Delete

[Create a new index](#)

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Observations:

#### Task 5: Exiting

Observations:

Follow-up questions:

## Task List

You are doing a research project and you have gathered together some newspaper and journal sources that might contain information useful to your topic. You are under a **SERIOUS** deadline. Your friend has setup a useful information retrieval tool called **IR toolbox** to help you search and find your required information. He has added in all the collections of resources (or corpra) but has not processed them yet. Unfortunately he has mysteriously disappeared. You have a vague suspicion that a sexy and/or hunky Russian Spy was involved. You now need to figure out how to build the necessary indexes on your own to perform searches and *other operations*.

First thing you need to do is...

**Please log-in.**

**User Name: ischool**

**Password: ir=fun**

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK.***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 1a

In order to search your collections of documents, you need to first build several indexes. You are not completely sure about how the various options you need to use will affect your searches, so you will have to use various combinations.

**Build the first index with the follow characteristics.**

<b>Select this data source:</b>	Artificial Intelligence Abstracts
<b>Text Case:</b>	All lowercase
<b>Tokenizing:</b>	Simple letter
<b>Stemming:</b>	Porter Stemmer
<b>Stop Word List:</b>	Basic Nine

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK.***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 1b

Please repeat Task 1a using the characteristics below.

<b>Select this data source:</b>	Full LA Times
<b>Text Case:</b>	Leave text case as is
<b>Tokenizing:</b>	Standard rule-based tokenizer.
<b>Stemming:</b>	Porter Stemmer
<b>Stop Word List:</b>	Lucene's default English stop word list

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK.***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***



## Task 1c

Please repeat Task 1a using the characteristics below for a total of 3 indexes created.

<b>Select this data source:</b>	CR93E1
<b>Text Case:</b>	Lower case
<b>Tokenizing:</b>	Tokens will be defined by a set of standard rules defined by Lucene
<b>Stemming:</b>	Porter Stemmer
<b>Stop Word List:</b>	No stop words.

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK.***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 2a

You have now built several indexes using a variety of characteristics. Urgency dictates that you need to search quickly, so it is imperative that you search only indexes relevant to your needs. You know that you need an index with the characteristics listed below and you need to verify that the one you have selected does indeed match those characteristics.

**Characteristics: Full L.A. Times; text case as is; standard rule-based tokenizer; Porter stemmer; Lucene's default English stop word list.**

**Identify the index with the above mentioned characteristics.**

**When identified, proceed to the searching page.**

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK.***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 2b

Your friend's disappearance has prompted you to think that the collections of documents you are indexing might not be as harmless as you once believed. You decide that you want to investigate the documents further.

**Type in a query to search for all three of the following words:**

**"lawyers" "guns" and "money"**

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 3a

**Return to the Index List page.**

**Then choose any index and then click on the Explore link.**

**Please read the first paragraph on the page, under the words (title?) Term Weights.**

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 3b

You need to get the information you have discovered out of IR Toolbox and save it to a form you can send out...

**Please click on the Term Frequencies link.**

**Save the data as a spreadsheet with 3 columns in Excel.**

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 4

You realize that with this new information, you too are also in danger. You suspect that the Russian spy is not far away. You must cover up your tracks...

**Please delete the index that you built with the text case as all lower case.**

***PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK***

***DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.***

## Task 5

You hear footsteps in the hallway. You've got to get out of there as soon as possible!

**Please exit IR Toolbox.**

*PLEASE INFORM THE INSTRUCTOR WHEN YOU ARE DONE WITH THIS TASK*

*DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.*

## Task 6

The footsteps stop and the door opens... Your friend has made it back alive! For a moment, you are relieved. Then you realize that the two of you must go confront the Russian spy with the information you have gathered through IR Toolbox.

**Your job here is finished. Please let the instructor know that you are done.**

**You will now be asked a few questions about your impressions of the IR Toolbox.**

***THANK YOU FOR YOUR PARTICIPATION.***



# Post Study Interview Script

Participant: \_\_\_\_\_

Date: \_\_\_\_\_

1. Was it difficult to create an index? If yes, please explain.

Y / N

Details:

2. (if errors encountered naming an index) Did you get any errors when you named an index? If yes, please explain. What were your impressions of entering the build and index name? Do you feel the instructions were helpful in correcting your error?

Y / N

Details:

3. Did you view a sample document before defining the document fields? Do you remember any particular issues you may have had with the "Define Document Fields" page? If yes, please explain.

Y / N

Details:

4. Did you have any problems when you pressed the button to build an index? If yes, please explain. What was reaction about the wait time?

Y / N

Details:

5. When you were building the index, was it clear to you how the different options you chose affected the nature of your index? Did you feel that the differences in the created indexes affected the search and retrieval process? Or was there no correlation in your mind?

6. Please explain your reaction about the process of using the “Term Frequency List” and/or saving it to Excel? Did you have any problems with it? What were your reactions to it? Did you feel the directions were helpful? Do you feel you understand the process?

Y / N

Details:

7. Did you have any trouble identifying the correct index? If yes, please explain.

Y / N

Details:

8. Did you encounter any terminology on the website that was confusing to you? If so, did it make it difficult to perform the tasks? Please explain.

Ask about specific terminology we have concerns about?

Y / N

Details:

9. Did you feel like you understood “where” you were when using the application? In general, was it clear what task you were performing, and what options you had when you were done? Please explain