
Hw3-4: Tensor

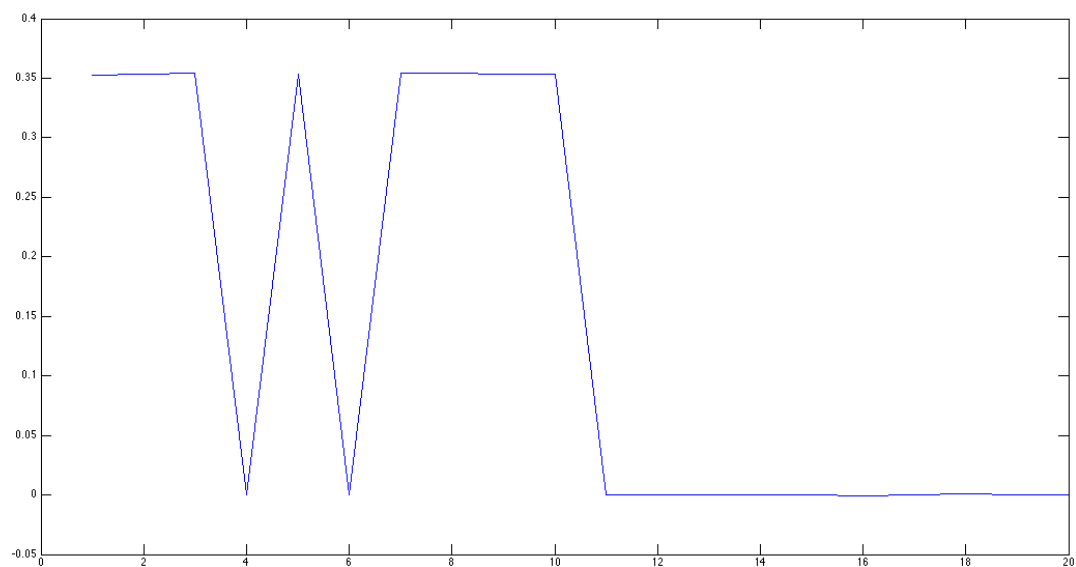
15826 – Multimedia Databases and Data Mining

Fall 2013, C. Faloutsos

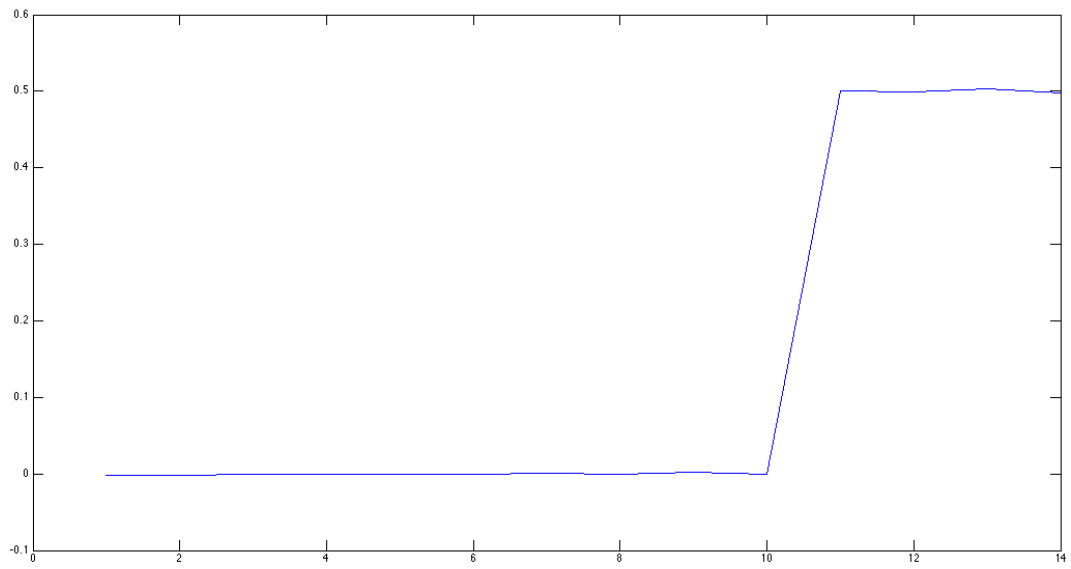
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Plot

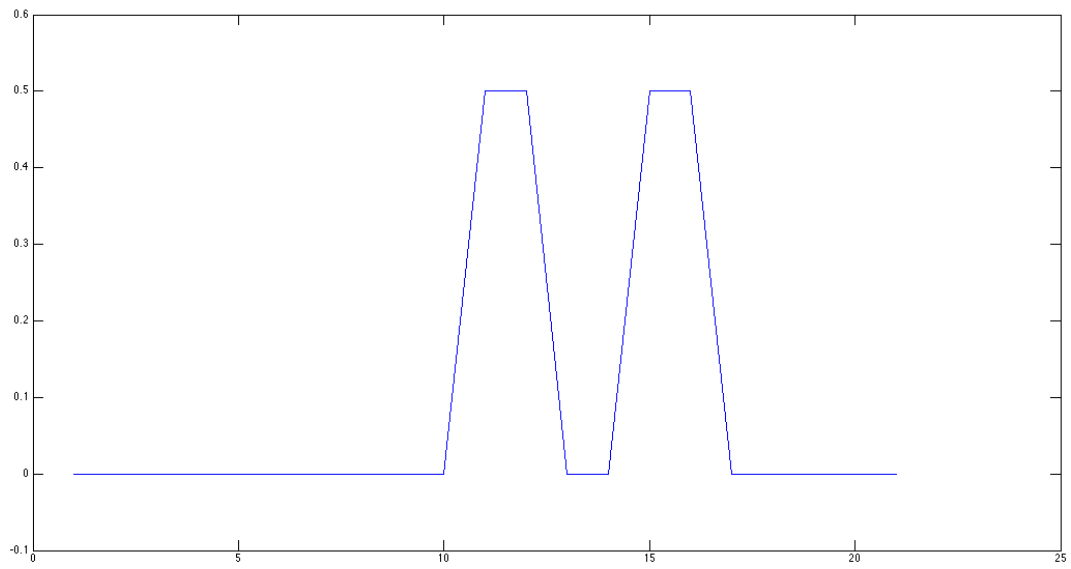
S3 - Plots for component #1



users plot for component #1

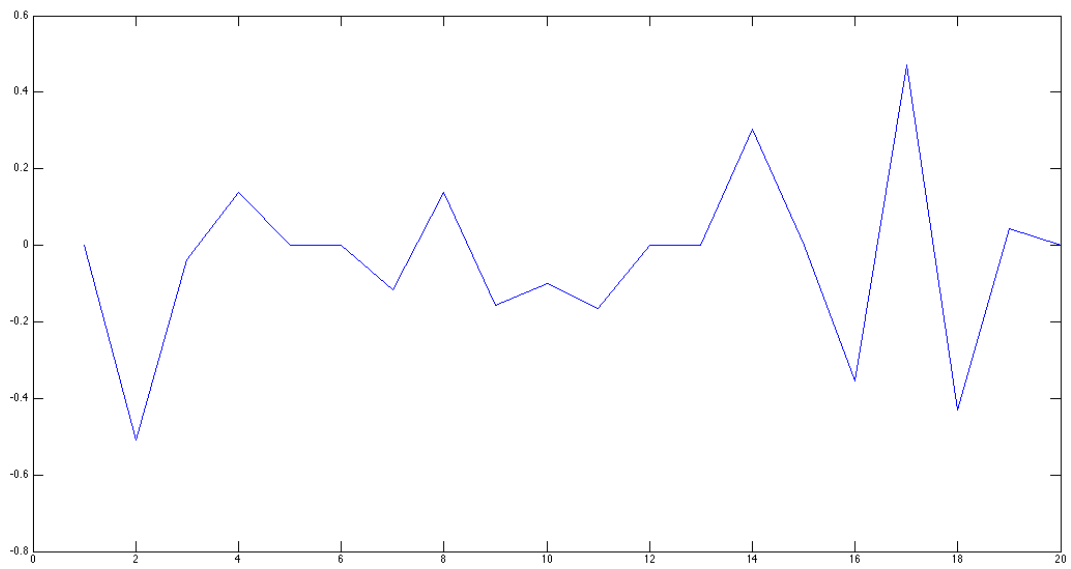


pages plot for component #1

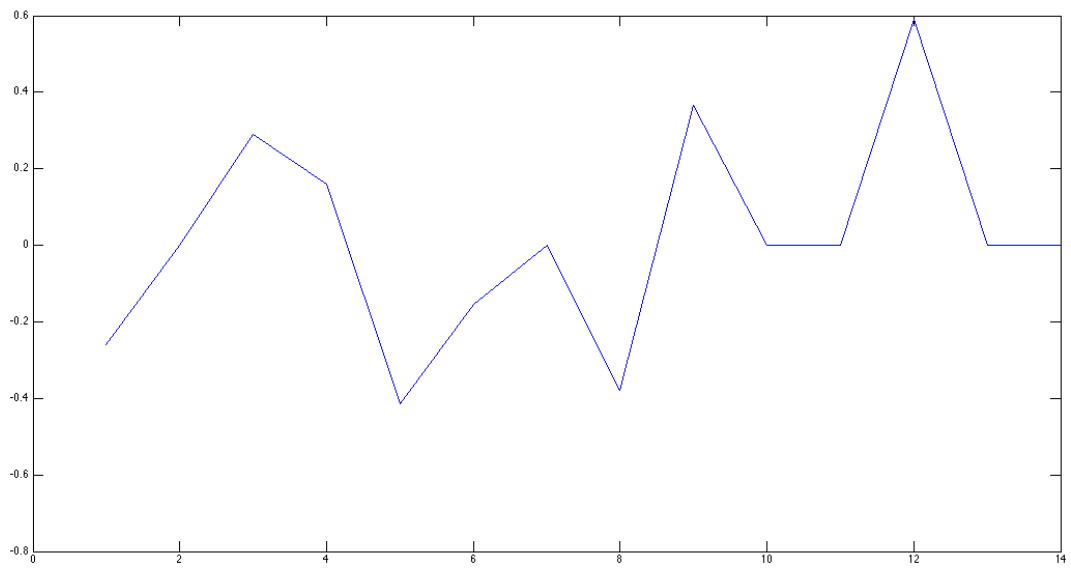


dates plot for component #1

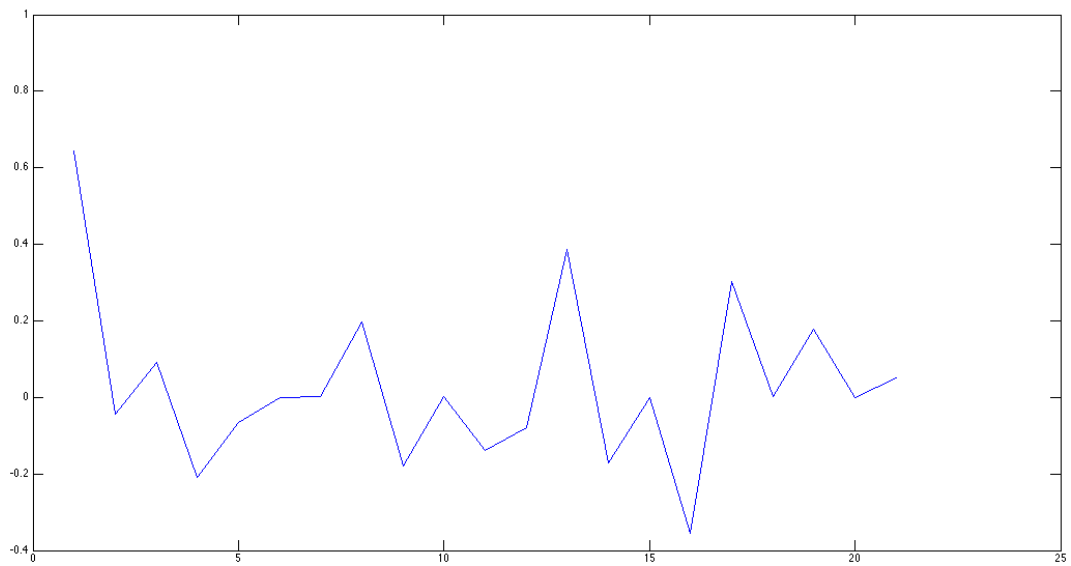
S3 - Plots for component #2



users plot for component #2



pages plot for component #2



dates plot for component #2

Answers

S3 - Bipartite core

Component #1 contains bipartite core.

S4 - Finding Fraudster

- 8 users: #1 #2 #3 #5 #7 #8 #9 #10
- 4 pages: #11 #12 #13 #14
- 4 dates: 11 12 15 16

Code

q4.m

```
%q2
tensor=dlmread('tensor.dat','\t')
T = sptensor(tensor(:,1:3), tensor(:,4));

%q3 - component #1 contains the bipartite core
D = cp_als(T, 2);
U1 = D.U{1};
U2 = D.U{2};
U3 = D.U{3};
plot(U1(:,1));
plot(U2(:,1));
plot(U3(:,1));
plot(U1(:,2));
plot(U2(:,2));
plot(U3(:,2));

%q4
u1 = U1(:,1);
u1_idx = find(abs(u1-0.35)<0.01); % user(8): 1 2 3 5 7 8 9 10

u2 = U2(:,1);
u1_idx = find(abs(u1-0.50)<0.01); % page(4): 11 12 13 14

u3 = U3(:,1);
u3_idx = find(abs(u3-0.50)<0.01); % date(4): 11 12 15 16
```