Arsalaan Ansari (aaa2325)

HW 5
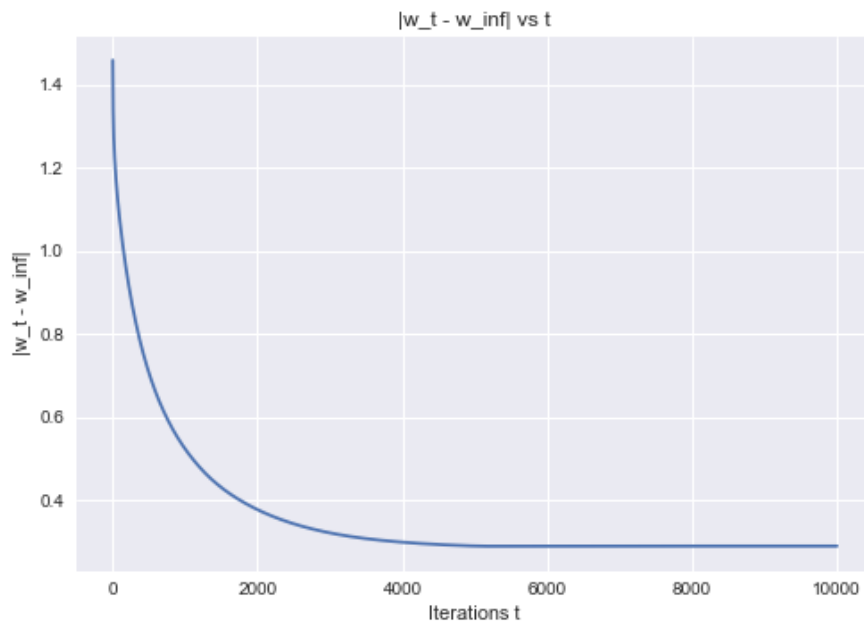
1a)

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

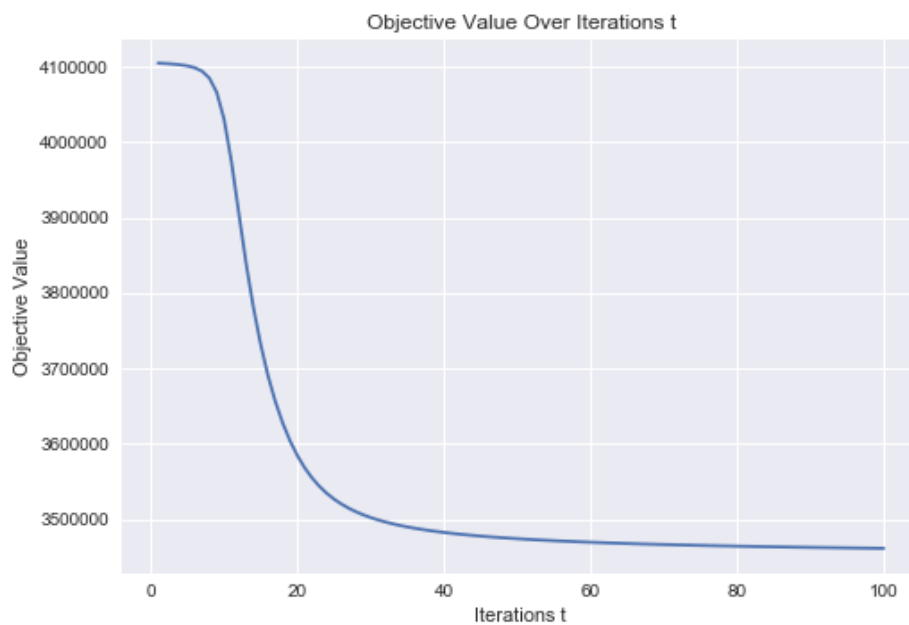|	10	100	1000	10000
0	(MountUnion, 0.0184)	(MountUnion, 0.0657)	(Alabama, 0.0423)	(Alabama, 0.0511)
1	(MaryHardin-Baylor, 0.0130)	(Alabama, 0.0230)	(Georgia, 0.0349)	(Georgia, 0.0422)
2	(StFrancisIN, 0.0110)	(Georgia, 0.0192)	(MountUnion, 0.0340)	(OhioState, 0.0336)
3	(UW-Oshkosh, 0.0100)	(UW-Oshkosh, 0.0179)	(OhioState, 0.0277)	(Clemson, 0.0325)
4	(TAMU-Commerce, 0.0093)	(OhioState, 0.0149)	(Clemson, 0.0269)	(Oklahoma, 0.0317)
5	(BrockportSt, 0.0092)	(Clemson, 0.0147)	(Oklahoma, 0.0262)	(Wisconsin, 0.0311)
6	(NorthDakotaSt, 0.0090)	(Oklahoma, 0.0142)	(Wisconsin, 0.0257)	(CentralFlorida, 0.0288)
7	(Alabama, 0.0090)	(Wisconsin, 0.0138)	(CentralFlorida, 0.0238)	(Auburn, 0.0265)
8	(Morningside, 0.0088)	(CentralFlorida, 0.0131)	(Auburn, 0.0219)	(PennState, 0.0240)
9	(Georgia, 0.0084)	(MaryHardin-Baylor, 0.0126)	(PennState, 0.0199)	(NotreDame, 0.0180)
10	(JamesMadison, 0.0081)	(TAMU-Commerce, 0.0125)	(NotreDame, 0.0149)	(TCU, 0.0172)
11	(DelawareValley, 0.0079)	(Auburn, 0.0120)	(TCU, 0.0142)	(MiamiFL, 0.0144)
12	(Wartburg, 0.0076)	(StFrancisIN, 0.0111)	(MiamiFL, 0.0119)	(MichiganSt, 0.0142)
13	(IndianaPA, 0.0072)	(PennState, 0.0107)	(MichiganSt, 0.0118)	(OklahomaSt, 0.0136)
14	(Clemson, 0.0071)	(BrockportSt, 0.0095)	(OklahomaSt, 0.0113)	(Iowa, 0.0129)
15	(MinnSt-Mankato, 0.0070)	(NotreDame, 0.0082)	(Iowa, 0.0107)	(Northwestern, 0.0125)
16	(CentralFlorida, 0.0068)	(DelawareValley, 0.0080)	(Northwestern, 0.0103)	(IowaSt, 0.0124)
17	(OhioState, 0.0067)	(NorthDakotaSt, 0.0080)	(IowaSt, 0.0102)	(LSU, 0.0116)
18	(Wisconsin, 0.0066)	(FrostburgSt, 0.0079)	(LSU, 0.0096)	(SouthernCal, 0.0114)
19	(Reinhardt, 0.0066)	(TCU, 0.0078)	(NorthDakotaSt, 0.0095)	(Washington, 0.0112)
20	(StThomas, 0.0060)	(MinnSt-Mankato, 0.0076)	(SouthernCal, 0.0095)	(NorthDakotaSt, 0.0109)
21	(Oklahoma, 0.0059)	(CaseWesternReserve, 0.0072)	(Washington, 0.0093)	(Stanford, 0.0105)
22	(FrostburgSt, 0.0055)	(JohnCarroll, 0.0069)	(UW-Oshkosh, 0.0092)	(MississippiSt, 0.0103)
23	(Ashland, 0.0054)	(MiamiFL, 0.0065)	(Stanford, 0.0087)	(VirginiaTech, 0.0101)
24	(Assumption, 0.0053)	(Harding, 0.0065)	(MississippiSt, 0.0085)	(NorthCarolinaSt, 0.0096)

1b)

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

|w_t - w_inf| vs t

2a)

Plot of objective functions vs iteration t

Objective Value Over Iterations 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, 0.0141)	(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, 0.0122)	(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)