

Home Work 5
-Vibhuti Mahajan (vm2486)

1. Problem 1

a. Top 25 teams at 10th iteration:

[Mary Hardin-Baylor]	[0.0147520904239]
[NW Missouri St]	[0.0131511192524]
[Alabama]	[0.0124120380528]
[Clemson]	[0.0110291073649]
[UW-Oshkosh]	[0.00992525377019]
[St Thomas]	[0.00817769451826]
[UW-Whitewater]	[0.00816793733119]
[St Francis IN]	[0.00809767251662]
[Mount Union]	[0.00775470890478]
[James Madison]	[0.00742783660873]
[Reinhardt]	[0.00695440123184]
[John Carroll]	[0.006911172797]
[Shepherd]	[0.00683891123581]
[California PA]	[0.00672164768437]
[North Dakota St]	[0.00654897051448]
[Baker]	[0.00636896601445]
[Alfred]	[0.00629096167652]
[Grand Valley St]	[0.0061963384896]
[North Alabama]	[0.00613562313529]
[Harding]	[0.00576390686652]
[Marian IN]	[0.00556591535174]
[North Central]	[0.00553722771574]
[Trinity CT]	[0.0054644071121]
[Wheaton]	[0.00545737793563]
[Morningside]	[0.00544160428913]

Top 25 teams at 100th iteration:

[NW Missouri St]	[0.0382578413334]
[Alabama]	[0.0333644159766]
[Clemson]	[0.0329880775248]
[Mary Hardin-Baylor]	[0.0308828408244]
[UW-Oshkosh]	[0.0168444864853]
[UW-Whitewater]	[0.0121597305485]
[Florida St]	[0.010444459489]
[Grand Valley St]	[0.010261248535]
[John Carroll]	[0.0102458908033]
[Ohio State]	[0.00994072898472]
[Ferris St]	[0.00942622659283]
[St Thomas]	[0.00933187439587]
[Washington]	[0.00889066865636]
[Virginia Tech]	[0.00878859564773]
[Mount Union]	[0.00871303993213]

[Michigan]	[0.00819870279117]
[Pittsburgh]	[0.00807673367688]
[Oklahoma]	[0.00804133557668]
[Emporia St]	[0.00800668246869]
[Penn State]	[0.00756941697833]
[Wisconsin]	[0.00728989004792]
[Louisville]	[0.00695449975819]
[Miami FL]	[0.00690420779181]
[North Carolina]	[0.00654385480642]
[Southern Cal]	[0.00644854557488]

Top 25 teams at 1000th iteration:

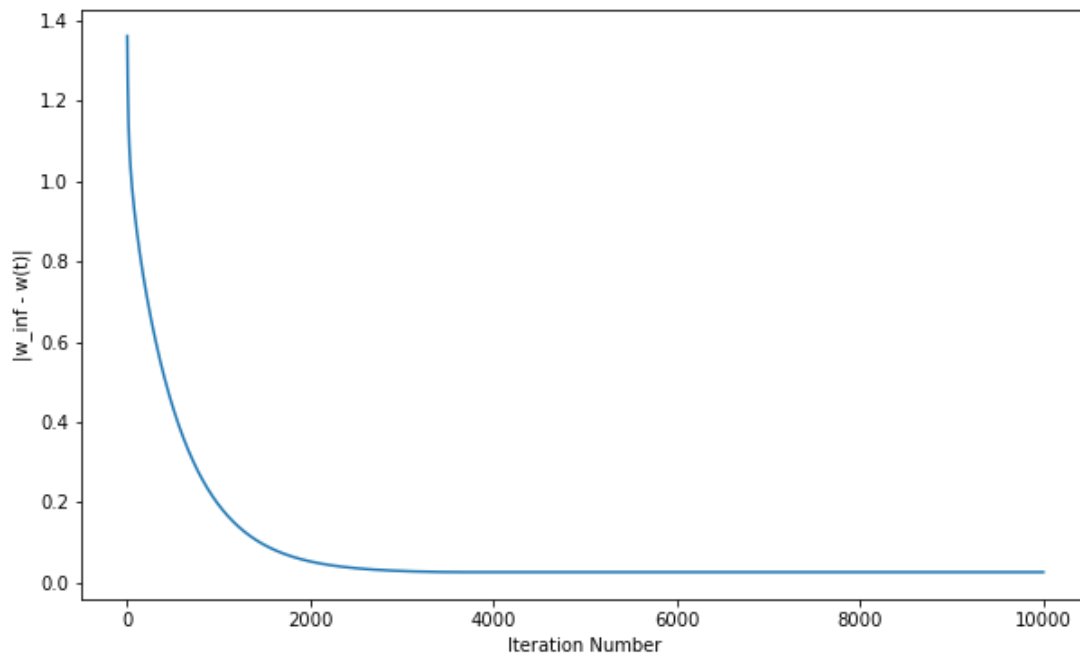
[Alabama]	[0.0607189563217]
[Clemson]	[0.0604079614528]
[NW Missouri St]	[0.0304948128144]
[Florida St]	[0.0188136209281]
[Ohio State]	[0.0179833488237]
[Washington]	[0.0158894128398]
[Virginia Tech]	[0.0158241516611]
[Michigan]	[0.0148273685304]
[Pittsburgh]	[0.0146511420602]
[Oklahoma]	[0.0143902620852]
[Penn State]	[0.0136718158804]
[Wisconsin]	[0.013088126993]
[Louisville]	[0.0126134906299]
[Miami FL]	[0.0124203517313]
[Southern Cal]	[0.0115894534226]
[North Carolina]	[0.0114189337376]
[Oklahoma St]	[0.0112922359622]
[Florida]	[0.011251016331]
[Tennessee]	[0.0108132572658]
[Auburn]	[0.0108123850313]
[Georgia Tech]	[0.00997831700152]
[LSU]	[0.00954720460805]
[Western Michigan]	[0.00952064536022]
[Stanford]	[0.00951113158126]
[James Madison]	[0.00868321181551]

Top 25 teams at 10000th iteration:

[Alabama]	[0.0672821078746]
[Clemson]	[0.0669828273733]
[Florida St]	[0.0208352411327]
[Ohio State]	[0.0199215473943]
[Washington]	[0.0175791017098]
[Virginia Tech]	[0.0175239216826]
[Michigan]	[0.0164256080935]

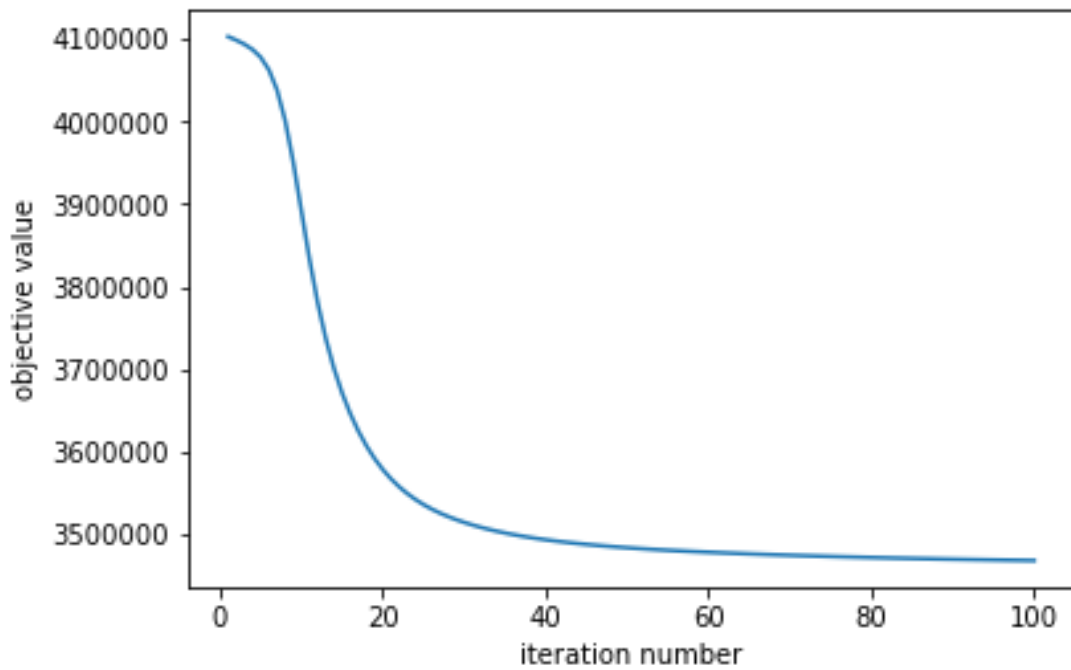
[NW Missouri St]	[0.0163420724091]
[Pittsburgh]	[0.0162347606066]
[Oklahoma]	[0.0159224331051]
[Penn State]	[0.0151442424457]
[Wisconsin]	[0.0144889616928]
[Louisville]	[0.0139769006333]
[Miami FL]	[0.0137527847488]
[Southern Cal]	[0.0128302446022]
[North Carolina]	[0.0126123895473]
[Oklahoma St]	[0.0124880111024]
[Florida]	[0.0124561663522]
[Tennessee]	[0.0119732668381]
[Auburn]	[0.0119729882641]
[Georgia Tech]	[0.0110501603855]
[LSU]	[0.0105416750019]
[Western Michigan]	[0.0105365448958]
[Stanford]	[0.0105244395626]
[Texas A&M]	[0.00952351072358]

b. $\|w_t - w_\infty\|_1$ as a function of t for $t = 1, \dots, 10000$



2. Problem 2:

a. Objective as a function of iterations:



b. Top 10 words:

Column 1		Column2		Column 3		Column 4		Column5	
foot	0.008767975	government	0.022739877	company	0.034766617	drug	0.015246538	team	0.029508267
little	0.008078849	money	0.019388821	computer	0.017363046	health	0.014737486	game	0.025285828
drive	0.007800824	economic	0.016697548	technology	0.017012043	doctor	0.01336197	player	0.022361816
start	0.007555436	dollar	0.013414503	industry	0.015654577	study	0.012271511	season	0.020164765
trip	0.007540214	economy	0.01250182	product	0.015285785	medical	0.011853334	play	0.019200597
ride	0.007201055	fund	0.012466838	system	0.012792712	patient	0.010821692	coach	0.013777464
hour	0.006828447	country	0.011634447	customer	0.010163168	treatment	0.010087651	baseball	0.009322839
car	0.006602376	policy	0.009814209	states	0.009865856	report	0.008926678	league	0.008853153
head	0.006573865	nation	0.00968545	business	0.009595327	care	0.008265503	sport	0.008211218
walk	0.00656975	bank	0.009091073	maker	0.009276207	percent	0.008260748	guy	0.007679093
Column 6		Column 7		Column 8		Column 9		Column 10	
pay	0.021018142	official	0.011341026	school	0.04585985	check	0.016278013	president	0.045721151
cost	0.016850746	case	0.01020392	student	0.035551836	list	0.014811427	father	0.02766064
plan	0.013972003	issue	0.010068471	class	0.016920008	floor	0.012527055	executive	0.026837416
percent	0.012907048	decision	0.009571017	program	0.014751892	room	0.00968818	mrs	0.026187323
job	0.012903886	law	0.008908693	education	0.01446319	available	0.009524808	graduate	0.026126079
money	0.010440016	court	0.008172468	college	0.014341897	apply	0.008765377	vice	0.025742778
increase	0.009820083	lawyer	0.008056963	child	0.01326457	require	0.008715379	director	0.024564576
cut	0.008314126	ask	0.006891555	teacher	0.013047102	area	0.007367724	retire	0.022682935
worker	0.008222397	rule	0.006848636	group	0.010105168	house	0.007242318	yesterday	0.022362745
contract	0.007549532	public	0.006757821	university	0.009148966	cover	0.007014066	name	0.020654846
Column 11		Column 12		Column 13		Column 14		Column 15	
official	0.018585747	american	0.012311593	family	0.032162068	percent	0.025668024	police	0.031509472
report	0.010481069	war	0.012176716	child	0.0321383	market	0.020083565	charge	0.020754413
cause	0.010366019	military	0.011884323	woman	0.024078366	price	0.018833573	officer	0.017284529

water	0.010062729	government	0.011719431	life	0.020241535	company	0.017359148	man	0.014004577
fire	0.010009657	states	0.011656398	young	0.01727696	stock	0.014868204	crime	0.013897277
agency	0.008642403	country	0.011343027	friend	0.016923852	share	0.013428154	arrest	0.013301416
kill	0.008506187	leader	0.01024376	wife	0.016213491	sale	0.013222231	case	0.012451594
damage	0.008217264	force	0.008775031	mother	0.015063716	sell	0.012673489	trial	0.012404612
emergency	0.00811615	official	0.008286804	home	0.015035349	rise	0.01069262	criminal	0.010861824
vehicle	0.007705653	political	0.007462711	live	0.01443339	buy	0.010641497	prison	0.010278367
Column 16		Column 17		Column 18		Column 19		Column 20	
food	0.015571978	music	0.023381705	city	0.031381649	change	0.00926423	win	0.027019393
restaurant	0.009597669	play	0.015953291	building	0.021708535	far	0.007828049	second	0.022893241
serve	0.009202402	performance	0.014313294	resident	0.015220991	world	0.007119094	victory	0.016655138
taste	0.008321519	perform	0.010088778	build	0.014441159	point	0.006717802	third	0.015904344
add	0.007291671	audience	0.010053516	area	0.013720263	important	0.006551661	play	0.014755032
eat	0.007268639	dance	0.009865885	street	0.011661354	thing	0.00653657	score	0.0146237
fresh	0.007214011	stage	0.009767924	town	0.01069306	view	0.006488556	game	0.012733021
dinner	0.007122669	song	0.009755281	house	0.010654813	question	0.006363279	point	0.012418928
red	0.006910164	theater	0.008834073	community	0.010052511	great	0.006330973	lose	0.01147782
cook	0.006671342	production	0.008568224	local	0.009887568	american	0.006291347	final	0.011333162
Column 21		Column 22		Column 23		Column 24		Column 25	
art	0.015353387	vote	0.018642583	write	0.019216493	television	0.019732267	ask	0.014592479
artist	0.01061267	political	0.015694198	book	0.018909857	network	0.014870626	tell	0.014322817
image	0.010559326	campaign	0.01482535	editor	0.015386911	advertising	0.011080835	man	0.013191666
collection	0.009221842	state	0.013477316	film	0.012601624	executive	0.011056503	thing	0.010807084
photograph	0.008825466	republican	0.013164588	story	0.01255025	company	0.010896	happen	0.008191176
century	0.008326355	candidate	0.012045312	character	0.0119359	service	0.01029263	room	0.007671155
museum	0.008153102	election	0.01155456	writer	0.011486915	site	0.010087803	eye	0.007244774
design	0.007821428	party	0.01127981	movie	0.010048963	internet	0.009294226	night	0.007072151
exhibition	0.007197598	leader	0.010110338	life	0.00927322	medium	0.00915897	speak	0.007008435
picture	0.006636004	democratic	0.009696931	article	0.008152471	business	0.00803119	word	0.006925476