Thinkful Data Science Immersive

Unit 1, Lesson 1 Drill

1.1.4

Question 1

You work at an e-commerce company that sells three goods: widgets, doodads, and fizzbangs. The head of advertising asks you which they should feature in their new advertising campaign. You have data on individual visitors' sessions (**activity on a website**, **pageviews**, and purchases), as well as whether or not those users **converted** from an advertisement for that session. You also have the cost and price information for the goods.

Answer

Examine and compare the percentage of sessions that converted from an advertisement and those which did not. This may determine if advertisements are profitable. Next drill down to compare what product was purchased and also compare the profit (from cost and price), to study what product had the highest margins. Examine the highest pageviews and if those pageviews resulted in a purchase.

Question 2

You work at a web design company that offers to build websites for clients. Signups have slowed, and you are tasked with finding out why. The **onboarding funnel** has three steps: email and password signup, plan choice, and payment. On a user level you have information on what steps they have completed as well as timestamps for all of those events for the past 3 years. You also have information on **marketing spend** on a weekly level.

Answer

Study the full three years and track changes particularly if increases or decreases correlate with any platform or application changes. Also, examine any correlation with the weekly market spend. Study and specifically visualize where the customers stop in the funneling process. Can the funnel process be simplified or combined?

Question 3

You work at a hotel website and currently the website ranks search results by price. For simplicity's sake, let's say it's a website for one city with 100 hotels. You are tasked with proposing a better ranking system. You have session information, price information for the hotels, and whether each hotel is currently available.

Answer

Study the session information and break down that info. Completed transactions, possible repeat customers. The would allow ranking according to popularity (Hot Property!). Examine the session information to compare if availability or lack thereof

effects completion of transaction. Another ranking would then be considered availability, and how fast a property is being book.

Question 4

You work at a social network, and the management is worried about **churn** (users stopping using the product). You are tasked with finding out if their churn is atypical. You have three years of data for users with an entry for every time they've logged in, including the timestamp and length of session.

Answer

First track time of day and length of session. Compare year-over-year, the number of times logged, the length of session, and the timestamp. This may verify if customers are lost, or if behaviors have changed.

Definitions

Session – in web analytics a session, also called a visit, is a unit of measurement of a user's actions taking within a) a period of time or b) with regard to a completion of a task (navigation oriented). Sessions are also used in operational analytics and provision of user-specific recommendations.

> Two approaches to studying and/or manipulating
> Time-oriented approach based on continuity in user activity
> Navigation-based based on continuity in chain of requested pages.

Funnel Analysis is a method of understanding the steps required to reach an outcome on a website and how many user get through each of those steps. The set of steps is referred to as a "funnel" because the typical shape visualizing the flow of users is similar to a kitchen funnel.

Marketing spending is an organization's total expenditure on marketing activities. This typically includes advertising and non-price promotion. *(what is non-price promotion?)* In a survey of 200 senior marketing managers, 52% responded that they found the "marketing spending" metric very useful.

To predict how selling costs change with sales, a firm much distinguish between fixed selling costs

is an organization's total expenditure on marketing activities. This typically includes advertising and non-price promotion. It sometimes includes sales force spending and may also include price promotions. In a survey of nearly 200 senior marketing managers, 52 percent responded that they found the "marketing spending" metric very useful.[1]
To predict how selling costs change with sales, a firm must distinguish between fixed selling costs and variable selling costs. Recognizing the difference between fixed and variable selling costs can help firms account for the relative risks associated with alternative sales strategies. In general, strategies that incur variable selling costs are less risky because variable selling costs will remain lower in the event that sales fail to meet expectations.[1]

https://en.wikipedia.org/wiki/Marketing_spending#cite_note-Marketing_Metrics-1

Churn rate (sometimes called **attrition rate**), in its broadest sense, is a measure of the number of individuals or items moving out of a collective group over a specific period. It is one of two primary factors that determine the steady-state level of customers a business will support. The term is used in many contexts, but is most widely applied in business with respect to a contractual customer base, for example in businesses with a **subscriber-based service model** such as mobile telephone networks and pay TV operators. The term is also used to refer to participant turnover in peer-to-peer networks. Churn rate is an input into customer lifetime value modeling, and can be part of a simulator used to measure return on marketing investment using marketing mix modeling.[1]

Churn rate, attrition rate, is a measure of the number of individuals or items moving out of a collective group over a specific period of time. It is one of two primary factors that determine the steady-state level of customers a business will support.

Steady state – if there state variables which define the behavior of the system or the process are unchanging in time.