

# INFSCI 2725: Data Analytics

## Assignment 8

### Team members:

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1. Apply the HIS algorithm to the following network(No one correct answer)

Root Set  $R=\{1,2,3,4\}$  Extend it to form the base set  $S$ .

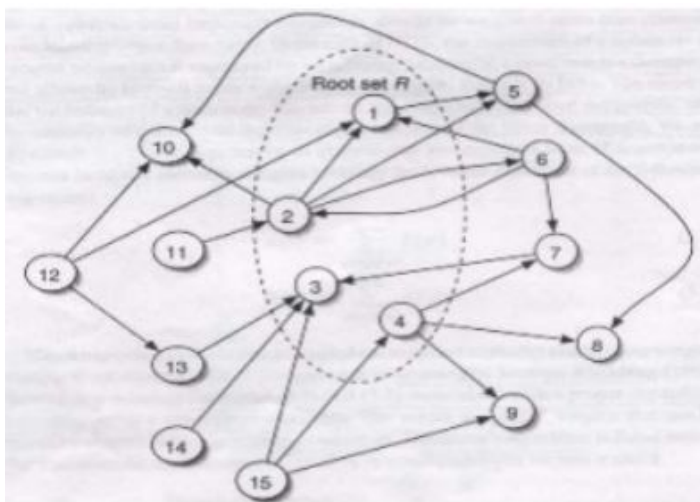
Set  $S=\{5,6,7,8,9,10,11,12,13,14,15\}$  Codes are in the attached files. Result: The node

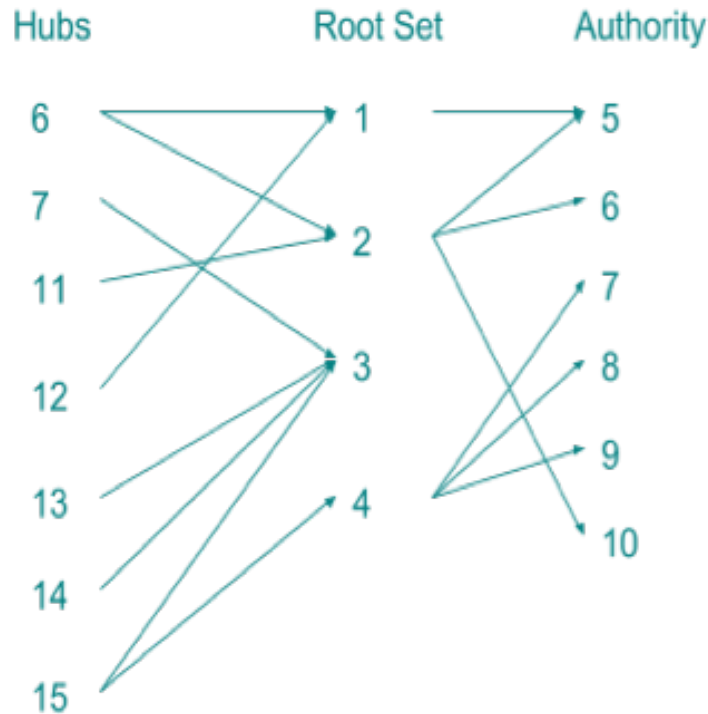
1 Authority is : 0.4654991572089278 Hub is : 0.11988568442441067 The node 2

Authority is : 0.09789028570733208 Hub is : 0.7941411191168685 The node 3

Authority is : 0.12203465614826921 Hub is : 0.0

The node 4 Authority is : 0.0740156870573738 Hub is : 0.6001958797955262





The node 5 Authority is : 0.23977136884882133 Hub is : 0.5214729216074097 The node 6 Authority is : 0.20832245012078257 Hub is : 0.3242201160861114 The node 7 Authority is : 0.08505078925596285 Hub is : 0.061017328074134604 The node 8 Authority is : 0.36825658115961407 Hub is : 0.0

The node 9 Authority is : 0.1574459163762332 Hub is : 0.0 The node 10 Authority is : 0.6746892620552052 Hub is : 0.0 The node 11 Authority is : 0.0 Hub is : 0.04894514285366604 The node 12 Authority is : 0.0 Hub is : 0.6561571685481576 The node 13 Authority is : 0.1721259178321824 Hub is : 0.061017328074134604 The node 14 Authority is : 0.0 Hub is : 0.061017328074134604

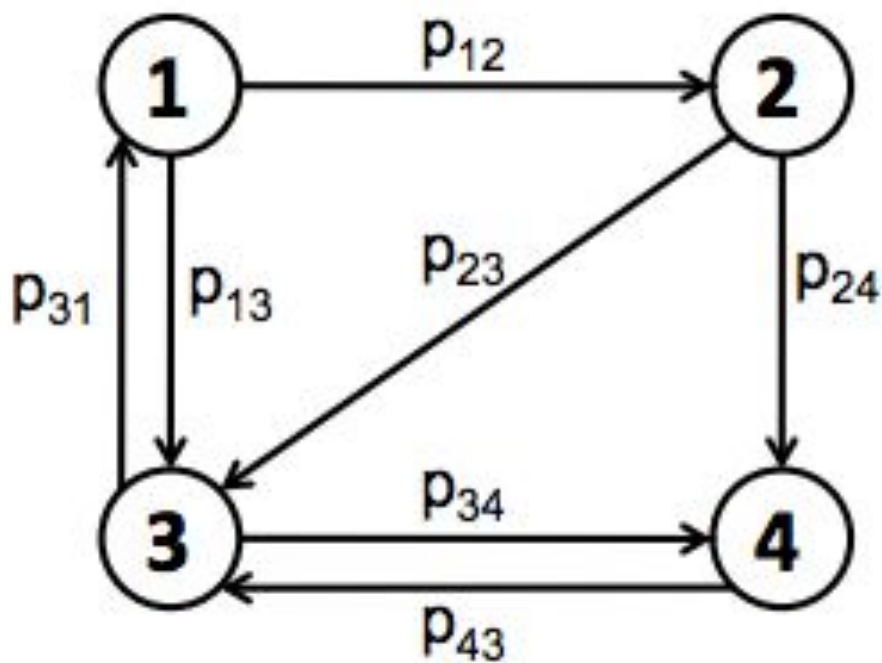
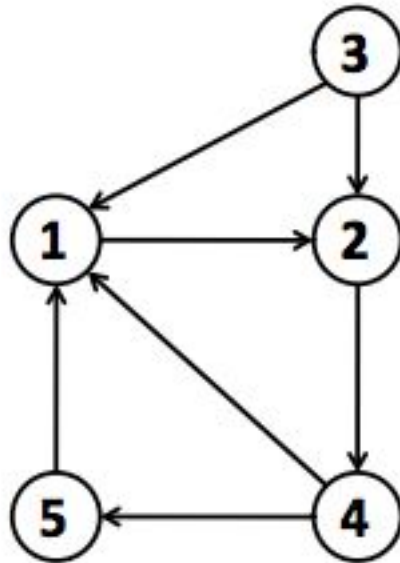
The node 15 Authority is : 0.0 Hub is : 0.28215346218262854

2. Find the Hubs and Authorities of the graphs below given by HITS. Are the results consistent with the notions of Hubs and Authorities?

First Graph The node 1 Authority is : 0.8440296287459854 Hub is :

0.22454939255564343 The node 2 Authority is : 0.44909878511128687 Hub is :

0.0 The node 3 Authority is : 0.0 Hub is : 0.6465642069286361



The node 4 Authority is : 0.0 Hub is : 0.5685790213016289 The node 5 Authority is : 0.2931284138572723 Hub is : 0.4220148143729927

Second Graph The node 1 Authority is : 0.16845787006103216 Hub is : 0.5391847981694269 The node 2 Authority is : 0.2725705594311633 Hub is : 0.6519051149092872 The node 3 Authority is : 0.8057990369076905 Hub is : 0.33323453148595794 The node 4 Authority is : 0.49801119291088375 Hub is : 0.40289951845384525

The results are consistent with the notions of the hubs and authorities.