Review of the Course

Good luck!

Your Final

Your final exam will be an open-book open-notes exam.

Calculators are allowed (although I don't think you need a calculator).

Other electronic devices (smartphones, tablets, and laptops etc.) are not allowed.

You can bring any print materials (e.g., slides, your own notes, any books).

Your Final

Your final exam will be an open-book open-notes exam.

All the questions are covered in your slides.

One or two very basic questions on R programming.

Your Final

The final has 50 multiple choice questions, 1 point each. So in total, 50 points for your final.

All questions are based on the content of the slides.

SINGLE answer for multiple choice questions.

4 options A/B/C/D.

Very few questions require calculation. Even for calculations, they are simple calculations that can be done in seconds.

Your Final

Exam time and venue:

December 1, 2025 (Monday)

10:00 – 12:00

You should have enough time ☺

Bring a pencil with you! You need to mark answers in the answer sheet.

Sample Questions for your final

Many consumers visit an offline store to inspect the product and then make a purchase in an online store, a practice known as showrooming. If you are running an offline store, you can take various measures to defeat showrooming. Which of the following measures does NOT help defeat showrooming?

A. Create a digital friendly in-store environment
B. Match the price of online sellers
C. Block Internet access in store
D. Offer flexible return policies

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Sample Questions for your final

Which of the following statements on search results is FALSE?

A. Less than 10% of the users will visit the second page of search results.
B. Google distinguishes between organic search and paid search results on the search engine result page.
C. On Google, your webpage can appear on both organic search and paid search results.
D. Overall, paid search generates more sites traffic than organic search does.

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Sample Questions for your final

Suppose that your ad was seen 1,000 times and was clicked 150 times. Among all visits, 30 users ended up making a purchase at your website. Which of the following statement is FALSE?

    A. You have 1000 impressions.
    B. The clickthrough rate is 15%.
    C. The conversion rate is 3%.
    D. All of the statements are TRUE.

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Sample Questions for your final

Which of the followings is FALSE regarding the difference between PC and mobile channels?

A. Making payments is usually more complex on mobile devices.
B. PCs are more likely to be shared among different users.
C. Mobile devices usually provide more accurate geo-location data.
D. Mobile devices are used for longer time and at different places.

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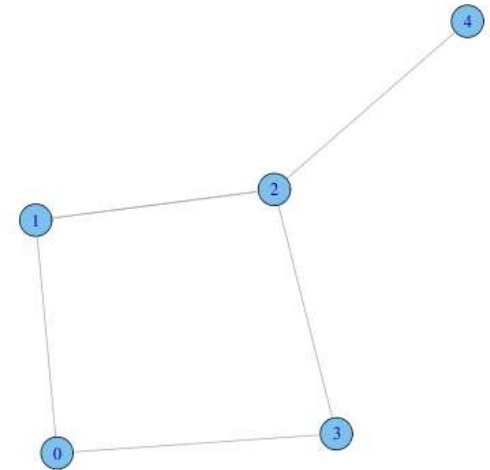
Sample Questions for your final

Suppose that you want to run a regression in R. Your dependent variable is Y and your independent variables are X1 and X2, and your data set is mydata. Which of the following codes is CORRECT?

A. lm(x1 + x2 ~ y, data = mydata).
B. lm(y ~ x1 + x2, data = mydata).
C. lm(y ~ (x1, x2), data = mydata).
D. lm((x1, x2) ~ y, data = mydata).

Sample Questions for your final

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Sample Questions for your final
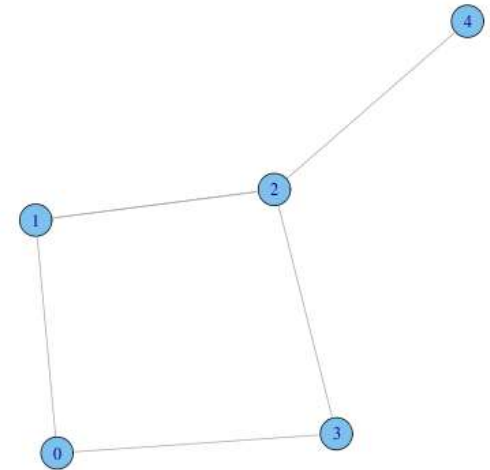
What is the closeness centrality of node 0?

    A. 2/3
    B. 4/7
    C. 5/7
    D. 3/4

Sample Questions for your final

What is the closeness centrality of node 0?
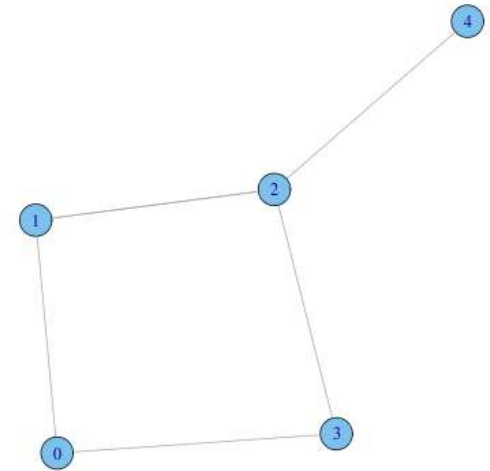
    A. 2/3
    B. 4/7
    C. 5/7
    D. 3/4

Sample Questions for your final

What is the betweenness centrality of node 1?
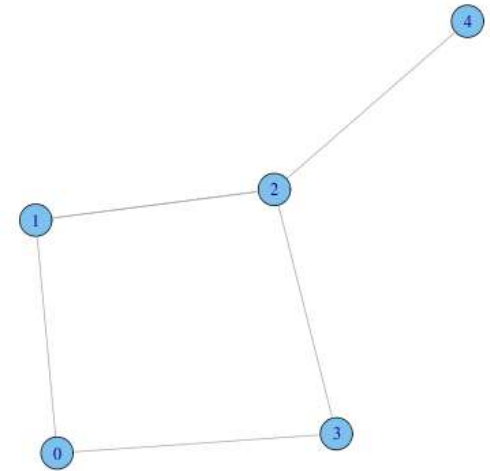
A. 0.5
B. 1
C. 1.5
D. 2

Sample Questions for your final

What is the betweenness centrality of node 1?

A. 0.5
B. 1
C. 1.5
D. 2

Sample Questions for your final

Which of the statements on auctions is FALSE?

A. Advertisers have incentives to underbid in first-price auctions.
B. Advertisers bid honestly in second-price auctions.
C. Second price auctions are less profitable than first price auctions because the winner only pays the second-highest bid.
D. All of the above statements are TRUE.

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Calculation: PAGE RANK

Let PR(U) be the page rank of webpage U.

Assuming m webpages $(V_1, \ldots, V_m)$ send incoming links to page U, then

$$PR(U) = \frac{PR(V_1)}{L(V_1)} + \frac{PR(V_2)}{L(V_2)} + \cdots + \frac{PR(V_m)}{L(V_m)}$$

$L(V_j) = $ number of outgoing links from website V_j

Some Metrics

Impression = number of instances ad is seen by user

Cost-per-Click (CPC) = cost paid to search engines

Click-Through Rate (CTR) = efficiency of generating clicks from delivered impression

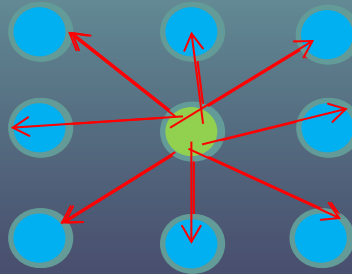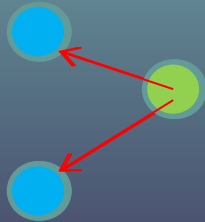Conversion Rate (CR) = efficiency of generating sales from click

Amplification Ratio

Amplification ratio
= # Friends of Fans exposed / # Fans exposed
= 10/2 = 5.

Who is more important? Why?