



Master Theses

Infret - An Interactive Tool for Helping Students Learn and Explore Information Retrieval

Student: Aleksandar Bobic Supervisor: Christian Gütl

Co-Supervisors: Christopher Cheong, Justin Filippou, France Cheong (RMIT)

An exploratory and interactive prototype called Infret was developed to help students better understand concepts of information retrieval in an information search and retrieval (ISR) class enabled by motivational active learning (MAL). Infret was built using modern web technologies such as Angular and Node.js and based on the findings of a literature survey and the evaluation of a previously built Java-based tool. The

Infret prototype enabled students to explore various text statistics from one of the selected text document collections visually and interactively. It was used as part of a class activity by a group of students who were attending the ISR course at TU Graz for a semester. At the end of the activity, the students filled out an evaluation survey. Findings indicate the Infret prototype has above average usability and sparked mostly positive emotions for students.



Additionally, multiple improvement possibilities were identified. The aforementioned findings were used to improve and expand Infret.

The second iteration of Infret supported various term weighting concepts, a new heatmap visualisation and many other improvements. The second version of Infret was used as part of a class activity by a novice group of students and an experienced group with prior knowledge in IR. The students from both groups filled out an anonymous survey after completing the activities. Findings indicate the second version of Infret helped both groups of students understand various text statistics and term weighting concepts and sparked the novice students curiosity. The usability score given by experienced students was lower than the one received for the Infret prototype, however, it was still higher than the average usability. On the other hand, the usability estimated by novice students was lower than the average. Additionally, even though the negative emotions were more intense than for the Infret prototype

the second version of Infret still mainly sparked positive emotions. These and many other findings provide room for further improvements and feature set expansions for future iterations of Infret.

	lerm freque																
DULLICHON .		the .								flow.			boundary				
Basic relaction date:			100			1.450	8.5865			2,4000	1,400	4	N. CREM				9.200
• 100 documents						5.3601						114877					
18542 unorda 2266 uniqua words			2000														
								6862							24001		
Statistics 1.5.		Acres	1									10000			100		
Maighting &			100								3481						8.200
				1000	1400	RANGE		Comm	11110							AME:	
Weighting concept:						8,999		100				0.000					anesi
		1,000		11000	1000	2,000	2.6750	ANTH	1,7040	NAME	1476					2,000	•
Parmula used				AME			5.000					4300			1,000	1002	1,2809
Draskras malerne V Q		0.0100				,		6,0105				241831	ANTE	6,6796	- 11000		4 400
Nonemann Control (C)			2400	Time-	81626	8.3678	1,000			6.9679		11,0079	0.0001	-			0.0079
Value of K list 12M							8.000	- Aires	E. SHITE		ALC: U				63901	63796	
				ARITE			1400			1500	LTD	2462			1800		
Min. term frequency (1						1.000	9,7997	NAME OF	CHIEF		200	1100			1000	NAME:	*19452
•			1.000	1.000	5.600	8.000	5.6075	naces	Semi		ASSET	AHER	1,7000	B.CSF	AMTE	Arre	
Andyse																	