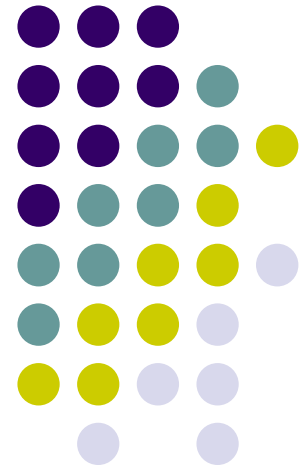# WEB ANALYTICS FOR EDUCATIONAL CONTENT

Authors:

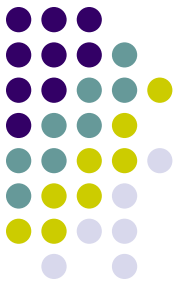Sanda Dragos and Radu Dragos

WEB ANALYTICS

- the measurement, collection, analysis and reporting of Internet data for purposes of understanding and optimizing Web usage

- standard format (The World Wide Web Consortium (W3C))
  - client IP address, request date/time, page requested, HTTP code, bytes served, user agent and referrer

OUR PROPOSAL

- The idea - two existing instruments
  - an E-learning tool, called PULSE
  - a Web analytics instrument

- Motivation
  - Who?, What? and **Why?**
    - *Why doesn't one student ever visit the site?*
    - *Why does another student visit it twice a day?*
    - *Is the material helpful?*
    - *What material is the most helpful?*

PULSE – the login phase
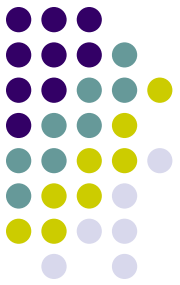
PULSE - actors

- Admin
- Tutors
- Students

My Web analytics instrument
- stats per day -

Stats on 25th of May, 2008

Narrow stats

25, May, 2008

hourly

Top sites

Top pages

Top agents

Top rezolution

May, 2008

2008

May days

2008 months

other years

home

TOTAL HITS PER HOUR IN 25, MAY, 2008
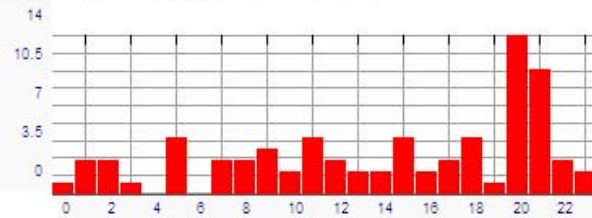
TOTAL VISITS PER HOUR IN 25, MAY, 2008

TOTAL SITES PER HOUR IN 25, MAY, 2008

TOTAL PER HOUR IN 25, MAY, 2008

#	Hits	Visits	Sites	Pages
00	1	1	1	1
01	3	1	1	3
02	3	1	1	3
03	1	1	1	1
04	0	0	0	0
05	5	4	4	5
06	0	0	0	0
07	3	3	2	3
08	3	3	3	3
09	4	3	3	4
10	2	1	1	2
11	5	3	3	5
12	3	3	3	3
13	2	2	2	2
14	2	2	2	2
15	5	5	5	5
16	2	2	2	2
17	3	2	2	3
18	5	2	2	5
19	1	1	1	1

My Web analytics instrument - stats per month -
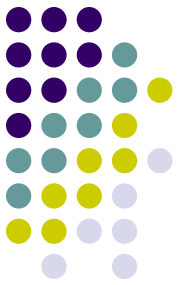
Stats on June, 2008

Narrow stats

25, June, 2008

June, 2008

daily

Top sites

Top pages

Top agents

Top rezolution

2008

June days

2008 months

other years

home

TOTAL HITS PER DAY IN JUNE, 2008
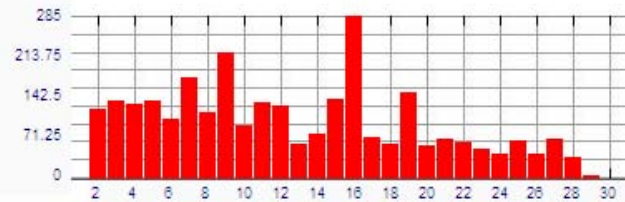
TOTAL VISITS PER DAY IN JUNE, 2008
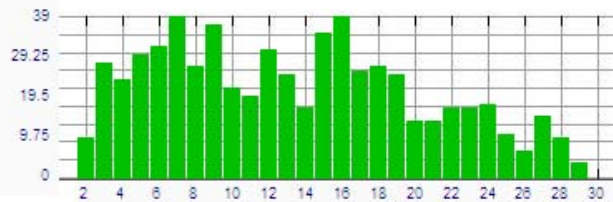
TOTAL SITES PER DAY IN JUNE, 2008

TOTAL PER DAY IN JUNE, 2008

#	Hits	Visits	Sites	Pages
01	0	0	0	0
02	0	0	0	0
03	0	0	0	0
04	0	0	0	0
05	0	0	0	0
06	0	0	0	0
07	0	0	0	0
08	0	0	0	0
09	0	0	0	0
10	93	22	19	41
11	134	20	20	65
12	128	31	27	56
13	60	25	25	41
14	78	17	17	41
15	140	35	35	71
16	285	39	32	92
17	74	26	26	55
18	61	27	27	37
19	151	25	22	70
20	59	14	14	48

My Web analytics instrument - general stats -

My Web analytics instrument
- top of sites -

June, 2008

2008

June days

2008 months

other years

home

Dr. Sanda Maria Dragos

Top 163 sites

#	hits	Hotsname	%
1	205	crawl-66-249-67-70. googlebot.com	7
2	143	crawl-66-249-70-88. googlebot.com	5
3	118	80.97.171.21	4
4	111	llf520191.crawl.yahoo.net	4
5	107	yamato.jyxo.com	4
6	105	crawl-66-249-73-51. googlebot.com	4
7	96	193.231.20.20	3
8	88	65.214.45.153	3
9	60	217.10.196.210	2
10	60	msnbot-65-55-105-213. search.msn.com	2
11	52	85.204.109.24	2
12	52	203.201.128.15	2
13	48	78.96.154.162	2
14	46	msnbot-65-55-105-227. search.msn.com	2
15	43	msnbot-65-55-105-216. search.msn.com	2
16	43	msnbot-65-55-105-211. search.msn.com	2
17	40	llf520147. crawl.yahoo.net	1
18	40	78.96.176.154	1
19	39	jyxo-crawler12.streaming.cesnet.cz	1
20	39	msnbot-65-55-105-217. search.msn.com	1
21	38	89.123.98.163	1
22	36	crawl-1. cuill.com	1
23	35	msnbot-65-55-105-229. search.msn.com	1
24	35	msnbot-65-55-105-214. search.msn.com	1
25	34	78.96.84.72	1
26	33	llf520088. crawl.yahoo.net	1
27	32	msnbot-65-55-105-226. search.msn.com	1
28	30	llf520122. crawl.yahoo.net	1
29	30	89-36-95-185. skynet-telecom.ro	1
30	30	llf520184. crawl.yahoo.net	1
31	30	apollo16. ubbcluj.ro	1
32	29	llf520198. crawl.yahoo.net	1
33	29	msnbot-65-55-105-215. search.msn.com	1
34	29	llf520097.crawl.yahoo.net	1
35	29	apollo2. ubbcluj.ro	1
36	26	89.137.102.159	1

Internet domains

#	hits	Hotsname	%
1	1159	com	41
2	830	UNDEFINED	29
3	456	net	16
4	287	ro	10
5	39	cz	1
6	12	ru	0
7	8	hu	0
8	7	au	0
9	5	de	0
10	5	ir	0
11	5	edu	0
12	4	md	0
13	3	sa	0
14	1	pl	0
15	1	se	0

#	hits	2nd Level Domains	%
1	830	UNDEFINED	29
2	348	googlebot.com	12
3	288	msn.com	10
4	219	yahoo.net	8
5	160	yahoo.net	6
6	144	msn.com	5
7	107	googlebot.com	4
8	107	jyxo.com	4
9	73	rdsnet.ro	3
10	70	ubbcluj.ro	2
11	60	msn.com	2
12	44	cuill.com	2
13	39	cesnet.cz	1
14	30	skynet-telecom.ro	1
15	30	yahoo.net	1
16	23	astral.ro	1
17	22	t-dialin.net	1
18	20	utcluj.ro	1
19	18	igcti.ro	1
20	17	searchme.com	1

My Web analytics instrument - top of accessed files -
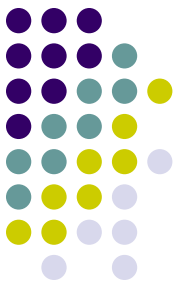
July, 2008

2008

July days

2008 months

other years

home

Top 248 pages

#	hits	URL	%
1	86	/~sanda/index.php	5
2	59	/~sanda/	3
3	52	/~sanda/photos/index.php	3
4	52	/~sanda/personal.php	3
5	34	/~sanda/teaching/index.php	2
6	30	/~sanda/publications/index.php	2
7	25	/~sanda/CV/index.php	1
8	23	/~sanda/contact.php	1
9	22	/~sanda/photos/drawings/	1
10	21	/~sanda/photos/2000-2003-LIFE@DCU/FRIENDS@DCU/	1
11	21	/~sanda/interests/index.php	1
12	21	/~sanda/photos/2003-03Mar-Dublin/	1
13	20	/~sanda/links.php	1
14	20	/~sanda/photos/2000-2003-LIFE@DCU/@dcu/index.php	1
15	18	/~sanda/presentations/index.php	1
16	17	/~sanda/interests/MPLS.php	1
17	17	/~sanda/photos/2006_07-08_Europa/	1
18	16	/~sanda/photos/2000-2003-LIFE@DCU/index.php	1
19	16	/~sanda/teaching/2007-2008/PW/index.php	1
20	15	/~sanda/photos/2000-2003-LIFE@DCU/@dcu/	1
21	15	/~sanda/interests/Progr.php?Tasm	1
22	15	/~sanda/interests/MA.php	1
23	15	/~sanda/photos/2001-2002-Ireland(Nord)/	1
24	14	/~sanda/photos/2000-2003-LIFE@DCU/	1
25	14	/~sanda/interests/Web.php?gdc	1
26	14	/~sanda/teaching/licenta/index.php?2008stud_3	1
27	14	/~sanda/photos/1995-2000/	1
28	14	/~sanda/teaching/2007-2008/AC/index.php	1
29	14	/~sanda/interests/AN.php	1
30	13	/~sanda/interests/Web.php	1
31	13	/~sanda/photos/2004-11Nov-12Dec-USA/index.php	1
32	13	/~sanda/teaching/2005-2006/PC/index.php	1
33	13	/~sanda/interests/Web.php?PHP	1
34	12	/~sanda/teaching/2006-2007/SO1/index.php	1
35	12	/~sanda/teaching/2007-2008/timetable_1.php	1
36	11	/~sanda/teaching/licenta/index.php?2007teme_4	1

Top of directories

#	hits	Directory	%
1	626	/~sanda/interests	34
2	260	/~sanda	14
3	231	/~sanda/photos	13
4	151	/~sanda/publications	8
5	75	/~sanda/teaching/licenta	4
6	62	/~sanda/photos/2000-2003-LIFE@DCU	3
7	43	/~sanda/teaching	2
8	25	/~sanda/CV	1
9	20	/~sanda/teaching/2006-2007/SO1	1
10	20	/~sanda/photos/2000-2003-LIFE@DCU/@dcu	1
11	19	/~sanda/teaching/2007-2008/AC	1
12	18	/~sanda/teaching/2006-2007	1
13	18	/~sanda/presentations	1
14	17	/~sanda/teaching/2005-2006/PC	1
15	17	/~sanda/teaching/2006-2007/AC	1
16	16	/~sanda/teaching/2007-2008/PW	1
17	15	/~sanda/teaching/2005-2006/AC	1
18	15	/~sanda/teaching/2005-2006	1
19	13	/~sanda/teaching/2006-2007/AC/lab4	1
20	13	/~sanda/photos/2004-11Nov-12Dec-USA	1
21	12	/~sanda/teaching/2006-2007/AC/lab1	1
22	12	/~sanda/teaching/2007-2008	1
23	11	/~sanda/teaching/2004-2005/SO1	1
24	11	/~sanda/teaching/2006-2007/SO2	1
25	10	/~sanda/teaching/2005-2006/SO1	1
26	10	/~sanda/photos/drawings	1
27	10	/~sanda/photos/2000-2003-LIFE@DCU/FRIENDS	1
28	10	/~sanda/photos/2002-07Jul-Germany	1
29	9	/~sanda/photos/2000-2003-LIFE@DCU/FRIENDS@DCU	0
30	9	/~sanda/teaching/2004-2005/PC	0
31	8	/~sanda/photos/2000-2001-Dublin	0
32	7	/~sanda/teaching/1999-2000	0
33	7	/~sanda/photos/2006_07-08_Europa	0
34	6	/~sanda/photos/1995-2000	0

Dr. Sanda X. Dragoş

My Web analytics instrument - top of userAgents -
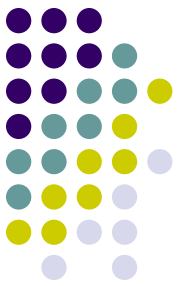
#	hits	Operating System	%
1	1393	UNKNOWN	75
2	373	Windows XP	20
3	59	Windows Vista	3
4	12	Linux	1
5	6	Windows 2000	0
6	3	Linux ubuntu	0

#	hits	Browser	Type	%
1	555	Msn		30
2	375	Yahoo		20
3	279	Google		15
4	166	UNKNOWN		9
5	149	Firefox 1.8		8
6	145	IE 6.0		8
7	76	IE 7.0		4
8	59	Firefox 1.9		3
9	13	Ask		1
10	10	OP 9.23		1
11	9	Mozilla 1.8		0
12	3	Psbot		0
13	3	Firefox 1.7		0
14	2	Libwww-perl		0
15	2	OP 9.26		0

Top 53 pages

#	hits	User Agent	%
1	428	msnbot/1.1 (+http://search.msn.com/msnbot.htm)	23
2	375	Mozilla/5.0 (compatible; Yahoo! Slurp; http://help.yahoo.com/help/us/ysearch/slurp)	20
3	279	Mozilla/5.0 (compatible; Googlebot/2.1; +http://www.google.com/bot.html)	15
4	127	msnbot-media/1.0 (+http://search.msn.com/msnbot.htm)	7
5	76	Mozilla/5.0 (compatible; MJ12bot/v1.2.1; http://www.majestic12.co.uk/bot.php?+)	4
6	51	Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; FunWebProducts; .NET CLR 1.1.4322)	3
7	48	Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1)	3
8	43	Mozilla/5.0 (Twiceler-0.9 http://www.cuill.com/twiceler/robot.html)	2
9	41	Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.8.1.15) Gecko/20080623 Firefox/2.0.0.15	2
10	30	Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.8.1.16) Gecko/20080702 Firefox/2.0.0.16	2
11	25	Mozilla/5.0 (Windows; U; Windows NT 5.1; en-GB; rv:1.9.0.1) Gecko/2008070208 Firefox/3.0.1	1
12	19	Mozilla/5.0 (Windows; U; Windows NT 6.0; en-US; rv:1.8.1.14) Gecko/20080404 Firefox/2.0.0.14	1
13	18	Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1; .NET CLR 2.0.50727; .NET CLR 1.1.4322)	1
14	17	Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1; .NET CLR 1.1.4322; .NET CLR 2.0.50727)	1
15	17	Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 1.1.4322; .NET CLR 2.0.50727)	1
16	16	Mozilla/5.0 (Windows; U; Windows NT 5.1; ro; rv:1.8.1.15) Gecko/20080623 Firefox/2.0.0.15	1
17	15	Mozilla/5.0 (Windows; U; Windows NT 6.0; en-US; rv:1.8.1.16) Gecko/20080702 Firefox/2.0.0.16	1
18	15	Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1; InfoPath.1; IEMB3; .NET CLR 2.0.50727; .NET CLR 3.0.04506.648; .NET CLR 3.5.21022; IEMB3)	1

My Web analytics instrument - top of rezolutions -
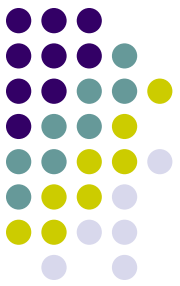
November, 2006

2006

November days

2006 months

other years

home

		Top 14 rezolutions			
#	hits	Rezolution	Details	Ratio	%
1	1150	1024 x 768	XGA	4 : 3	76
2	144	800 x 600	SVGA	4 : 3	10
3	82	1280 x 1024	SXGA	5 : 4	5
4	21	1152 x 864		4 : 3	1
5	21	1680 x 1050	WSXGA+	8 : 5	1
6	19	1280 x 800	WXGA	8 : 5	1
7	19	1920 x 1200	WUXGA		
8	15	1600 x 1200	UGA	4 : 3	1
9	10	1400 x 1050	SXGA+	4 : 3	1
10	9	1440 x 900		8 : 5	1
11	7	640 x 480	VGA	4 : 3	0
12	7	1280 x 768	WXGA	5 : 3	0
13	6	2560 x 1024		5 : 2	0
14	1	1800 x 1440		5 : 4	0
	1511	in Total			

STD Widescreen Monitor

		Ratios		
#	hits	Ratio	Details	%
1	1347	4 : 3	Standard Monitor	89
2	83	5 : 4		5
3	68	8 : 5	16 : 10, Widescreen Monitor	5
4	7	5 : 3		0
5	6	5 : 2		0

My Web analytics instrument - CURRENT WORK -

Conclusions

- Most Web analytics instruments are driven by commercial interests

- This paper proposes a framework that extends the existing tool to assess per student behavior on our E-Learning instrument called PULSE

Future Work

- Visitor segmentation
  - Segmentation isolates the behavior of certain types of on-line visitors

- Testing and experimentation
  - By using slight variations, it is possible to determine which minor differences make the biggest difference