Google Developer Student Clubs

Biweekly GDSC Meet-Up

10/12/2023

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Scrum Video

TRUE

I am a major scrum propaganda spreader

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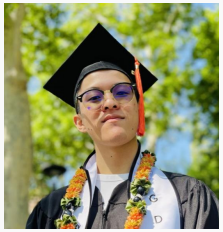
A/B Testing

A provably good user experience



Dean Shin
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Scenario

- You are a **developer** working on a feature that **changes the copy** (the text) on a purchase button.
- The business team at your company believes that this will improve the click-through rate (CTR) of the button, increasing the number of people that purchase an item.
- **How can we test whether our change had the effect that the business team expected it to have?**

Tracking

- If we want to see whether our change was successful, we need to be **tracking** relevant data.
- In our case, that would be **the number of clicks that our purchase button receives.**
    - We should also track ‘downstream’ metrics, such as successful purchases.
    - More people may click, but have **less purchase intent**.

Comparison

- Once we add tracking events, can we switch our users over to our new feature?
- No!
  - We won't have any data on our old button copy--we have to wait for enough data to come in to be statistically sound.
  - Depending on our site's size, this might take a day, or a couple of weeks.

Comparison

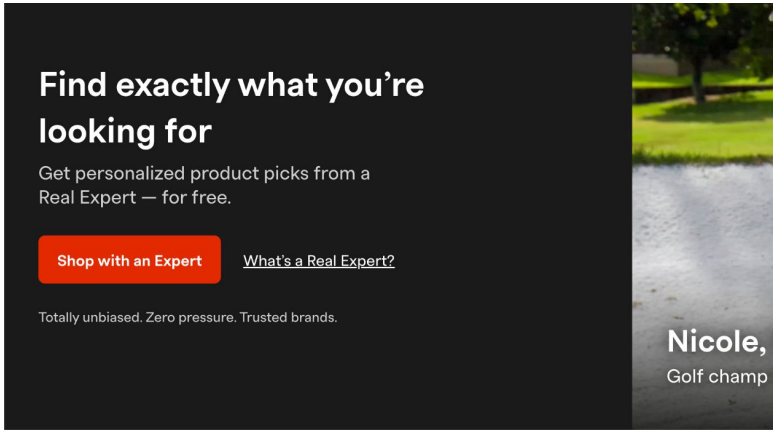
- Once we wait, and switch over our users to the new feature, will our analysis be sound?
- No!
  - **Seasonality--**at different times of the week and year, users' intents will differ.
  - **Interaction--**other features on our site may be released in the middle of our testing period, biasing users in one time period.

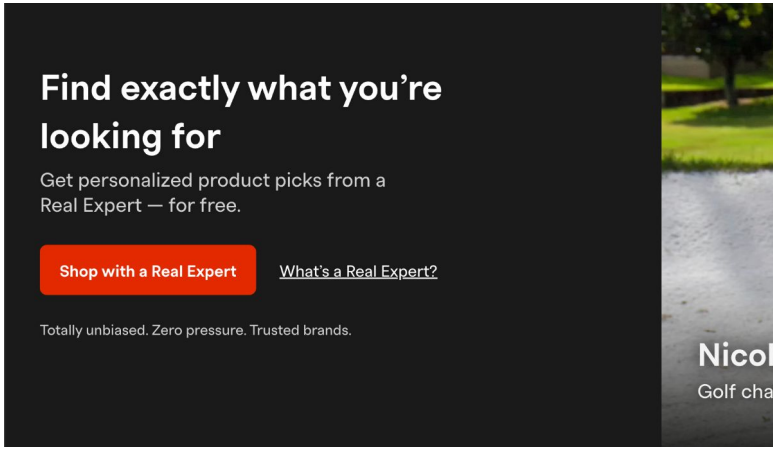
Solution

- We have two problems:
  - If we add new tracking events, we need to wait for enough data to come in for us to release our new feature
  - **Seasonality** and **interaction** make our data unreliable for comparison
- What's the solution?
  - Have both features "live" at the same time!

A/B Testing

An A/B test refers to a **randomized** experimentation process wherein **two or more** versions of a variable (web page, page element, etc.) are shown to different **segments** of website visitors at the **same time** to determine which version leaves the **maximum impact and drives business metrics**.





Terminology

- **Treatment:** A distinct user experience. For example, changing a button's copy to something else for a set of users.
- **Control treatment:** the treatment in which nothing has been changed.
- **Variation:** the treatment(s) where something has been changed.

Implementation

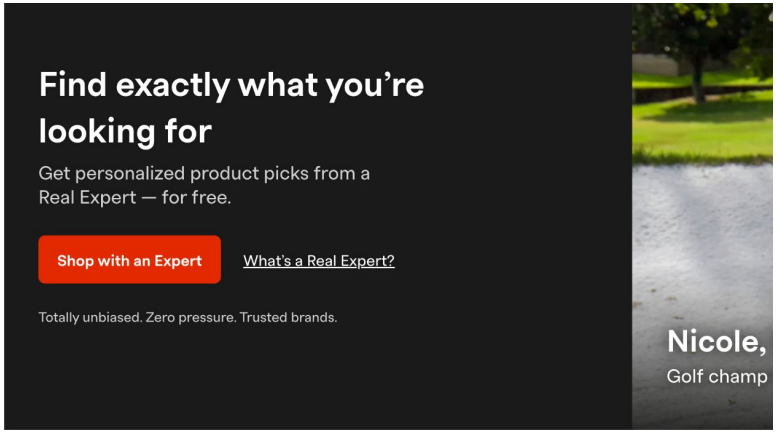
- Experimentation libraries, such as Split and Statsig provide endpoints to run A/B tests in your code.
- Alternatively,
  - Have each user have a unique id
  - This unique id will act as the seed for a random generator
    - Once a user is “bucketed” in one treatment, we don’t want them to be bucketed in another treatment once they reload
  - Track when each user is first exposed to the A/B test
  - Write data analysis code

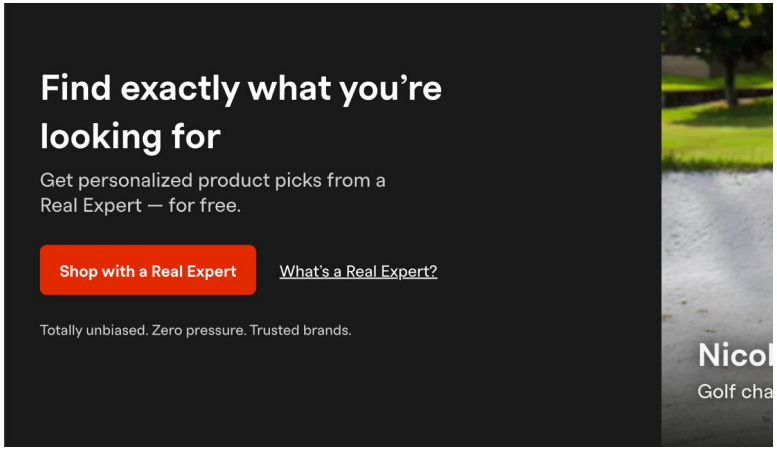
Implementation

- When a user loads a page/endpoint, evaluate which treatment they should be bucketed in.
- We can use a “bucketing” system to assign a range of randomly generated numbers to different treatments.
- If we want 30% of users to be in control, and 70% to be in treatment A, we can assign 30 buckets to control and 70 buckets to treatment A.

Implementation

- Depending on the treatment returned by the experimentation system, we can render our page differently.
  - If control is returned, we keep the original button text.
  - If treatment A is returned, we use the new text.





Solving our problems

- By running our different “**treatments**” of our test at the same time, we can release our feature as soon as we add tracking events.
- **Seasonality** and **interaction** are no longer problems, since they will affect both treatments at the same time (assuming we’ve randomized users correctly)

Further reading

- Holdout experiments
- How do we ramp experiments while keeping data consistency?

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Discussion

10/12/2023

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AI increasingly deployed in financial sector

https://apple.news/AMQ0jfaxsTfuXI80dQWb-YQ

- Used for routine tasks (automation)
  - Validating information, etc
- 70% of the work of a team done by robots
- 20% of banking controls at this firm completed by AI or automation
- Still being closely monitored by human workers, but moves a lot of the workload off of their shoulders
- Exact tasks were a bit vague

AI increasingly deployed in financial sector

1. **If you worked in finance, how would you react to working with AI with respect to money and stocks?**

2. **AI may be validating your banking information already. What do you think of this?**

3. **Do you think an AI model could predict what stocks to buy? What do you think this would do to the economy?**

4. **Stocks are exceedingly random, would you trust the predictions of an AI model?**

Announcements

- If you need to talk to me about CalHacks 10/27-29 PLEASE do so soon!

- DevFest is 10/14! Some of our very own UOP/GDSC students will be speaking at the event in Sacramento. We cannot provide transportation, but feel free to attend on your own or with friends, or join virtually!

- If you have anything cool to present to the club, don't hesitate to message me! We would love to have you!

Upcoming Events

- Wednesday, 10/18, 6-8PM @ CTC 114: **Coding Interview Practice**
- Thursday, 10/19, 6-8PM @ CTC 113: **Game Night**
- Wednesday, 10/25, 6-8PM @ CTC 114: **Website Wednesday Workshop!**
- Thursday, 10/26, 6-8PM @ CTC 114: **Next Biweekly Meet-Up**

QR Codes

Google's Club Platform

Discord

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