UNIVERSITETET I BERGEN

KANDIDAT

249

PRØVE

INFO115 0 The Social Web

Emnekode	INFO115
Vurderingsform	Skriftlig eksamen
Starttid	30.11.2018 14:00
Sluttid	30.11.2018 17:00
Sensurfrist	--
PDF opprettet	21.06.2020 16:17

Seksjon 1

Oppgave	Tittel	Oppgavetype
i	Introduction	Dokument
1	Task 1. Graph properties	Langsvar

Seksjon 2

Oppgave	Tittel	Oppgavetype
2	Task 2. Online diffusion networks	Langsvar
3	Task 3. Search results.	Langsvar
4	Task 4. Second price auctions	Langsvar
5	Task 5. GDPR	Langsvar
6	Task 6. Social media addiction	Langsvar
7	Task 7. Addiction model	Langsvar
8	Task 8. Polarization	Langsvar
9	Task 9. Echo chambers	Langsvar
10	Task 10. Network effects	Langsvar
11	Task 11. YouTube as a platform	Langsvar

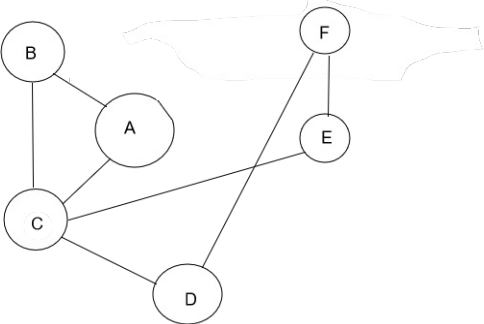# 1   Task 1. Graph properties

Consider this adjacency matrix:

	A	B	C	D	E	F
A	0	1	1	0	0	0
B	1	0	1	0	0	0
C	1	1	0	1	1	0
D	0	0	1	0	0	1
E	0	0	1	0	0	1
F	0	0	0	1	1	0

a. Draw a visualization of the graph described by the adjacency matrix (use paper if you want). (2 points)

b. Under Granovetter's theoretical assumptions about strong ties, what is the maximum number of edges in the graph that can be strong ties? Explain your reasoning. (3 points)

c. How many edges would you have to add to the graph for all (distinct) nodes to be connected? Explain your answer. (2 points)

d. What is the closeness centrality of node C? Explain your answer (2 points)

e. Consider the pairs of (distinct) nodes in the graph that are not connected by an edge. List these pairs of nodes ordered by their Jaccard similarity. (2 points)

e. Add an edge between the two nodes in the graph with the highest Jaccard score. Draw this expandend graph (use paper if you want). What is the clustering coefficient of this expanded graph? (2 points)

f. In the expanded graph, what is the density of the 1.5 ego network of node F? Explain your answer. (2 points)

Fill in your answer here

a.

b.

Granovettes theoretical assumption about strong ties, he claims that a brige can only consist of a weak tie, as weak ties help connect strong ties together. As strong ties cannot connect eachother as they would become abundant. He explains his theory by using telling us a story of how a baker had to work part time to earn extra money, but he met the daughter of a lawyer and told her the story of why he was working his part time job. When she heard this she told about her father looking for hires in his firm and when she came home she recomended him to his father. The result was the weak tie "daughter" worked as a bridge between two strong ties "baker" and "father". The maximum number of edges a graph that could be concidered strong ties is 8.

c.

I would add 2 edges to make all distinct nodes to be connected. I add an edge between (A.F) and another edge between (A.D)

d.

The closeness centrality of
1 + 1 + 1 + 1 + 2 / 5 = 6/5.
I count the shortest path between c and the other nodes c. (C-A = 1, C-B= 1, C-D= 1, C-E= 1, C-F= 2) then i divide it by total shortest paths.

e.

f.

The density in ego 5 can be calculated by looking at the graphs connected (loddrett), as ego 2.0 shows the length from node to node, ego 1.5 shows how the nodes are connected.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **4 2 5 8 2 0 0**

2 # Task 2. Online diffusion networks

Explain the main conclusion in the paper 'The Structure of Online Diffusion Networks', by Goel, Watts and Goldstein (2012). What are their main arguments for this conclusion (4 points)

Fill in your answer here

"The Structure of Online Diffusion Networks" is a paper in which they did a music experiment on where they had 48 songs from up and coming artists, and told their experimental users (2700 persons) to listen, rate and download songs. They then created eight seperate paralell worlds, which were to be exposed ot social influence, as well as having one independent parallel world to not be exposed ot anything, as they would compare their result with it.

In the independent world they would have 48 songs listed in a random order, in multiple brackets. In the eight seperate paralell worlds they would have the songs listed by rating. They ended up concluding in the result that in the world exposed by social influence, the popular arsits were to become even more popular (superstars), but they found out that in each of the eight parallel worlds exposed to social influence, the artists who were highest rated was all different. This lead to them finding out that skill did not lead to fame in such extent, that they previously thought, but the randomness did. They concluded that social influence helped both increased the popularity and the randomness.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **0 9 5 6 9 2 1**

3 # Task 3. Search results.

Explain the main differences between the relevance score and the importance score in the ordering of search results. (2 points)

Fill in your answer here

Relevance score given to descide how relevant a search is. By finding out which results where relevant amonst the total result given by the search we can find out how accurete/relevant the search was. With this information we can use it to improve either the search engine or database etc.

Importance score is a score given to figure out how important the results were compared to the total results. A better importance score is given when better articles or results match the keywords entered.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **5 2 5 0 7 3 7**

4 **Task 4. Second price auctions**

Explain the most important properties of second price, singe item auctions. (2 points)

Fill in your answer here

second price auction:

The important property of second price auctions is to set a minimum price, to set a standard of the minimum amount of what an item can pay for. It is then up to the bidders to bid and descide on their own how much they value the object. In the bidders mind they bid against others, as well as the amount they bid is what they persieve the items as valued. If someone looks at a picture some might be willing to spend 1000kr on that paiting, whilst other would only want to spend maximum 200kr as they persieve it as only worth that much money. But they have to pay more that the minimum price put to buy the item.

single item auctions:

In a single item auction it is to get multiple bidders with a higher buying power. The more a person persieve an items worth, the more they are willing to pay for it. With single item auction, people are bidding on one specific item, against other bidders and the one with the higest bid wins the auciton. The problem is that if no one wants an item it can sell for a really low price, or not sell at all, which is not what the seller wants.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode:

3 0 5 7 8 8 3

⁵ **Task 5. GDPR**

Describe some of the central principles in GDPR and explain how they are relvant to the processing of personal information by social media platforms. (3 points)

Fill in your answer here

GDPR stands for the General Data Protection Regulation, and is a set of laws and guidelines of how companies, websites and applications are to operate within the juristiction of the European Union. Every companie which collects information about its users, and is operating within the European Union are to follow these guidelines or they could face fines up to 2% of their yearly net income.

The three most central principles of the GDPR is; lawfulness, fairness and transparency.

Every comapny or website processing personal information is to store data in a lawful way, and to make sure all the data they process are to be safe. If any breaches are to occur, they are to legally notify all parts involved in the breach within 72hours of the discovery.

They need to make sure they are fair in what data they collect, making it so if people wants to opt out and delete their information gathered, they are to know when the what and when the information will be deleted. It is important that companies are transparent with its users, informing them of what information they collect, how they collect it and the users must agree to these terms for them to be allowed to connect information.

Some other priciples the GDPR also value are:

data limitation:

Making sure they only gather relevant data and that companies are not collecting and selling sensitive information such as; sexual preferance, tlf nr, birth of date etc.

Clear guidelines;

Every terms of service or text informing users which data is collected and what it is used for, is to be written in a clear way so it is easy to understand as write specifically of what their data is used for.

An example of a poor text explaining what they use data collected for is Facebook saying: "the data we collected is used to improve user experience..", user experience are to vague and it does not specify what excactly they are using it for. Breaking the transparency part.

Easy to opt out:

if users want to opt out from a service, the provider has to inform the user wanting to opt out how long it will take to opt out, and for how long they will continue to store the data before removing it. The gdpr wants it to be easier to opt-out from platforms and services than it currently is and is valuing it.

Notifications of breaches:

If a company fails to store the information in a safe way, so it is exposed to breaches from hackers and other sources, they can face fines as well as they are legally required to notify all parts involved in the breach within 72 hours of descovering it. Many companies are failing this principle, as the data breaches often reach millions of people and it is a time consuming step, to go through everyone involved, not involved and notifying them.

The rest falls under the three general principles, more explained above.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode:

6 4 4 3 3 1 0

6 # Task 6. Social media addiction

Describe research that explain how social media use trigger our reward system. (2 points)

Fill in your answer here

We have learned from research and articles that social medias are designed to trigger our reward system, specifically by giving users a dopamine hit. Dopamine is natural chemical in the rewards system of the brain, and makes us feel "good". The social medias manage to manipulate this reward system ot the brain by implementing functions such as "likes", "comments", "shares", "retweets", "views" etc.

When using social media research has showed that when recieving likes and positive comments, the users recieve a little dopamine from the brain, as they

Human beings are social beings and often referred to as flock animals, as we do not cope very well with lonlieness. We also have found out that people like to share their own stories and parts of their lifes with others. So when recieving feedback from implimentations such as likes and comments, the brain finds it difficult to differenciate likes and comments from other social interactions and thus rewards the users with dopamine.

This "good" feeling is something the users want more of and thus creates more posts, videos etc. to then get this dopamine rush. We can see how we are tricked into spending more time on platforms. This reward feeling varies from person to person, but for some it helps them use social media excessivly.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **1 6 8 8 7 2 4**

7 # Task 7. Addiction model

Describe the criteria psychologists use to characterize social media addiction (2 points)

Fill in your answer here

Social media addiction is a modern addiction, thanks to the increasingly developing technology and internet. As it is quite the new topic countries have not agreed to a specific defintion on what social media addiction is, but the general idea is that social media addiction is when people use social media for an excessive amount of time, as well as when they are not using social media they feel gravitated to pick up their phones/or log into social media. We often define it as an addiction when it starts impacting other parts of their life, such as social interactions, friends, family, hobbies, sport etc.

The problem with social media is that although social media media helps with communicating with people you have weak ties with, it also weakens the strong ties. Many find themself instead of meeting up and hanging out they are pleased with just communicating online. Psychologists have found out that people with adhd, depression, ocd, autism are at bigger risk in of becoming addicted. Research has showed that people with autism are especially at risk, and seem to become less open as they spend more time on social media, because of the weak ties they are exposed to opposed to strong ties.

Research also shows that intoverts often use social media to stay informed, while extro verts tend to use it to form social bonds.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **3 9 7 8 8 0 7**

⁸ Task 8. Polarization

What is political polarization? Why do political polarization often happen online according to Sunstein? (3 points)

Fill in your answer here

Political polarization is when someone with a specific political view, surrounds himself with likeminded people and media which has the same specific political view. To better explain it we can use the example; let us say we have Bill who is a Republican, he is more likely to watch fox news as it leans more to the right, as well as find himself in republican group. Due to them exposing themself with likeminded people, they are to be more influenced by them, thus making the Republicans, even more right and the Democratic more left. (They become more radical as they are not exposed to counter arguments or thoughts from the opposite political parties). By the idea of the majority is right, they often also adopt other peoples way of thinking, instead of thinking themself, thus getting influenced by those they surrond themself with.

Sunstein warns us of this effect happening especially online, as there are no one to tell the user what is right or wrong, it is something they have to find out themselves. It is up to the individual to descide which forums they want to visist, and if they only surrond themself with likeminded people they arent to be argued against. Whilst in the real world, it is easier to be influenced by other peoples opinions.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **4 9 6 1 5 3 4**

⁹ Task 9. Echo chambers

Describe and evaluate Sunstein's main concerns about echo chambers. (2 points)

Fill in your answer here

Sunsteins conscern about echo chambers is that people will follow others with the thought that the majority is right. He uses the example of drawing a 0 or a 1 on a board. There is an 80% chance of getting right and a 20% chance of getting it wrong. His research showed that if someone were to write 1 on the board, the next person is more likely to follow as they think that the majoirty is right, thus leaving their own opinions and thoughts.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **1 4 1 7 4 4 0**

10   Task 10. Network effects

Give examples related to the social web of four different network effects: direct network effects (positive and negative) and indirect network effects (positive and negative). (3 points)

Fill in your answer here

> Direct network effects:
> Positive:
> Easy to access.
>
>
> Negative:
>
>
> Indirect network effect:
> Positive:
>
>
> Negative:

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **1 2 3 2 2 1 1**

11   Task 11. YouTube as a platform

Explain what the different sides of YouTube considered as a platform are, and give a brief outline of the history of YouTube as a commercial platform. (2 points)

Fill in your answer here

> "YouTube" is a fantastic platform, and in this day and age is one of the most visisted webpages every day. What makes it such a great platform is that it has low-friction as well as it benefits all parts involved with the platform; the owners, content creators and viewers. The viewers benefit by being able to watch what they want, from who they want and when they want it. The content creators benefit by earning money by ad revenue, thus supporting their hours put into their work. The owner of youtube benefit by having increased traffic on their website, although they have to pay for storage of all the videos.
>
> YouTube having a low-friction is super beneficial, as they are the platform with the most traffic of any video platform, as well as backing it up with great interaction design and user interface, it helps fend off compenditors. An example of a compeditor which did not work out was wimeo, as they tried to gain fraction, but could not provide a better platform which already consisted and thus failed.
>
> If the owners were to add a fee to watch videos, people would find new websites or platforms to watch the videos, and thus the traffic on their website would increase and the content creatos would pull less views. So if they were to improve their website they had to improve it in a way which benefitted all three parts. These changes would result in a higher-friction making it easier for compeditors to get their sliece of the market.
>
> As of today YouTube is as strong as ever, but has been weakened by "twitch.tv" as they were the first to implement video streaming to their platform, thus making it the most dominant game streaming platform. YouTube potentially lost this market, as they were better off the start but probably failed to see the concept taking off in popularity.

Knytte håndtegninger til denne oppgaven?
Bruk følgende kode: **2 2 9 9 4 9 3**