Unit 11 - Week 7 - Cascading Behaviour in Networks

Course outline

Course Trailer

FAQ

Things to Note

Accessing the Portal

Week 1 - Introduction

Week 2 - Handling Real-world Network Datasets

Week 3- Strength of Weak Ties

Week4 - - Strong and Weak Relationships (Continued) & Homophily

Week 5 - Homophily Continued and +Ve / -Ve Relationships

Week 6- Link Analysis

Week 7 - Cascading Behaviour in Networks

- Lecture 87 - We Follow
- Lecture 88 - Why do we Follow?
- Lecture 89 - Diffusion in Networks

Week 7 - Assignment 1

1) Suppose the people in a network have adopted the technology X. Now, a new technology Y comes in the market but the people are finding it risky to adopt technology Y. The inventors of the technology Y are curious to see it flourishing on the network. Consider the following 2 options. Option 1 : Increase the payoff associated with technology Y Option 2 : Choose the set of key people from the network and use them as the initial adopters of technology Y. Which of the following is true in such a case. ***1 point***

- Option 1 will help the inventors of technology Y but option 2 will not.
- Option 2 will help the inventors of technology Y but option 1 will not.
- None of the options will help the inventors of technology Y.
- Both the options will help the inventors of technology Y.

Accepted Answers:
Both the options will help the inventors of technology Y.

2) Given two actions A and B. The payoff associated with the action A is 30 while the payoff associated with action B is 10. In such a case, what is the threshold fraction of neighbors which should have adopted A, in order for a node to asopt the action A? ***1 point***

- 1/3
- 1/4
- 1/5
- 1/3

Accepted Answers:
1/4

3) Given a node u in a network. There are 2 possible behaviors in this network- A, having a payoff of 4 and B, having a payoff of 2. u has 10 neighbors, out of which 4 neighbors have adopted A and 6 neighbors have adopted B. Which behavior does the node u adopt? ***1 point***

- Only A
- Only B
- Both A and B
- None

Accepted Answers:

- Lecture 90 - Modeling Diffusion
- Lecture 91- Modeling Diffusion (Continued)
- Lecture 92 - Impact of Commmunities on Diffusion
- Lecture 93 - Cascade and Clusters
- Lecture 94 - Knowledge, Thresholds and the Collective Action
- Lecture 95 - An Introduction to the Programming Screencast (Coding 4 major ideas)
- Lecture 96 - The Base Code
- Lecture 97 - Coding the First Big Idea - Increasing the Payoff
- Lecture 98 - Coding the Second Big Idea - Key People
- Lecture 99 - Coding the Third Big Idea- Impact of Communities on Cascades
- Lecture 100 - Coding the Fourth Big Idea - Cascades and Clusters
- Quiz : Week 7 - Assignment 1
- Feedback for week 7
- Solutions to Week-7 Assignment

Week 8 : Link Analysis (Continued)

Week -9 : Power Laws and Rich-Get-Richer Phenomena

Only A

4) Assume a network where all the nodes have initially adopted behavior B. Then a new behavior A enters the network and the cascade starts. The process runs for a definite period of time and stops. Which of the following is true. ***1 point***

- All the nodes in the network should have adopted action B.
- All the nodes in the network should have adopted action A.
- All the nodes in the network should have either adopted action B or all of them should have adopted action A.
- None of the above

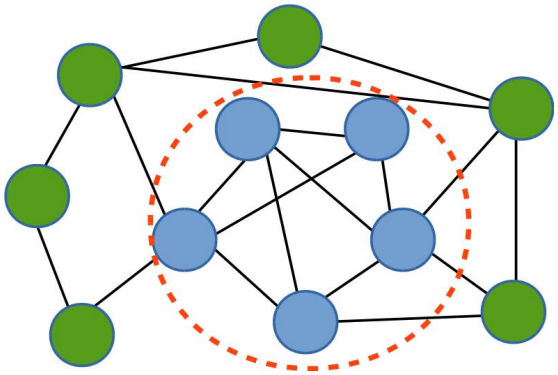
Accepted Answers:
None of the above

5) What does one mean by complete cascade on a network? ***1 point***

- At least half of the nodes in the network adopt the new behavior diffusing on the netwok.
- All the nodes in the network adopt the new behavior diffusing on the netwok.
- At least one community in the network (all the nodes in this one community) adopts the new behavior diffusing on the netwok.
- All the nodes in the community from where the cascade started adopt the new behavior diffusing on the network.

Accepted Answers:
All the nodes in the network adopt the new behavior diffusing on the netwok.

6) ***1 point***



In the above Figure, what is the density of the cluster composed of the nodes in the blue color?

- 1/2
- 3/4
- 3/5
- 1

Accepted Answers:
3/5

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Week 10 - Power law (contd..) and Epidemics

Week 11- Small World Phenomenon

Week 12- Pseudocore (How to go viral on web?)