Problem 1 (Markov Chains)

Part 1

Use w_t to rank the teams by sorting in decreasing value according to this vector. List the top 20 teams and their corresponding values in w_t for $t = 10, 100, 200, 1000$.

Team	Value
UW-Whitewater	0.0153227778802
MountUnion	0.0130742707022
ColoradoSt-Pueblo	0.010261008372
OhioState	0.00900979434094
Linfield	0.00878443452911
MinnSt-Mankato	0.00821200630016
Wartburg	0.00801802217138
Wesley	0.00748839125774
SouthernOregon	0.00744005399386
Oregon	0.0071542337095
Alabama	0.00714054428404
NorthDakotaSt	0.00669991126614
TCU	0.00645504966615
MaryHardin-Baylor	0.00597635138467
FloridaSt	0.005944344405
Hobart	0.00590135339447
JohnCarroll	0.00586308936461
MarianIN	0.00580349073704
Widener	0.00578632328033
Concord	0.00568551087686

Table 1: Teams and values for t=10

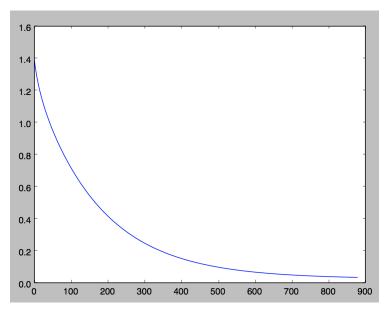| Team	Value
UW-Whitewater	0.0292759841104
OhioState	0.0276631131678
Oregon	0.0227262816528
Alabama	0.0186769498344
TCU	0.0183015022646
MountUnion	0.0168714020987
FloridaSt	0.0146308745614
MichiganSt	0.0130287913339
ColoradoSt-Pueblo	0.012999116209
SouthernOregon	0.0124931074259
Baylor	0.0122206343863
GeorgiaTech	0.0118210801366
Wartburg	0.0106811487305
UCLA	0.0106652138505
Mississippi	0.0103657540733
CarrollMT	0.0102792997905
Georgia	0.0101168632625
Arizona	0.00994307528077
ArizonaSt	0.00912162056362
MississippiSt	0.0090671268847

Table 2: Teams and values for t=100

Team	Value
OhioState	0.0356757203263
Oregon	0.0292979320671
Alabama	0.0239204810578
TCU	0.0236056409908
UW-Whitewater	0.0191553895457
FloridaSt	0.0187911709573
MichiganSt	0.0166595765885
Baylor	0.0157327395
GeorgiaTech	0.0151480610494
UCLA	0.0137355513553
Mississippi	0.0132373410973
Georgia	0.0128562962337
Arizona	0.0127962161082
ArizonaSt	0.0116942892545
MississippiSt	0.0115882512213
Missouri	0.0109227285554
MountUnion	0.01048154381
Clemson	0.0103123184305
Wisconsin	0.0102724621755
SouthernCal	0.0102651556364

Table 3: Teams and values for t=200

Team	Value
OhioState	0.0472737708834
Oregon	0.0386971441277
Alabama	0.0315958368555
TCU	0.031317292759
FloridaSt	0.0249231120778
MichiganSt	0.0219207852619
Baylor	0.0208339972713
GeorgiaTech	0.0200625100155
UCLA	0.0181228900719
Mississippi	0.0174344644901
Georgia	0.0169004740984
Arizona	0.0168528192982
ArizonaSt	0.0153643645
MississippiSt	0.0152864883047
Missouri	0.0141237034838
Clemson	0.013628692964
SouthernCal	0.0135103536879
Wisconsin	0.0133401562399
Auburn	0.013274678939
Utah	0.0129068326338

Table 4: Teams and values for t=1000

Part 2

$||w_t - u_{1_{norm}}||_1$ as a function of t

At $t_1 000$, $||w_t - u_{1_{norm}}||_1 = 0.035755717237148765$

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