Cartesian Practice Case Interview
In this practice case, we will give you an opportunity to see the types of questions we ask in case interviews and what we’re looking for. Today, we’re going to talk about Groupon.

### Groupon Overview

Groupon negotiates big discounts – usually 50%-90% off – with popular businesses, then offers these daily deals to a massive user base via a daily digest email.

<table>
<thead>
<tr>
<th>Founded in:</th>
<th>November 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues (2013):</td>
<td>Est. $2,600 M</td>
</tr>
</tbody>
</table>

### How It Works

- A business offers a steeply discounted deal, usually in one of two forms
  - A dollar / gift certificate discount (e.g., $10 for $20 worth of food)
  - A heavily discounted item or service (e.g., $50 for a $100 massage)
- Groupon splits the revenue from the deal with the business, usually 50-50
  - If the deal costs $100, Groupon gets $50 and the business gets $50
- For the user, the Groupon is “use it or lose it” – must use entire value of Groupon at that time
- The business can set a minimum number of deals sold and an expiration date for the Groupon

This online case is not intended to mirror precisely a 30-45 minute in-person case interview, but rather is meant to probe the same type of thinking and analysis we expect from you. So please, don’t worry if this takes you longer. Take your time thinking through the questions. We hope you find the exercise helpful.
Question 1

Why might a business choose to run a Groupon deal?

Turn to the next page for Cartesian answers and explanation.
Question 1: Cartesian Answer

To raise awareness generally; to inform customers of new products or locations; to launch a promotion; or for any number of other reasons.

A business may think that if they can get customers in the door, they can keep them for much longer. This works well in industries that typically have low levels of switching and shopping around.

Some companies get lots of business during certain times of year and very little during others. A Groupon might help drive sales in off-peak periods to cover fixed costs.

A Groupon might entail a heavy discount but, if it’s profitable, could still be worth it. Groupons offer vendors the ability to price-discriminate while protecting standard pricing.

What We’re Looking For

- **Issue Identification**: Can you apply general business thinking to identify the key drivers that might motivate a business to participate in a Groupon deal? *It’s okay to start work from specifics to generalizations or vice versa.*
- **Structure**: Set up your response in an organized fashion. Feel free to take a moment to structure your thoughts on paper before answering the question.
- **Communication**: Be clear, cogent, and persuasive. Try to keep responses short, saying just what needs to be said.
- **Poise**: Be prepared to come up with a more than these four – and try not to get intimidated if the interviewer keeps asking you for more ideas.

Turn to the next page for Question 2
Question 2

How should a business determine whether or not to run a Groupon?

a) What are the key factors to consider?

b) Walk through the calculation of determining whether or not a Groupon deal is worth it. Feel free to come up with your own numbers, but be sure to have rationale for why you chose them.

Let’s take a pizza shop as an example.
# Question 2a: Cartesian Answer

## What We’re Looking For

- **Issue Identification**: Can you identify the key *drivers* that will affect the economics of a Groupon deal? Do you understand the basics of the deal structure? The fundamentals of a generic business (e.g., variable costs and relationship to revenue)?

- **Problem Structuring**: Can you take these key factors and explain how they relate to the decision-making process, like which outcomes would be better or worse for the business in question and why?

## Business’ Cost Structure

What are the *variable* costs associated with making the pizza relative to the revenue derived from every slice? If they’re relatively high, it may be hard for a restaurant to justify giving a steep discount *and* a 50% cut to Groupon. If they’re low, the business may be willing to take a bit of a hit on the margin in exchange for publicity and the potential for future repeat customers.

## Est’d % of Customers that Will Return at Full Price

Does the pizza shop think it can convert Groupon customers into full-price buyers after the fact? How many? This will contribute to whether it can recoup the costs of offering the Groupon.

## Breakage

This is a term used to describe the number of people who buy the deal but never redeem it. For the restaurant, this is just free money. The more breakage, the better.

## % that Underspend/Overspend

Can the restaurant structure the Groupon in such a way that customers may be likely to spend more or less than the dollar amount of the Groupon? In either case, the restaurant benefits.

- **Bonus**: Which scenario is better for the restaurant? Underspending or overspending?
### Overall Breakeven Calculation

On the whole, the business will look at two factors – revenue and cost – to determine the profitability of running the Groupon. First, we identify the components that make up revenue and cost, then solve for these components on the following slides.

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deal Revenue</strong></td>
<td><strong>Variable cost. We’ll express this as a % of the revenue / retail value of the goods sold</strong></td>
</tr>
<tr>
<td>The portion of the Groupon deal/price that actually goes to the restaurant</td>
<td></td>
</tr>
<tr>
<td><strong>Overspend Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>Revenue resulting from people who spend more than the value of the Groupon (at the time they redeem the Groupon)</td>
<td></td>
</tr>
<tr>
<td><strong>Follow-On Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>Revenue resulting from people who come back after using the Groupon and pay normal price</td>
<td></td>
</tr>
<tr>
<td><strong>Base Retail Value</strong></td>
<td><strong>Underspend Retail Value</strong></td>
</tr>
<tr>
<td>Retail value of goods bought using Groupon</td>
<td>Retail value of Groupon “dollars” not spent. (This is essentially a negative value.)</td>
</tr>
<tr>
<td><strong>Overspend Retail Value</strong></td>
<td><strong>Follow-On Revenue Retail Value</strong></td>
</tr>
<tr>
<td>Retail value of goods sold above and beyond Groupon deal from overspend at the time of the deal redemption</td>
<td>Retail value of goods sold to people who come back after using the Groupon and pay normal price</td>
</tr>
</tbody>
</table>
**Question 2b: Cartesian Answer (Part 2 of 4)**

<table>
<thead>
<tr>
<th>Cartesian Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># Deals Sold</strong></td>
</tr>
<tr>
<td><strong>Deal price</strong></td>
</tr>
<tr>
<td><strong>Groupon Share</strong></td>
</tr>
<tr>
<td><strong>Deal Revenue</strong></td>
</tr>
</tbody>
</table>

**Revenue**

- **# of People Who Overspend** | 20% |
- **% of People that Redeem** | 8,000 |
- **Avg. Amount Overspent** | $5 |
- **Overspend Revenue** | $8,000 |

- **% of Customers that Will Return** | 20% |
- **# of People that Redeem** | 8,000 |
- **Avg. Amount per Visit** | $20 |
- **Avg. # Visits** | 1 |
- **Follow-On Revenue** | $32,000 |

**Total Revenue** | $90,000

- Assumption: Pick an easy number that’s in the ballpark
- Assumption: Assume you’re selling $10 for $20 worth of food
- Terms of the deal
- A Rice University study found that ~35% people overspend. Just pick something reasonable
- Also open to interpretation. That same Rice study found that ~80% of buyers redeem their deals
- Probably not by much given the deal is so cheap and this is a pizza shop
- Up for argument. 20% on average according to Rice study
- From above
- Assuming the deal is priced reasonably, it’s probably close in $ amount (maybe +/- 10% or 20%)
- Will depend on the period you want to consider. Over next year? Lifetime of business?

= Assumption  = Calculation
Question 2b: Cartesian Answer (Part 3 of 4)

### Retail Value of Goods

<table>
<thead>
<tr>
<th># of People that Redeem</th>
<th>Retail Value of Deal</th>
<th>Base Retail Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,000</td>
<td>$20</td>
<td>$160,000</td>
</tr>
</tbody>
</table>

Terms of the deal: Retail value of goods bought using Groupon

<table>
<thead>
<tr>
<th># of People that Underspend</th>
<th>Avg. Amount Underspent</th>
<th>Underspend Retail Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>-$2.50</td>
<td>-$2,500</td>
</tr>
</tbody>
</table>

Consider as negative number

Retail value of goods sold above and beyond Groupon deal – from overspend at the time of the deal and follow-on business (derived on previous slide)

<table>
<thead>
<tr>
<th>Overspend Retail Value</th>
<th>Follow-On Revenue Retail Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$8,000</td>
<td>$32,000</td>
</tr>
</tbody>
</table>

### Cost

Cost of Goods Sold (COGS) as % of Revenue: 30%

Variable cost expressed as percent of revenue / retail value of goods sold

<table>
<thead>
<tr>
<th>Total Retail Value of Goods Sold</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$197,500</td>
<td>$59,250</td>
</tr>
</tbody>
</table>

Sum of Base Retail Value, Underspend Value, Overspend Value, and Follow-On Value

Total Cost: Multiply 30% by Total Retail Value of Goods Sold. Does not include fixed costs (e.g., rent, staff)

- First, we find the total retail value of goods sold as a result of the deal (first 3 rows)
- Then we solve for the cost to deliver those goods (bottom row) – assume it as a percent of the retail value of the goods and multiply through
Question 2b: Cartesian Answer (Part 4 of 4)

### Profit/Loss

<table>
<thead>
<tr>
<th></th>
<th>Total Revenue</th>
<th>Total Cost</th>
<th>Total Profit/Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>$90,000</td>
<td>$59,250</td>
<td>$30,750</td>
<td></td>
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</tbody>
</table>

#### Bonus:

What if the deal resulted in a net loss for the business? Could it still be justifiable? How? (*Hint: think back to Question 1*)

Other factors to consider might be:

- The number of customers that bought the Groupon that were not new (e.g., regulars) and therefore might have come in anyways and paid full price had the Groupon not been available
- Brand impact
- Impact on other customers (e.g., angering other customers due to Groupon-induced overflow)

The ability to identify – and better still, to quantify – these factors would take your answer from good to great. How might you account for these?

### What We’re Looking For

- **Problem Structuring:** Can you take the factors discussed in the previous question and clearly set up how where they fit into calculation?
- **Quantitative Facility:** Are you comfortable with numbers? Can you do the basic math with relative facility? Don’t be afraid to take out your pencil and paper.
- **Basic Rationale:** You’ll be asked to come up with your own numbers. No one expects you to be a business expert, but are your numbers reasonable? Can you defend them?

### Turn to the next page for Question 3
Question 3

Based on the outcome of Question 3, what types of businesses and what types of deals are best-suited to the Groupon model?

Turn to the next page for Cartesian answers and explanation
### Question 3: Cartesian Answer

<table>
<thead>
<tr>
<th>Cartesian Answer</th>
<th>Example</th>
<th>What We’re Looking For</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Types</strong></td>
<td></td>
<td><strong>Synthesis</strong>: Can you take all the information we’ve discussed in the previous questions and tease out the key takeaways? Do you understand the higher-level implications of the issues previously discussed? Can you summarize these takeaways in a structured and cogent manner? Once again, it’s okay to start work from specifics to generalizations or vice versa.</td>
</tr>
<tr>
<td>• <strong>Low Variable Cost as % of Revenue</strong>: This is a key driver of deal profitability. Businesses with low costs relative to revenue can support a steep discount and the 50% payout to Groupon.</td>
<td>Business that offer recreational activities (e.g., skydiving), events (e.g., sports, concerts), and gyms</td>
<td></td>
</tr>
<tr>
<td><strong>Bonus</strong>: An excellent answer might include a discussion of the balance between fixed and variable costs. If a business has really high fixed costs, how might that impact its interest in sacrificing on the margin through the use of a Groupon?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Encourage Breakage</strong>: Deals with aptly planned expiration dates will drive breakage up and redemption down – free money for the business, since it incurs no cost. By the same token, businesses do need to consider potentially negative impacts on customer perceptions/satisfaction.</td>
<td>Business gives 1-month window for a promotional Groupon</td>
<td></td>
</tr>
<tr>
<td>• <strong>Encourage Overspending</strong>: Carefully priced deals will incent customers to spend more than the value of the Groupon. While underspending is good for the business, too, don’t forget that the business still incurs a higher cost on these dollars given the discount on the deal and the payout to Groupon. For this reason, overspending is preferable.</td>
<td>Restaurant knows average check price is $50, so offers Groupon for $40 worth of food</td>
<td></td>
</tr>
<tr>
<td>• <strong>Encourage Follow-On Business</strong>: The Groupon and customer experience ought to be designed in such a way that customers leaves feeling like they want to come back, and even better, tell their friends. That is where the business will end up making money in the long run.</td>
<td>Business makes concerted effort to ensure Groupon experience is positive, asks for feedback, etc.</td>
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</tbody>
</table>

### Deal Types

<table>
<thead>
<tr>
<th>REVENUE</th>
<th>COSTS</th>
<th>$</th>
<th>$</th>
<th>$</th>
<th>$</th>
</tr>
</thead>
</table>

**Business**
- Restaurant knows average check price is $50, so offers Groupon for $40 worth of food
- Restaurant makes concerted effort to ensure Groupon experience is positive, asks for feedback, etc.

**Deal Types**
- Business gives 1-month window for a promotional Groupon
- Restaurant knows average check price is $50, so offers Groupon for $40 worth of food
- Business makes concerted effort to ensure Groupon experience is positive, asks for feedback, etc.
Next Steps

Practice

Practice

Practice