

General Analytics exam:

You are a health insurance company with a **monopoly** on health insurance in the state of Texas. Everyone in Texas either has an insurance plan through your company, or they are uninsured. You have access to health insurance plan status and corresponding demographic data for 10,000 Texas residents. You also have county-level demographic profiles and insurance rates for the entire state.

- What types of people tend to be insured, and what types of people tend to be uninsured? Please present your findings. Feel free to use a combination of prose, tables or graphs/visualizations.
- Separately, 2 of your colleagues are disagreeing. One says Latinos are less likely to be insured, the other says that people with lower educations are less likely to be insured. How would you explain your best answer to this question?
- Pick only one of the three modes available (*information below*). Given a \$50,000 budget, design an outreach strategy to expand your customer base across Texas. The goal is to reach as many uninsured consumers as possible. Please identify your assumptions.
- You are told that there will be more budget to spend on outreach in 2 months; make a plan to add a new mode. How would you allocate between the two modes?
- You are also given a smaller budget to spend in the meantime in order to inform your plan of which mode to add? What tests would you run to help inform your allocation plan?

You can present your findings in any format you find helpful.

Supporting Information

Plans available in TX (inclusive):

- Plan Red
- Plan Blue

Data:

- 10,000 individual-level records of Texas residents you've conclusively identified as having one of the following:
 - Plan Red
 - Plan Blue
 - No insurance
- County-level census demographic information and insurance rates.
- County to media market to region translation table.

Outreach information by mode:

- Mail

- Assume that you can't identify individuals to mail, but instead will decide on the county-level whether to mail the entire county or not.
- If you decide to mail at all, there is a \$2000 fixed cost to contract a mail vendor.
- Additionally, it costs \$0.50 to mail each person you decide to mail.
- Assume that mail actually only reaches 75% of the intended recipients.
- TV
 - Assume that you can purchase blocks of ads that are expected to reach 5,000 targets each. The average costs of a single ad block in each region of Texas are:
 - North Texas: \$8,000
 - West Texas: \$2,500
 - East Texas: \$5,000
 - South Texas: \$3,000
- Facebook
 - Assume that you can target Facebook ads by county, age bucket (listed below) and income range (also below). In Texas, average costs of getting someone in each age and income bucket to click on your ad are given below:

Age range	Income range	Average cost per click on Facebook ad
18 - 35	< \$50,000	\$0.75
18 - 35	> \$50,000	\$1.00
36 - 64	< \$75,000	\$0.50
36 - 64	> \$75,000	\$0.75
65 and over	< \$60,000	\$0.25
65 and over	> \$60,000	\$0.75