Review of the Course

Good luck!

Your Final

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

Calculators are allowed (but 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.

No questions on data scraping.

1 or 2 very basic questions on R programming / Tableau.

Your Final

The final has 45 multiple choice questions, 1 point each. So in total, 45 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 (around 5) questions require calculation. Even for calculations, they are simple calculations that can be done in seconds.

Your Final

Exam time and venue:

December 7, 2021 (Tuesday)

14:30 – 16:00

Two minutes per question, 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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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).
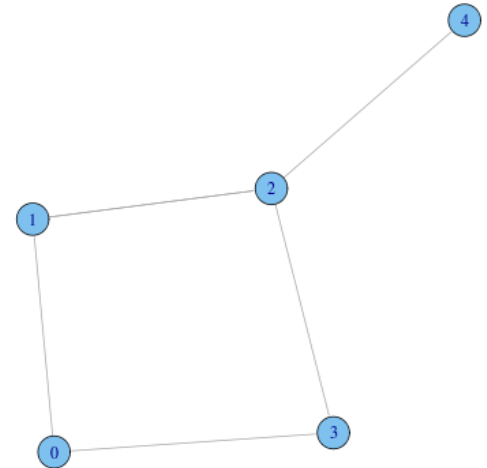- D. lm((x1, x2) ~ y, data = mydata).

Sample Questions for your final

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?

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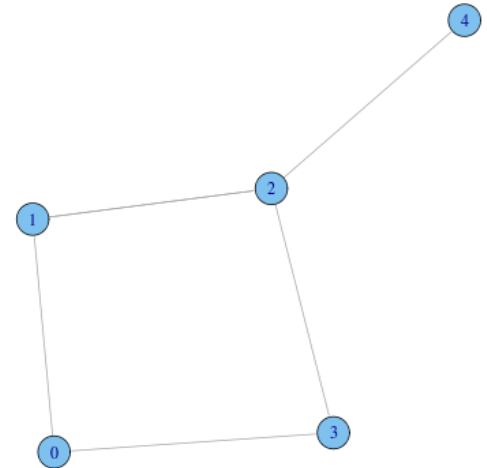
What is the closeness centrality of node 0?

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

Sample Questions for your final
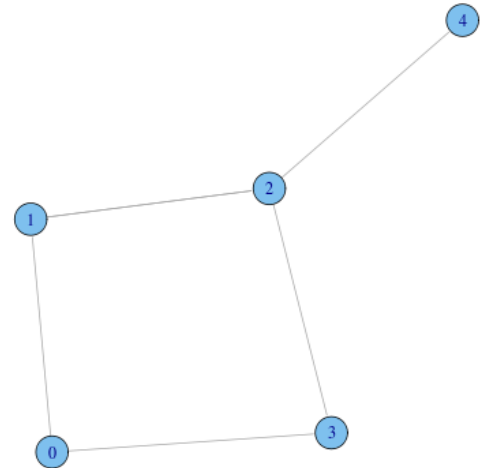
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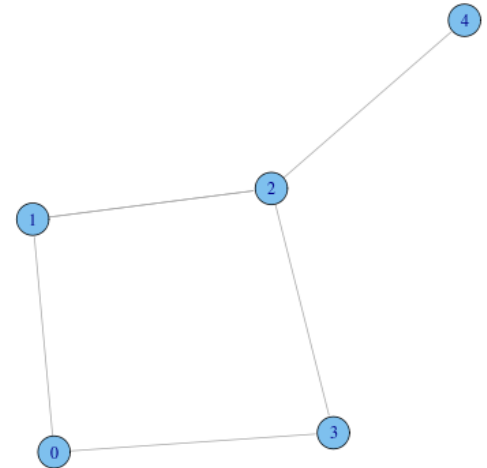
What is the betweenness centrality of node 1?

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

Sample Questions for your final

What is the betweenness centrality of node 1?

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B. 1
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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. Advertisers bid honestly in generalized second price auctions.
D. Second price auctions are less profitable than first price auctions because the winner only pays the second-highest bid.

Sample Questions for your final

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Preparing for Final

How much time do I need to prepare?

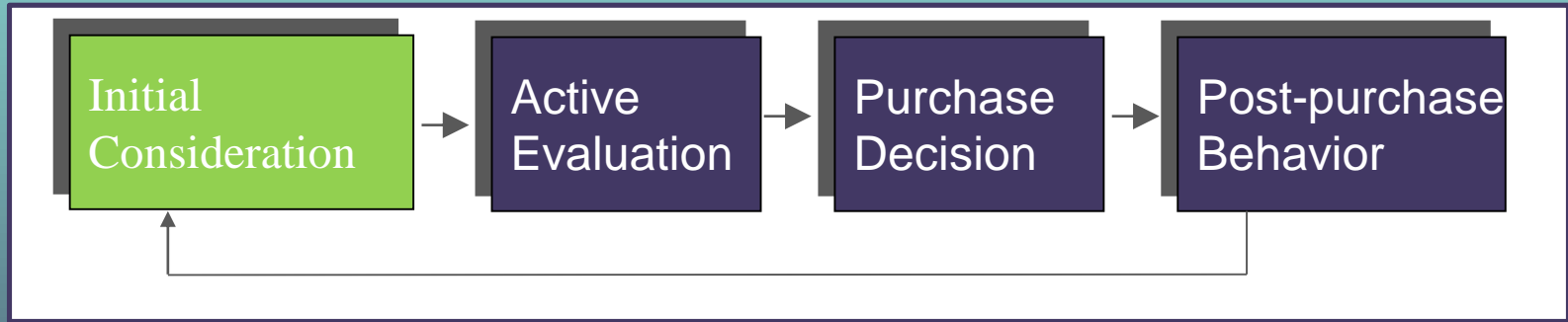8 hours would be more than enough, provided that you attended most of the lectures.

Review

Lecture 1:

How the internet is changing our purchase journey?

Consumer buying decision

Showrooming

The practice of examining products in a store and then buying it online for a lower price.

Top categories affected by showrooming?
- Electronics & Appliances
- Books & Music
- Clothing & Shoes
- Furniture & Home

60% in 2013 -> 35% in 2018. Why?
- Increasing online presence for traditional retailers
- Offer price matching
- Digital friendly in-store environment (e.g. e-payment, digital coupons)
- Flexible return policy

SHOWROOMING

THIS PAIR IS SO PERFECT, I CAN'T WAIT TO BUY THEM CHEAPER ONLINE SOMEWHERE. WHAT'S YOUR WIFI PASSWORD?

TOM FISH BURNE

© marketoonist.com

Key Takeaways

How has Internet/digital changed the way we shop?
- Changes in search costs
  - Results in larger product assortment and lower prices
  - Implications to firms: focus on product differentiation, raising switch cost

- Changes in availability and use of data
  - Allows firms to deliver more targeted messages
  - Allows users more easily to provide feedback (new data) to improve product/service
  - Allows users to be affected by others' choices

- Changes in role of geographic proximity
  - Reduces the cost of communication with others
  - Encourages the use of multiple channels in shopping process
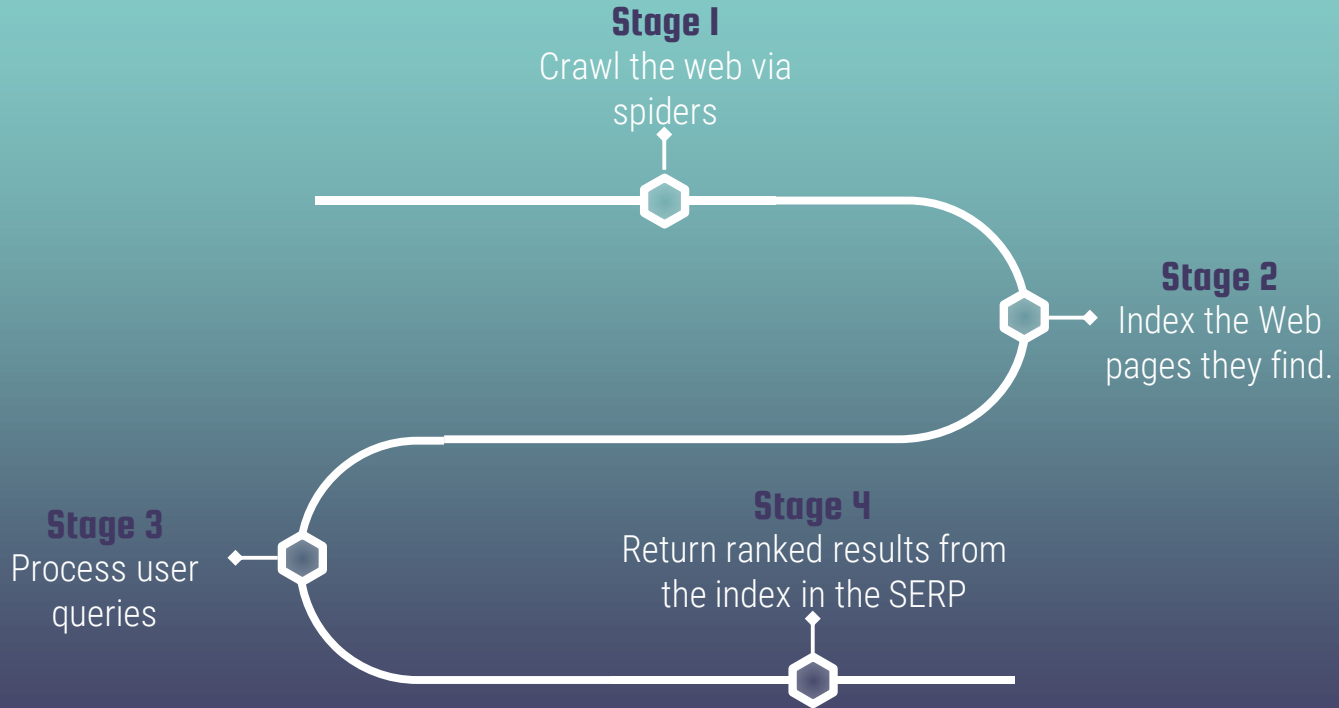 - Offline context still matters in each stage of customer journey

Review

Lecture 5:

Understanding search engine optimization.

TIMING

Stage 1
Crawl the web via spiders

Stage 2
Index the Web pages they find.

Stage 3
Process user queries

Stage 4
Return ranked results from the index in the SERP

ON-PAGE AND OFF-PAGE SEO

On-page (or on-site):

   Technical Structure (Page Title, Headers, Page Body, Image Tags, URL,
   Meta Description)
   Content Tactics

Off-page (or off-site):

   Backlinks (who link to you)
   Social Engagement

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

Review

Lecture 6:

How is paid search bought and sold?

Generalized second-price auction with quality score

Currently used by Google and Bing
    Position determined by ad rank = bids x quality score
    CPC = the next guy's ad rank / own quality score + a bid increment

Advertiser	Bid	Quality Score	Ad Rank	Position	Actual CPC
A	$0.50	10	5.0	1	4.5/10 +.01 = $.46
B	$0.75	6	4.5	2	3.2/6 +.01 = $.54
C	$0.40	8	3.2	3	2.0/8 +.01 = $.26
D	$1.00	2	2.0	4	0/2 + .01= $.01

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

Probability of Purchase = CTR x CR

Revenue = Prob. of purchase x Profit margin per purchase x Impressions

Cost = #Clicks x CPC, where # Clicks = Impression x CTR

Net Revenue = Revenue – Cost

Return on Investment (ROI) = Net Revenue / Cost

Review

Lecture 8:

How are display ads bought and sold?

Review

Types of display ads:

Native Ads, Behavioral Targeting Ads, Retargeting Ads…

Types of targeting:

Simple targeting (geo-targeting, device, time and day)

Sophisticated targeting: Contextual targeting, behavioral targeting, retargeting, …

Display ads are mainly sold in one of two ways

1) Direct buying from publishers
    Bulk ad purchase that specifies the price and quantity, as well as
    the time frame and targeting criteria
    Premium Space
    Guaranteed contract
    Future market

2) Real-time bidding (RTB) through Ad Exchange
    A platform running an auction to determine which advertiser
    buys an individual impression in real time (~100 milliseconds)
    Remnant space
    Non-guaranteed
    Spot market

Personas: The foundation of content marketing

Personas are a method of market segmentation wherein we collect a combination of qualitative and quantitative data to build archetypes of the members of our target audience

2 components:

Segment elements (demographics, needs, objections)

Humanizing elements (photo, name, personal details)

Why create personas?

Foster customer-centrism

What topics, medium, content depth, tone are relevant?

Is content ratio in line with importance of each persona?

Remind us that we are 'weird': our customer is different

3-6 personas is ideal

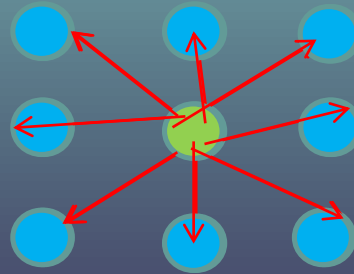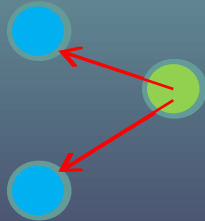# Review

Lecture 9:

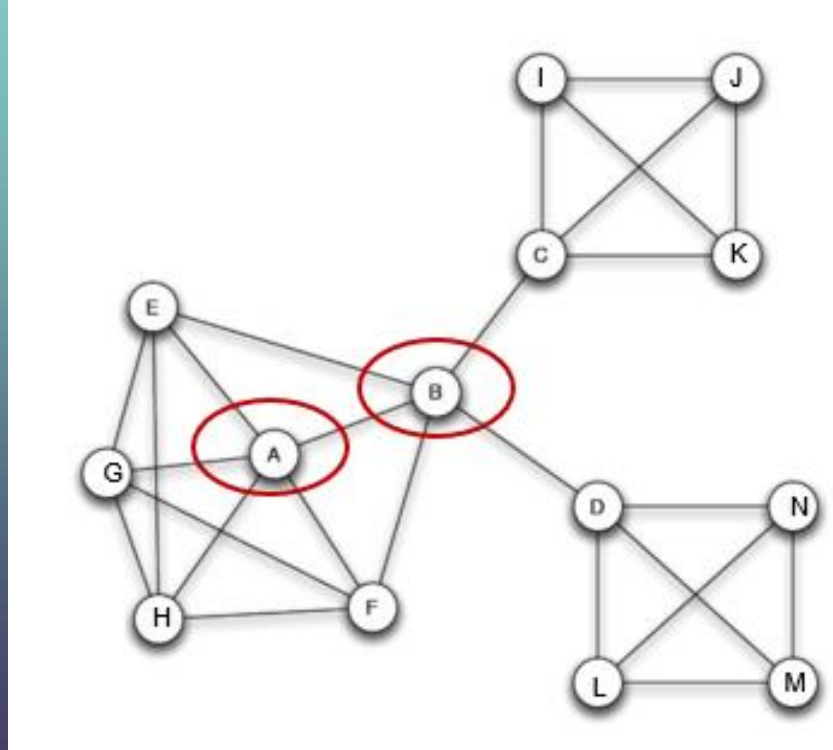Measures of Social Networks

Amplification Ratio

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

Who is more important? Why?

How is Mobile Different

Omnipresence

    Always carried and always on.

Reduced targeting errors

    Unlike cookies, phone number and device ID cannot be deleted; mobile phones are usually not shared among households.

Location awareness

    Location provides both proximity data and contextual information.

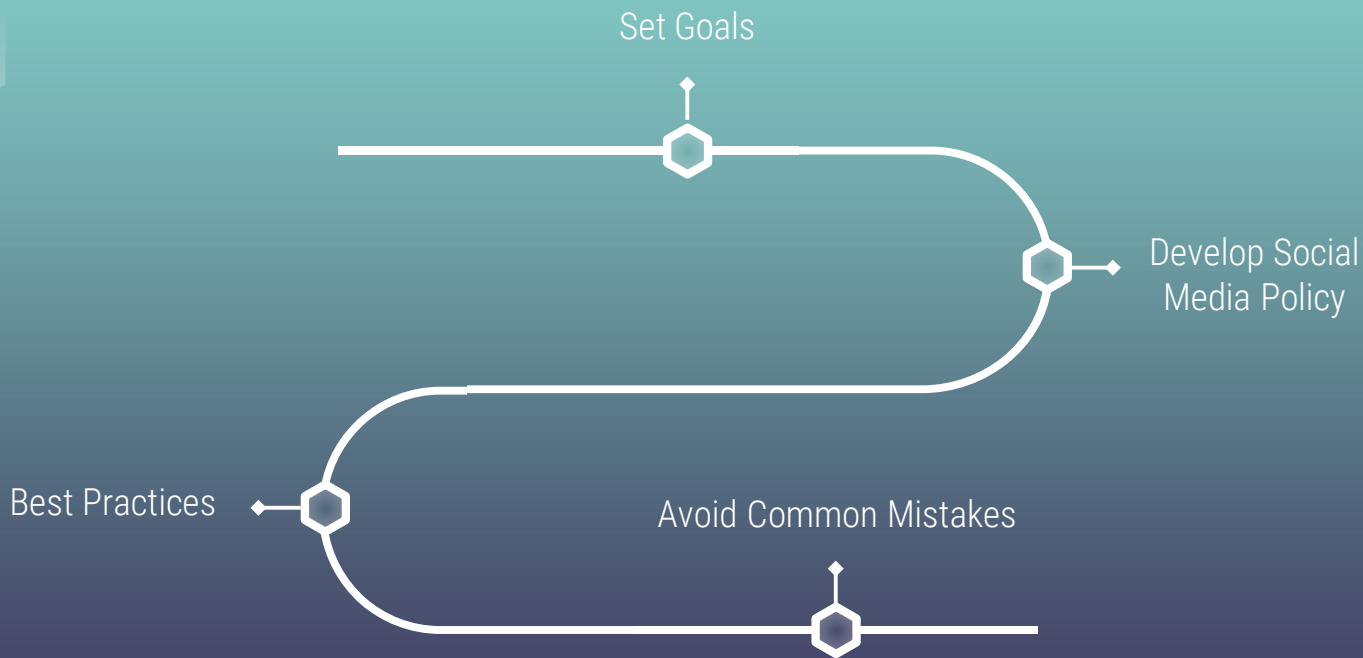Built-in payment system

    Easily purchase at offline stores

Review

Lecture 10:

Leveraging Social Media

Get started with Social Media

Set Goals

Develop Social
Media Policy

Best Practices

Avoid Common Mistakes

The New York Times bestseller that explains why certain products and ideas become popular.

The author, Jonah Berger, is Associate Professor of Marketing at the Wharton School, University of Pennsylvania.

Types of Influencers

Celebrity influencers
Need to go through agencies, length contracts, and strict rules
Care more about $, also expensive

Industry influencers
People with celebrity status within a specific industry
Care about ways to build their own influence as well as $

Micro influencers
Everyday people with large and passionate audiences
Relatively cheap to work with
Can be found through influencer network

Local influencers
Local news anchor, local band, local sports figure, etc.
High chance to be free