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HW 5
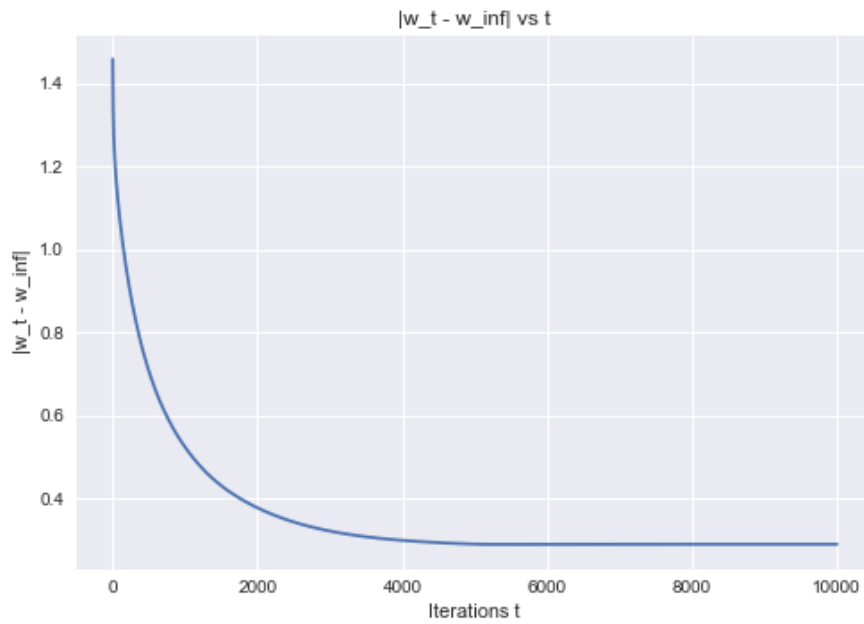
1a)

Top 25 rankings for iterations 10, 100, 1000, 10000

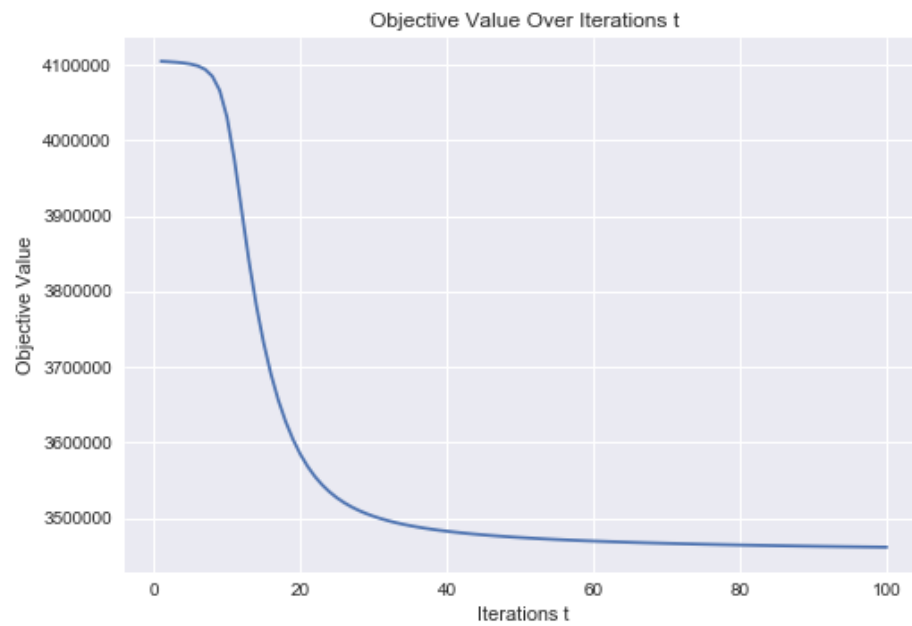|	t = 10	t = 100	t = 1000	t = 10000
1	MountUnion	MountUnion	Alabama	Alabama
2	MaryHardin-Baylor	Alabama	Georgia	Georgia
3	StFrancisIN	Georgia	MountUnion	OhioState
4	Alabama	UW-Oshkosh	OhioState	Clemson
5	UW-Oshkosh	OhioState	Clemson	Oklahoma
6	NorthDakotaSt	Clemson	Oklahoma	Wisconsin
7	TAMU-Commerce	Oklahoma	Wisconsin	CentralFlorida
8	Georgia	CentralFlorida	CentralFlorida	Auburn
9	BrockportSt	Wisconsin	Auburn	PennState
10	Morningside	Auburn	PennState	NotreDame
11	DelawareValley	PennState	NotreDame	TCU
12	CentralFlorida	TAMU-Commerce	TCU	MiamiFL
13	JamesMadison	MaryHardin-Baylor	MiamiFL	MichiganSt
14	Clemson	StFrancisIN	MichiganSt	OklahomaSt
15	OhioState	NotreDame	OklahomaSt	Iowa
16	Wartburg	JohnCarroll	Iowa	Northwestern
17	Wisconsin	BrockportSt	Northwestern	IowaSt
18	IndianaPA	TCU	IowaSt	LSU
19	MinnSt-Mankato	DelawareValley	LSU	Washington
20	Reinhardt	FrostburgSt	Washington	SouthernCal
21	Oklahoma	MidwesternSt	SouthernCal	MississippiSt
22	PennState	CaseWesternReserve	MississippiSt	VirginiaTech
23	StThomas	MinnSt-Mankato	UW-Oshkosh	Stanford
24	Springfield	NorthDakotaSt	VirginiaTech	NorthCarolinaSt
25	MidwesternSt	MiamiFL	NorthDakotaSt	NorthDakotaSt

1b)

Plot of $\|w_t - w_\infty\|$ vs t

2a)

Plot of objective functions vs iteration t

2b)

Table of topics and weights for top ten words in specific topic

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	Topic 7	Topic 8	Topic 9	Topic 10	Topic 11	Topic 12	Topic 13	Topic 14
1	(thing, 0.0113)	(win, 0.0237)	(editor, 0.0265)	(family, 0.0334)	(police, 0.0293)	(case, 0.0209)	(pay, 0.0207)	(drug, 0.0151)	(company, 0.0410)	(film, 0.0166)	(art, 0.0104)	(states, 0.0134)	(music, 0.0264)	(school, 0.0490)
2	(ask, 0.0086)	(second, 0.0213)	(article, 0.0181)	(woman, 0.0306)	(kill, 0.0191)	(lawyer, 0.0189)	(money, 0.0165)	(health, 0.0140)	(sell, 0.0185)	(book, 0.0162)	(color, 0.0090)	(military, 0.0131)	(performance, 0.0139)	(student, 0.0342)
3	(feel, 0.0085)	(victory, 0.0145)	(write, 0.0148)	(child, 0.0283)	(officer, 0.0152)	(court, 0.0188)	(city, 0.0159)	(doctor, 0.0134)	(share, 0.0165)	(character, 0.0145)	(design, 0.0079)	(american, 0.0131)	(play, 0.0137)	(class, 0.0178)
4	(tell, 0.0084)	(play, 0.0142)	(publish, 0.0103)	(life, 0.0224)	(man, 0.0148)	(law, 0.0150)	(service, 0.0156)	(study, 0.0118)	(buy, 0.0140)	(story, 0.0140)	(image, 0.0077)	(government, 0.0127)	(perform, 0.0115)	(education, 0.0157)
5	(little, 0.0076)	(score, 0.0140)	(page, 0.0097)	(man, 0.0197)	(arrest, 0.0122)	(charge, 0.0146)	(cost, 0.0147)	(medical, 0.0118)	(business, 0.0139)	(movie, 0.0140)	(form, 0.0077)	(war, 0.0124)	(dance, 0.0112)	(college, 0.0150)
6	(lot, 0.0074)	(third, 0.0135)	(newspaper, 0.0095)	(friend, 0.0191)	(official, 0.0120)	(judge, 0.0119)	(state, 0.0140)	(patient, 0.0108)	(market, 0.0139)	(write, 0.0117)	(artist, 0.0074)	(official, 0.0118)	(song, 0.0110)	(child, 0.0148)
7	(keep, 0.0068)	(point, 0.0124)	(public, 0.0095)	(wife, 0.0175)	(fire, 0.0113)	(legal, 0.0109)	(provide, 0.0109)	(treatment, 0.0101)	(sale, 0.0137)	(life, 0.0106)	(piece, 0.0072)	(country, 0.0103)	(audience, 0.0101)	(teacher, 0.0126)
8	(put, 0.0065)	(game, 0.0111)	(writer, 0.0092)	(live, 0.0150)	(crime, 0.0100)	(trial, 0.0090)	(official, 0.0107)	(cause, 0.0101)	(stock, 0.0127)	(play, 0.0102)	(style, 0.0071)	(leader, 0.0093)	(sing, 0.0089)	(program, 0.0122)
9	(sit, 0.0064)	(final, 0.0107)	(american, 0.0081)	(young, 0.0138)	(city, 0.0093)	(investigation, 0.0089)	(tax, 0.0101)	(research, 0.0086)	(deal, 0.0123)	(love, 0.0087)	(fashion, 0.0069)	(force, 0.0084)	(night, 0.0087)	(parent, 0.0099)
10	(really, 0.0064)	(lose, 0.0105)	(book, 0.0079)	(home, 0.0126)	(death, 0.0092)	(file, 0.0086)	(plan, 0.0100)	(hospital, 0.0081)	(financial, 0.0094)	(man, 0.0083)	(collection, 0.0067)	(international, 0.0072)	(program, 0.0086)	(teach, 0.0097)

Topic 15	Topic 16	Topic 17	Topic 18	Topic 19	Topic 20	Topic 21	Topic 22	Topic 23	Topic 24	Topic 25
(vote, 0.0214)	(propose, 0.0127)	(percent, 0.0333)	(building, 0.0169)	(thing, 0.0121)	(country, 0.0211)	(executive, 0.0432)	(food, 0.0167)	(computer, 0.0147)	(father, 0.0765)	(team, 0.0309)
(political, 0.0195)	(plan, 0.0123)	(rate, 0.0189)	(city, 0.0136)	(question, 0.0104)	(economic, 0.0124)	(president, 0.0417)	(water, 0.0097)	(company, 0.0141)	(son, 0.0638)	(game, 0.0275)
(campaign, 0.0189)	(proposal, 0.0122)	(price, 0.0173)	(house, 0.0129)	(feel, 0.0079)	(job, 0.0113)	(chief, 0.0246)	(restaurant, 0.0093)	(store, 0.0113)	(mrs, 0.0600)	(season, 0.0224)
(republican, 0.0151)	(require, 0.0120)	(rise, 0.0168)	(area, 0.0116)	(ask, 0.0077)	(worker, 0.0104)	(director, 0.0206)	(serve, 0.0092)	(technology, 0.0099)	(daughter, 0.0485)	(player, 0.0224)
(election, 0.0148)	(official, 0.0099)	(market, 0.0164)	(build, 0.0114)	(point, 0.0072)	(poor, 0.0100)	(vice, 0.0172)	(fresh, 0.0079)	(system, 0.0097)	(graduate, 0.0392)	(play, 0.0188)
(party, 0.0147)	(program, 0.0089)	(increase, 0.0121)	(open, 0.0096)	(matter, 0.0067)	(decade, 0.0087)	(name, 0.0161)	(dry, 0.0078)	(customer, 0.0076)	(mother, 0.0327)	(coach, 0.0143)
(candidate, 0.0143)	(issue, 0.0087)	(fall, 0.0112)	(street, 0.0087)	(happen, 0.0065)	(government, 0.0087)	(chairman, 0.0157)	(pound, 0.0077)	(site, 0.0075)	(marry, 0.0327)	(league, 0.0102)
(leader, 0.0134)	(approve, 0.0084)	(low, 0.0111)	(home, 0.0084)	(really, 0.0065)	(world, 0.0087)	(business, 0.0112)	(oil, 0.0077)	(information, 0.0075)	(degree, 0.0278)	(baseball, 0.0101)
(democratic, 0.0120)	(budget, 0.0083)	(report, 0.0103)	(site, 0.0083)	(mean, 0.0064)	(union, 0.0086)	(company, 0.0111)	(taste, 0.0076)	(sell, 0.0073)	(receive, 0.0254)	(football, 0.0075)
(state, 0.0109)	(increase, 0.0083)	(decline, 0.0095)	(mile, 0.0082)	(speak, 0.0062)	(labor, 0.0084)	(advertising, 0.0110)	(dinner, 0.0073)	(car, 0.0073)	(retire, 0.0236)	(start, 0.0073)