NBA GW College Night Pricing for Wizards

Group 8 👍
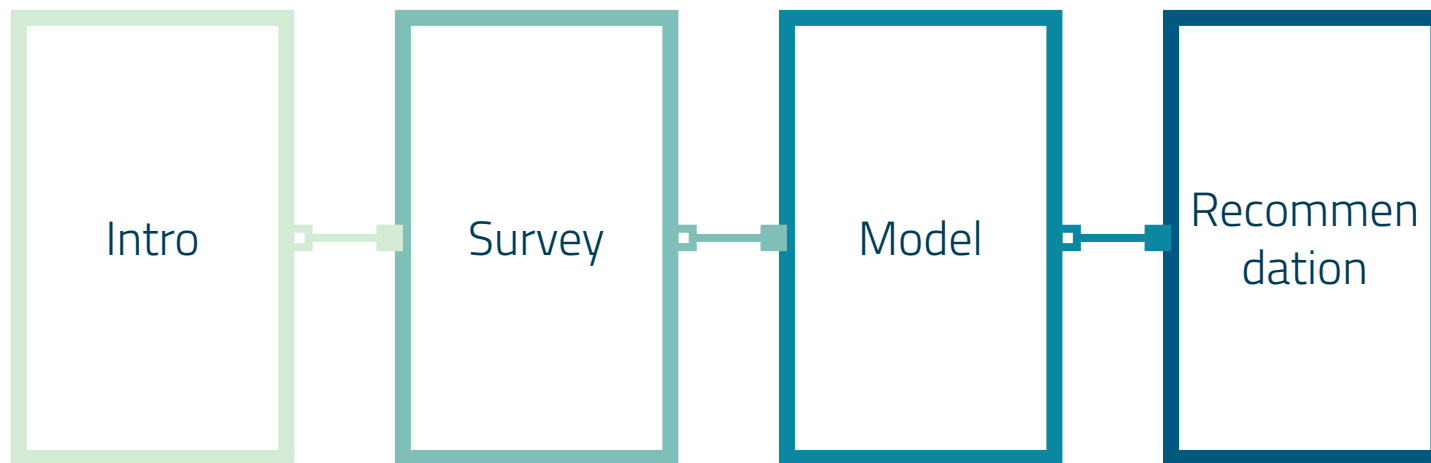
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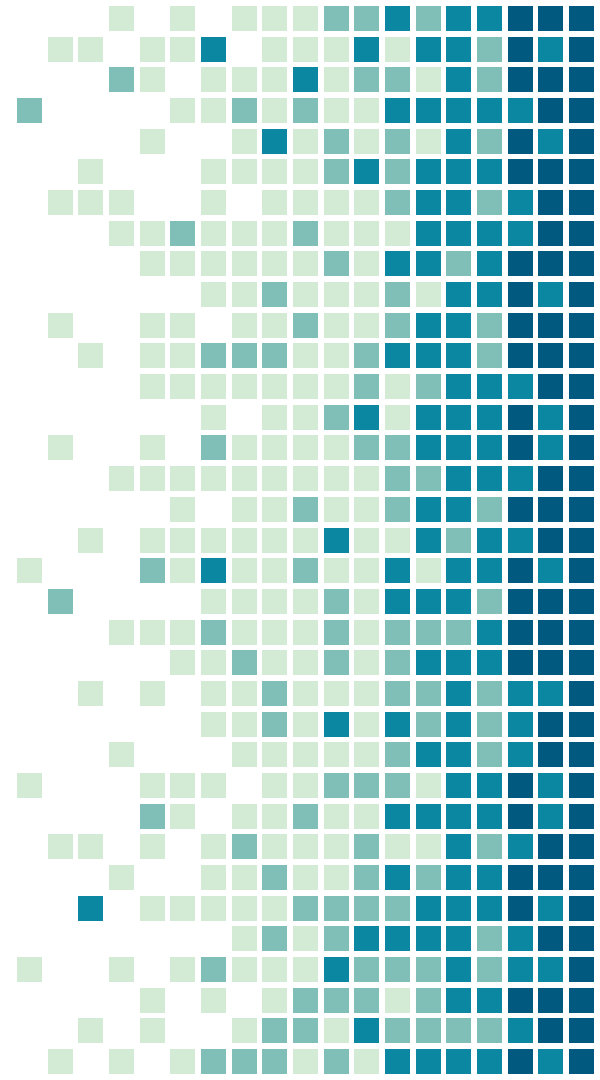Yuwei Yao

AGENDA

Intro	Survey	Model	Recommen dation

1.

INTRODUCTION

Background & Problem

Client – The Washington Wizards

- NBA American Professional Basketball Team
- 2018 Attendance rate for Home games is relatively low among all NBA teams.
- Looking for more audience, attracting more international students.

Ref for attendance rate: http://www.espn.com/nba/attendance

Wizards Student Rush Presented by Chick-fil-A®

College Night offers promotions for GW international student only
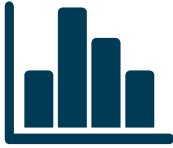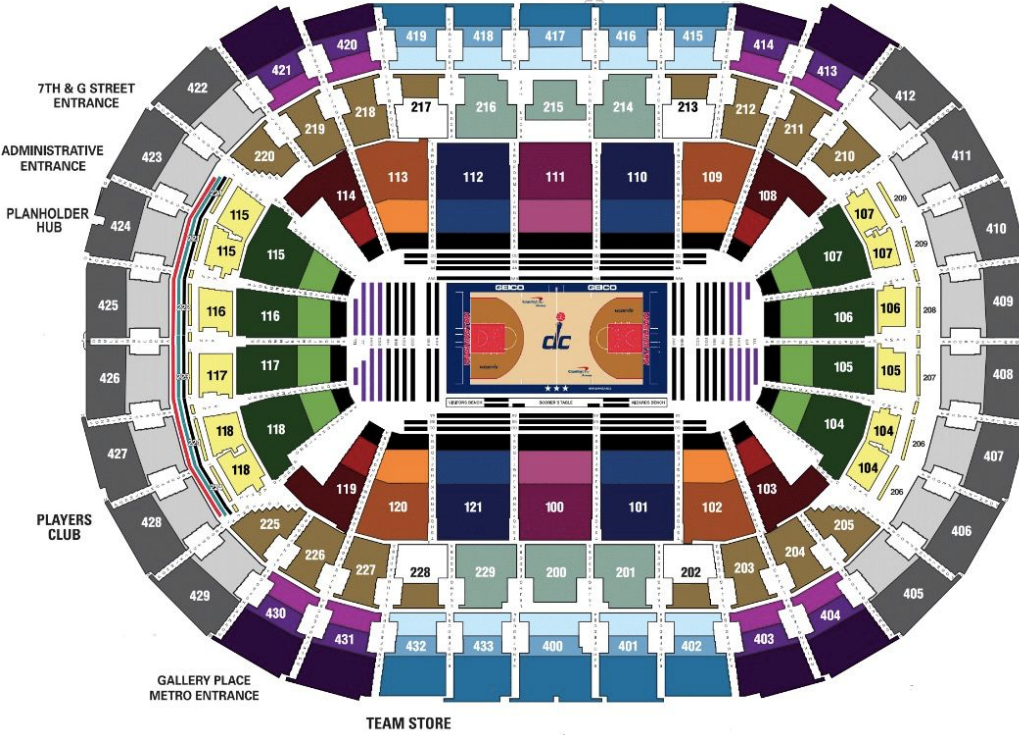
- Upper level (Grey) $21
- Mid level (Purple) $29
- Lower level (Gold) $50
- Total Capacity   20356
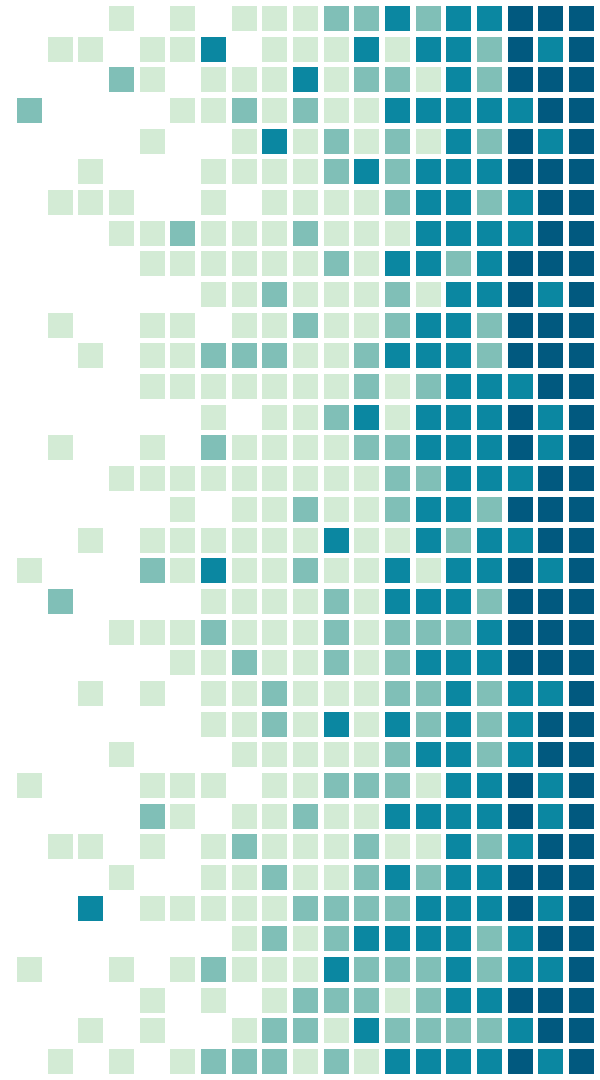- Level Capacity   >8000
- GW international student

  ~4000
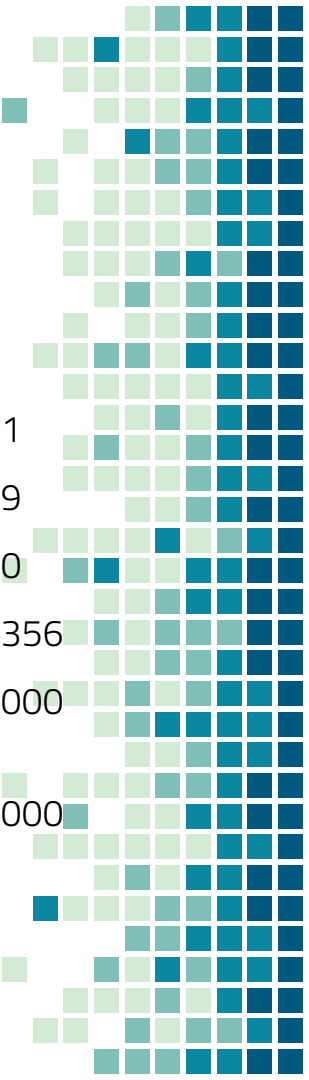
As a revenue management consulting team, what would be the best pricing recommendations we can offer?

How to **MAX** revenue?

2.

SURVEY

Design Process & Responses

Survey – Drafted Price

Drafted price	Distanced Seat	Less Distanced Seat	Closest seat
Price 1	12	20	50
Price 2	14	24	55
Price 3	16	28	60
Price 4	20	32	65
Price 5	24	36	70
Current price	21	29	55

We gathered 50 valid surveys from GW international students
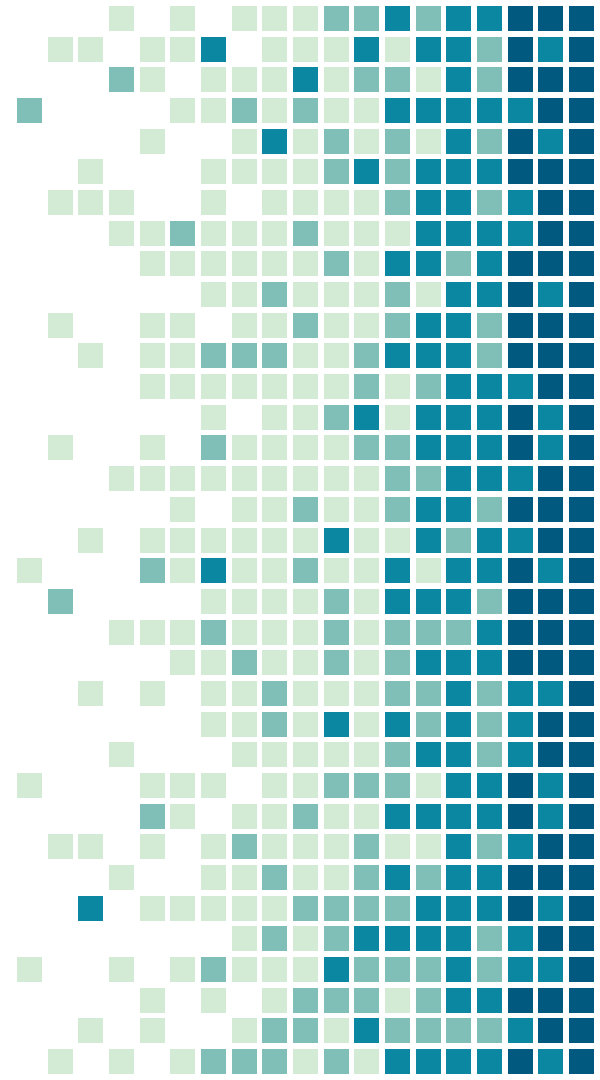
1. How much would you be willing to pay per game for a seat in Section 405-412 or 422-429 (grey section)

2. How much would you be willing to pay per game for a seat in Section 420-421 or 413-414 (purple section)

3. How much would you be willing to pay per game for a seat in Section 104-107 or 115-118 (gold section)
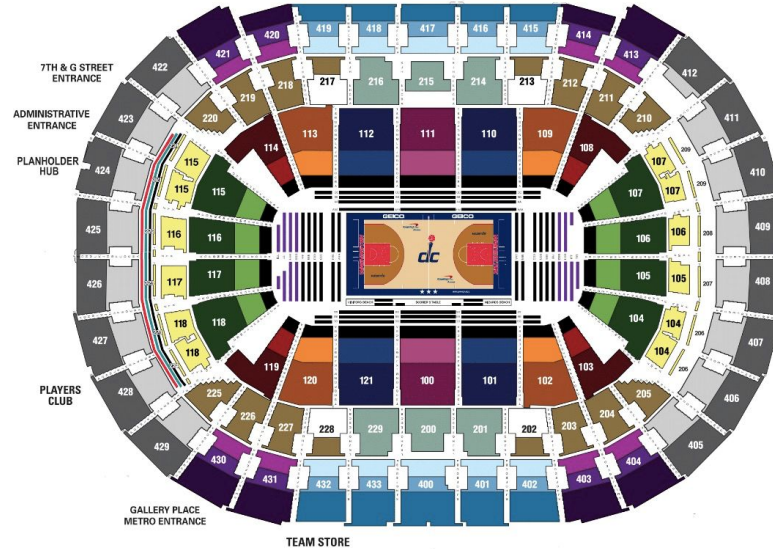
3.

Model

Mindset Principles & Calculation

Model Solution

- What we know:

    - Three products are offered:

        - distanced seat (D), less distanced seat (LD), closest seat (C).

    - The average WTP for D, LD and C is 16, 24, 55 respectively.

    - The average variance of WTP across all respondents and all products is 27.

    - Drafted prices.

- What we want to know:

    - Probability that a random respondent would buy D, LD and C.

Multinomial Logit (MNL) Modeling

- Forecasting:

  - demand functions + degree of uncertainty

  - Each consumer would choose the product that maximizes his/her net utility.

MNL Model Solution

- List all price combinations for three products by Excel.
- Use the function **$Var[\varepsilon_j] = m^2 p^2 / 6$**, first compute m=4.
- Then compute v values for three products using the function **$v = \exp[(u-p)/m]$**:

Product	u	p	$v = \exp[(u-p)/m]$
Distanced	16	12	exp[(16-12)/4]=3.04
Less distanced	24	20	exp[(24-20)/4]=2.44
Closest	55	50	exp[(55-50)/4]=3.29

Models Calculation
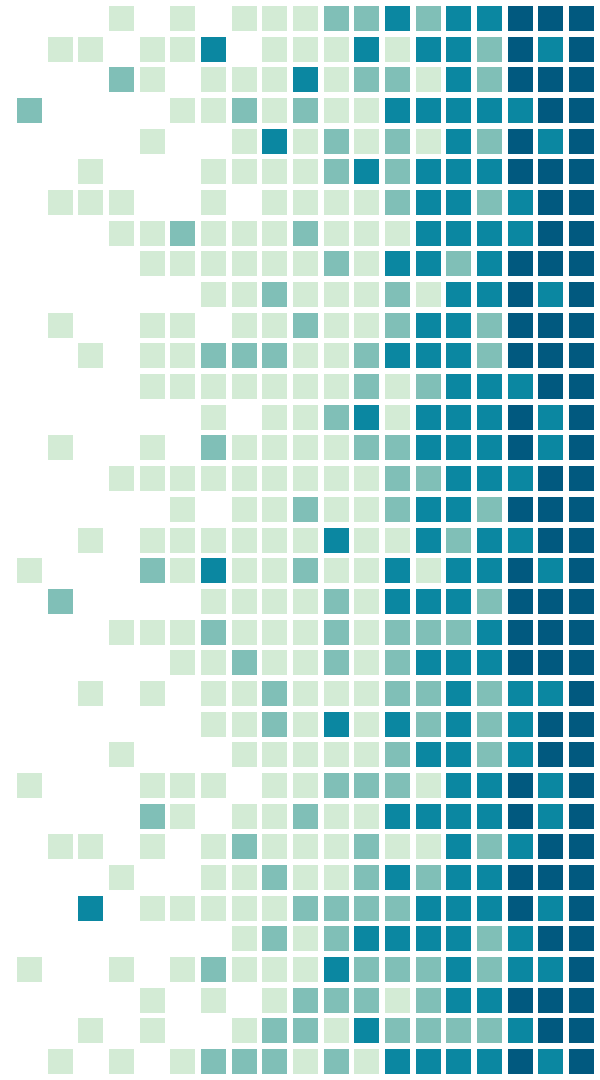
Then compute the probability using the function:

Probability of purchase=v/(1+vD+vLD+vC)

| Product	P=v/(1+vD+vLD+vC)
Distanced	3.04/(1+3.04+2.44+3.29)=0.31
Less distanced	2.44/(1+3.04+2.44+3.29)=0.25
Closest	3.29/(1+3.04+2.44+3.29)=0.34
No purchase	1-0.31-0.25-0.34=0.1

4.

SOLUTION APPROACH

Pricing Results & Future Work

Revenue

	Distanced Seat	Less Distanced Seat	Closest seat
price	$28	$36	$50
Probability	0.013011	0.010457	0.74911
Demand	52	41	2996
revenue	$1456	$1476	$149800

Population: 4,000
Max revenue: $152,732
Current revenue: $105,145
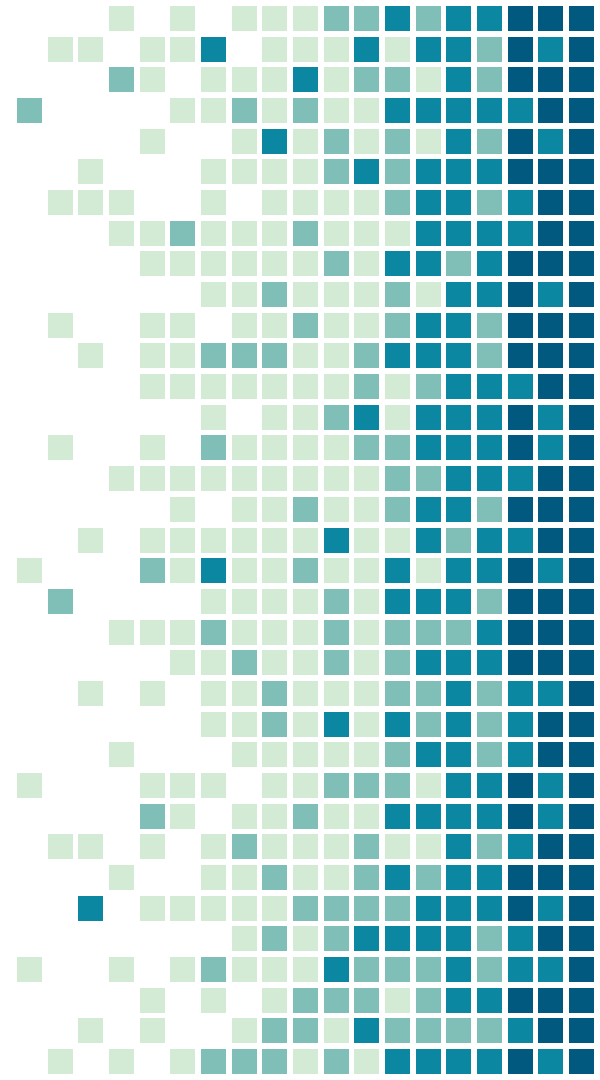
Findings

- There is not much difference between the lowest price of the closest seat and the highest prices of the other two seats.

- This situation forced students to buy the closest seat to maximize their net utility.

Limitation & Future work

- Limited sample size:
  - Population: 4000
  - Sample size: 50

- Sample is not representative enough:
  - Most respondents are Chinese
  - Did not control sex ratio

- Improve sampling group and sample size:
  - Increase the size and diversity of sampling group

THANKS!

Any questions?