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Becoming a data-driven marketer

As digital transformation continues to pick up steam, organizations are increasingly turning to digital platforms and channels for their marketing efforts. As a result, organizations today have a significant amount of data they can easily analyze to optimize their marketing efforts. However, many companies are struggling to generate this value. In the most recently published **CMO survey**, it was reported that over 50% of organizations cannot show the long-term impact of their marketing quantitatively. **HBR reports** that there was a 198% increase in the allocation of the marketing budget towards marketing analytics. This increase in spending is a result of a large gap between the potential of marketing analytics data and what is currently being achieved. **Another survey** found that 43% of organizations do not have adequate tools or skills to take data-driven action.

Technology companies that were born with data in mind are already successfully leveraging marketing analytics to drive ROI. For example, **Netflix's recommendation system reportedly** contributes to over 80% of its streamed content meaning it does not need to spend much money on advertising its shows. This model greatly reduces advertising spending to allow Netflix to allocate spend to customer acquisition and other marketing campaigns. **Netflix also** uses complex customer segmentation techniques to market new shows. They reportedly cut 10 different trailers for House of Cards, each with different focuses for different customer viewing preferences. Similarly, companies like **Airbnb are leveraging data** to give better customer experiences, improve their UX and UI, and optimally price bookings. These outcomes are all a result of leveraging data to make decisions. These strategies being leveraged by industry leaders generate significant ROI. **In a study conducted by Boston Consulting Group (BCG) and Google**, they found that organizations that are successfully leveraging marketing analytics see upwards of 30% in cost efficiency savings and 20% increase in revenue.

Over 90% of marketers believe online personalization is a critical component of their business and that high-performing brands use customer data for their marketing decisions according to **Neil Patel**. However, 95% of data in organizations is currently untapped and many organizations are struggling to collect data frequently enough or to turn their data into actionable insights.

The upskilling opportunity for marketing teams

A key hurdle to generating this value is the data talent shortage. These insights and actions available in marketing analytics require trained data professionals to collect, clean, analyze, and communicate information to decision-making stakeholders. The number of data scientists available relative to open job positions and available data is very difficult to overcome with **a shortage of close to 190,000 jobs in the U.S. in 2018**. The shortage has continued more recently as data positions ranked in the top three twice in **LinkedIn's annual emerging jobs report** in 2020. With this significant shortage in general data scientists, the shortage for data scientists with marketing subject matter expertise is significantly larger.

Despite the talent shortage, marketing analysts and specialists are expected to analyze, discuss, and argue with data insights more than ever before. As such, the path to bridging the gap between subject matter expertise and data-driven insights lies within focussed upskilling, which enables teams to quickly get up to speed on the latest data tools, technologies, and concepts, and quickly begin applying their learnings.

In this guide, we will introduce 10 data science use cases marketing analysts can start leveraging today to supplement their subject matter expertise, alongside expert-crafted resources to kickstart your learning journey.

Want to learn more about which tool is applied where?
Read our leader's guide to upskilling

10 data science use-cases in marketing

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Create a single source of truth by working with APIs

Marketers are increasingly working with various tools and platforms like Salesforce, Marketo, HubSpot, Google Analytics, and more. A common pitfall to this multi-tool approach is the ease with which marketers can drown in data, as there is no easy connective layer that lets organizations centralize the insights coming from these siloed tools. This is where APIs come in to enable marketers to create a single source of truth for their marketing endeavors.

In a 2017 article, **McKinsey** stated that effectively APIs are "the connective tissue in today's ecosystem". Put simply, APIs allow marketers to connect these disparate tools and merge their data using a programming language like Python or R. While it may not be glamorous, having a panoramic view over your customers' journey, and the insights that can be drawn from this vantage point is the basis of any form of efficiency or optimization gained through data science.

APIs are the backbone of data democratization strategies at high-performing organizations like **Airbnb**, **Uber**, and **Lyft**. These organizations are spending significant resources to develop these technologies so that marketers scientists at these organizations can easily access and trust the quality of the petabytes of data these organizations generate to aid in important decisions despite these complex data landscapes.

| Skills Needed	Tools	Recommended Courses and Tracks
• Programming • Data manipulation • Data cleaning • Data visualization	Python or R	**Importing and Cleaning Data with R Skill Track (14 hours, 4 courses, 1 project)** **Importing and Cleaning Data with Python Skill Track (17 hours, 5 courses)** **Streamlined Data Ingestion with pandas**

2 **Create better targeted campaigns with customer segmentation.**

Customer segmentation is the idea of dividing customers into groups such that there are similarities among members of the same group. This allows marketers to tailor ads to specific customer segments to improve advertising campaigns' KPIs.

Organizations should be leveraging their data to segment customers. Bain Consulting demonstrated the success of this idea by generating 20% more enterprise sales for one of their clients. They claim this strategy helped their client beat performance goals and transform their business into a market leader in a newly identified business opportunity. Bain advises that customer segmentation should be leveraged to "tailor offerings to segments that are the most profitable and serve them with distinct competitive advantages."

By leveraging unsupervised machine learning algorithms that take up no more than 10 lines of code using Python or R, marketers can quickly experiment with creating customer segments based on key behavioral and demographic data. If done correctly, this allows for more efficient marketing spend by increasing conversions and improving retention.

| Skills Needed	Tools	Recommended Courses and Tracks
• Programming • Data manipulation • Data cleaning • Machine learning • Statistical analysis	Python or R Tableau	**Marketing Analytics with R** (24 hours, 6 courses) **Marketing Analytics with Python** (24 hours, 6 courses) **Customer Segmentation in Python** **Cluster Analysis in R** **Statistical Techniques in Tableau** Tableau Fundamentals (**22 hours, 4 courses**)
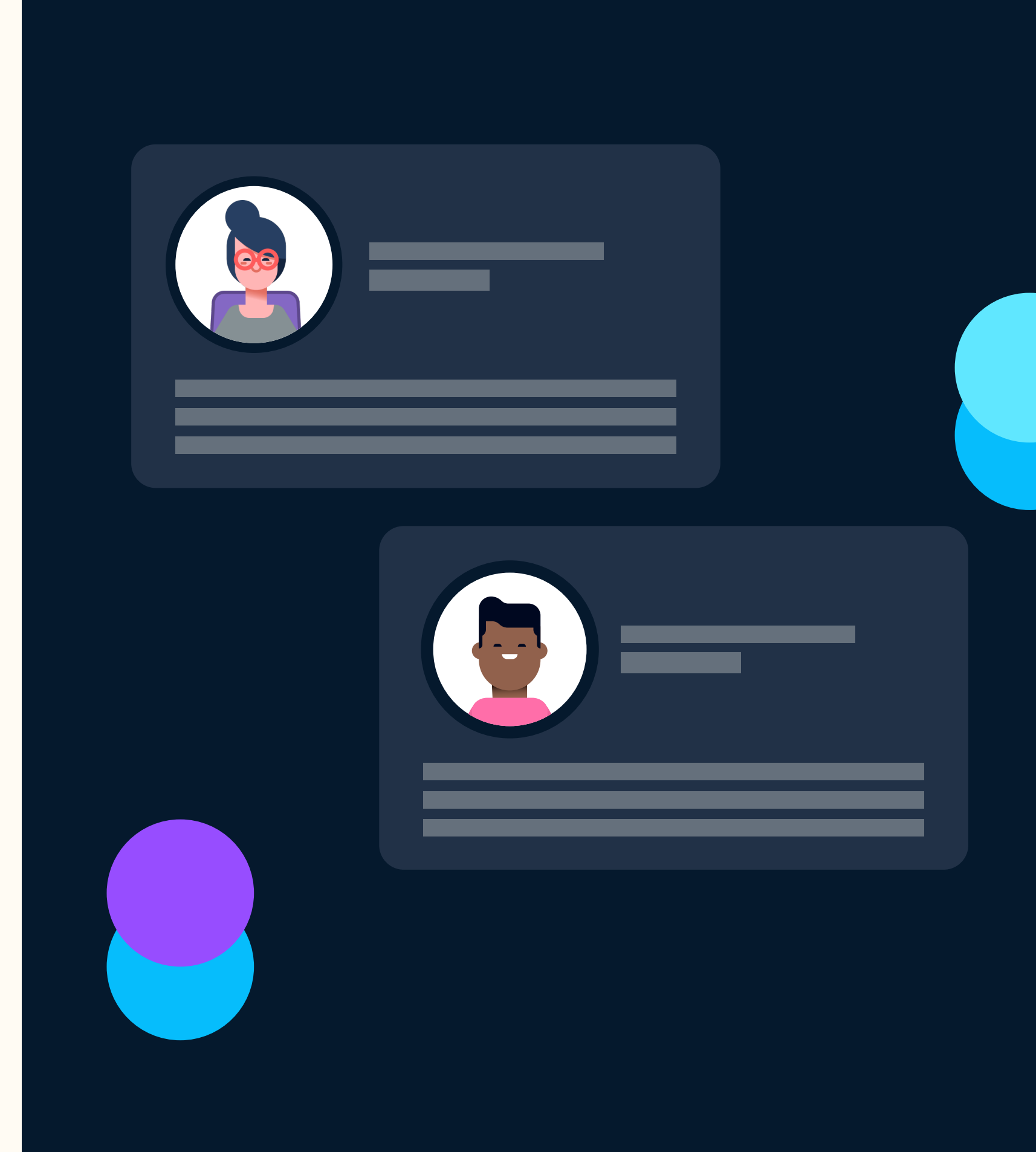
Improve customer retention and optimize marketing campaigns with customer churn prediction

Customer churn prediction models are an important weapon of a data-driven marketing organization. Customer churn is the rate at which customers stop using a company's product or services over a specific period. Understanding which customers are at risk of leaving and targeting effective advertisements at them is a great way to optimize marketing spend and improve retention.

Bain showed that a 5% increase in customer retention can lead to a 25% increase in profit. This is because repeat **customers generate 67%** more value to organizations than one-time customers. Further, **Accenture found** in a survey of over 24,000 customers, that 80% of consumers who switched service providers thought the company could have retained them by taking some action. In this study, Accenture created an index they call the "Keep Me Index" which accurately predicted changes in customer churn risk. This shows not only is customer churn predictable, but that marketing teams can start exploring their churn data for better retention campaigns.

Skills Needed	Tools	Recommended Courses and Tracks
• Programming • Data manipulation • Data cleaning • Machine learning	Python or R	**Marketing Analytics with R** (24 hours, 6 courses) **Marketing Analytics with Python** (24 hours, 6 courses) **Machine Learning for Marketing in Python** **Marketing Analytics: Predicting Customer Churn in Python** **Intermediate Regression in R**
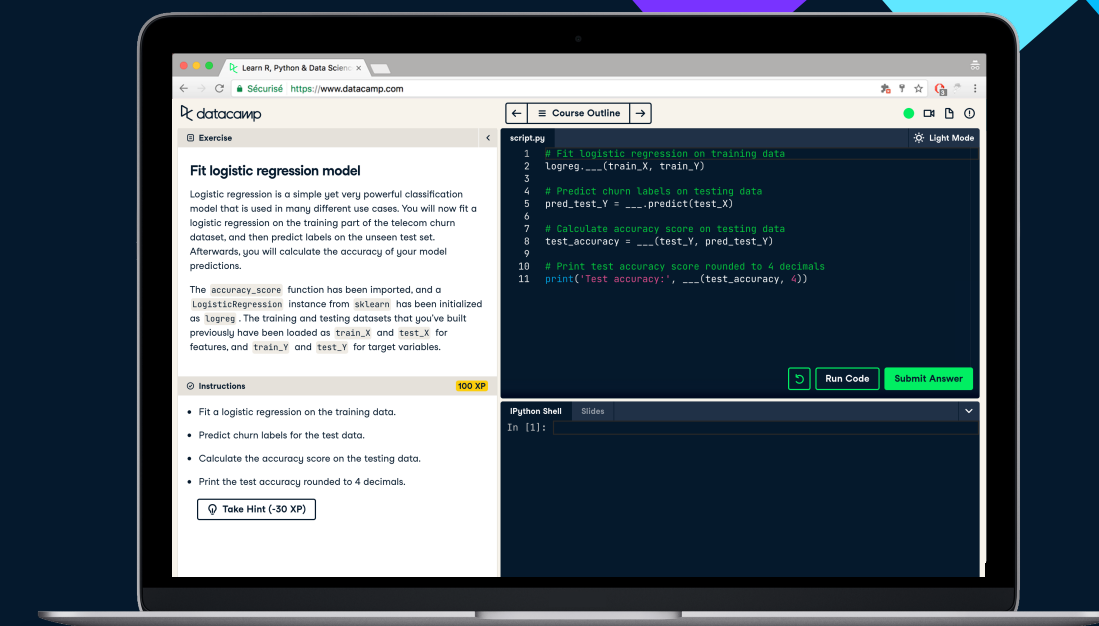
Skill up on your Machine Learning in Python - we've got a course just for you!

Start Course Today

Experiment with A/B testing

A/B testing is a critical component of many business decisions and has been described as the "gold standard" for learning cause and effect relationships in direct marketing. A/B testing is an experiment framework where the goal is to optimize one decision versus another. A simple use-case could be understanding the impact two different email subject lines can have on open rates Another example is in designing landing pages, where marketers can compare, landing page design A or design B, and compare engagement results between the two pages. The difference in results is the causal effect of using one design of the webpage over the other.

This type of information is very valuable to any marketing team. Understanding the impact of a decision, before deploying it to all customers can have a significant impact on underlying business returns. For example, **Netflix** generates 20 to 30 percent more views by changing the picture associated with a movie or TV show through A/B testing.

Luckily, a lot of marketing tools like Marketo allow comparison between email subject lines. However, learning the basics of experiment design and A/B testing can greatly benefit a marketing organization's ability to execute flexible and diverse A/B tests within their teams.

| Skills Needed	Tools	Recommended Courses and Tracks
• Data manipulation • Data cleaning • Data analysis • Statistical thinking • Data visualization	Python or R Tableau	**Statistics Fundamentals with Python** (19 hours, 5 courses) **Statistics Fundamentals with R** (20 hours, 5 courses) **A/B testing in R** **Customer Analytics and A/B testing in Python** **Experimental Design in R** **Statistical Techniques in Tableau**
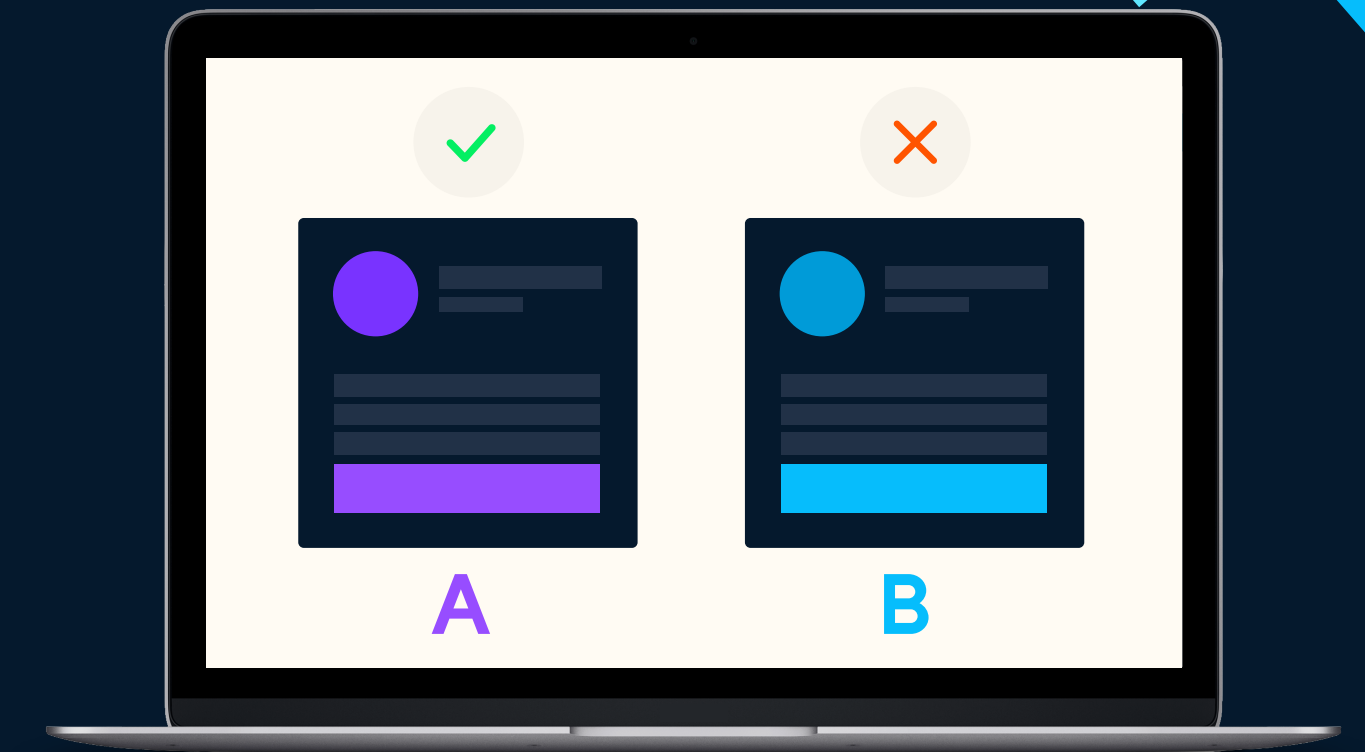
Tell your data story with advanced data visualization

As marketing teams are increasingly asked to describe and report on their strategies and tactics with data-informed insights, the importance of data storytelling has never been more important. Leveraging the full array of possible data visualizations, and reporting best practices, is key to keeping organizations aligned and maintaining stakeholder buy-in. While data storytelling necessitates narrative and presentation skills, data visualization is a key component of effective data storytelling. For example, Hubspot reports that people retain 10% of the information they hear three days later versus 65% of the information when a relevant visualization is displayed with the information.

While already experts in creating visualizations with Excel, Marketers can take their data visualization skills to the next level with focussed upskilling as there are a lot of options for creating advanced data visualizations with business intelligence tools like Tableau and Power BI, as well as open-source Python and R libraries such as `seaborn, ggplot2, and plotly`. All of these tools allow marketers to tell the story behind the numbers and lead the conversation with stakeholders while keeping them engaged and educated.

Skills Needed	Tools	Recommended Courses and Tracks
• Data manipulation • Data cleaning • Data analysis • Data visualization • Reporting	Python or R Tableau Power BI	**Tableau Fundamentals (22 hours, 4 courses)** **Data Visualization with R (12 hours, 3 courses)** **Interactive Data Visualization in R (20 hours, 5 courses)** **Data Visualization with Python (20 hours, 5 courses)** **Improving Your Data Visualizations in Python** **Communicating with Data in the Tidyverse** **Data Visualization in Spreadsheets** **Introduction to Power BI**
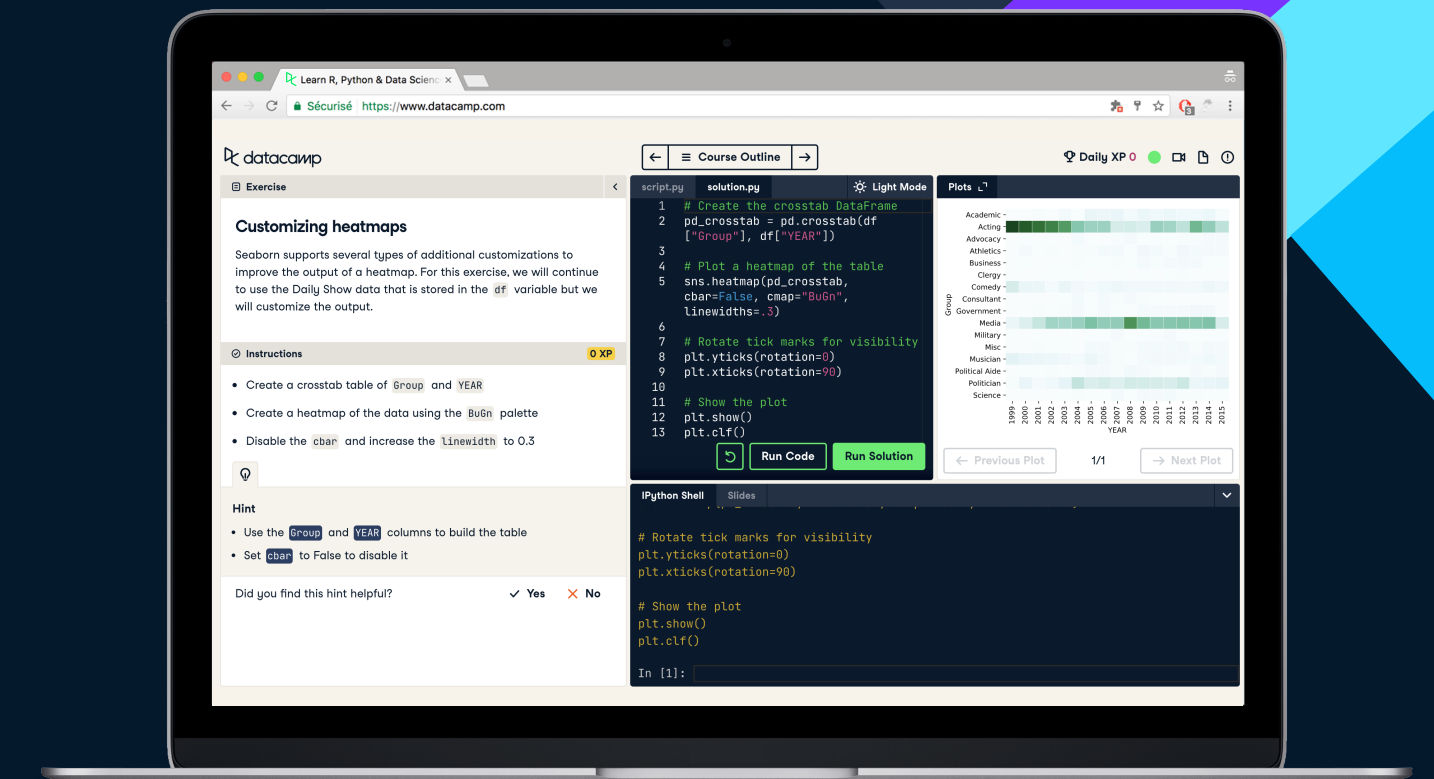
Become a data visualization expert with Python's Seaborn package

Start Course Today

6 Keep your stakeholders informed with interactive dashboards

Building on top of advanced data visualizations interactive dashboards are a great way to keep stakeholders up to date on all the relevant marketing metrics they care about. Marketers are consistently asked to report on metrics across a variety of verticals. From campaign performance metrics like cost per acquisition and cost per lead, to engagement metrics for content marketing initiatives, and much more. Dashboards are one of the solutions to democratizing these insights and enabling stakeholders to find the answers to their data questions

There are a lot of popular dashboarding technologies like Google Data Studio and Tableau along with open source libraries like Dash and Shiny which allow marketers to organize information into dashboards. By leveraging advanced visualizations and working with APIs, advanced skills in dashboarding with user-friendly open source tools like Plotly, Dash and Shiny enable marketers to build full fledged web apps at a fraction of the learning curve of traditional software engineering tools.

Skills Needed	Tools	Recommended Courses and Tracks
• Data manipulation • Data cleaning • Data visualization • Reporting	Python or R Tableau Power BI	Tableau Fundamentals (22 hours, 4 courses) Data Visualization with R (12 hours, 3 courses) Shiny Fundamentals with R (16 hours, 4 courses) Data Visualization with Python (20 hours, 5 courses) Introduction to Data Visualization with Plotly in Python Introduction to Power BI
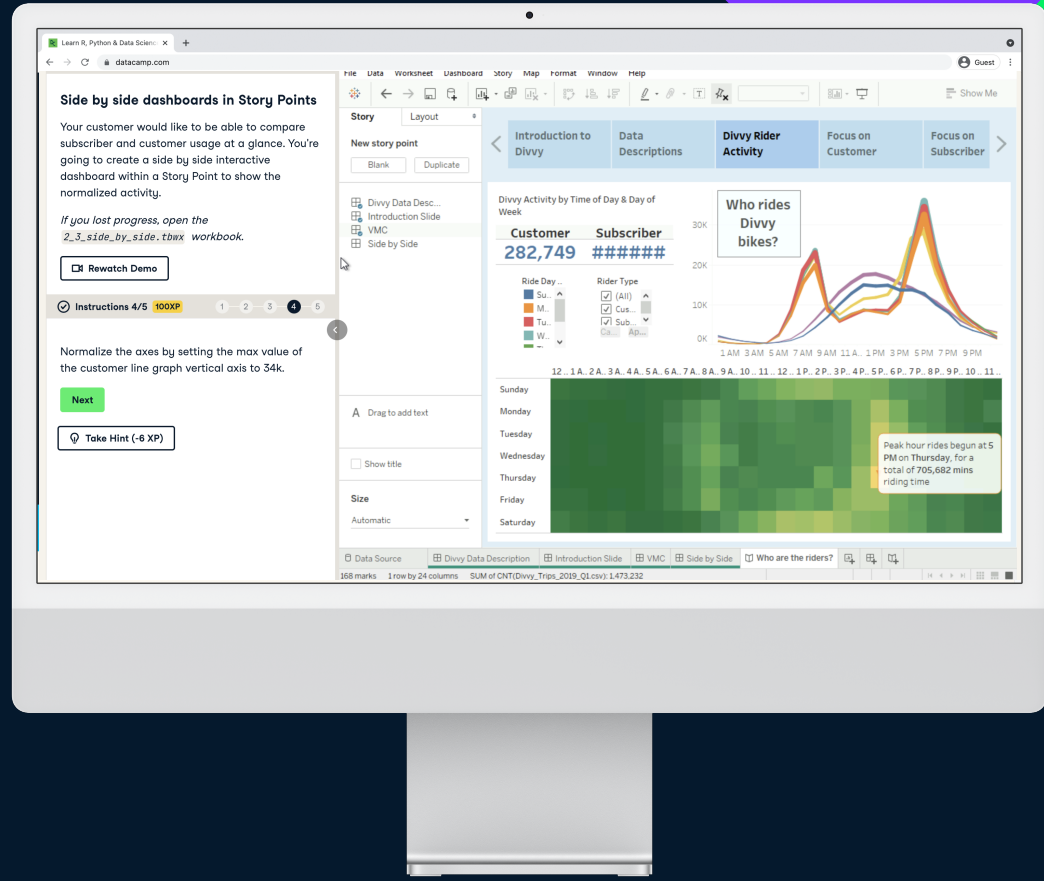
Make your data-stories pop with our Tableau Fundamentals skill track.

Start track now

Improve customer retention with customer lifetime value

According to Hubspot, Customer lifetime value is one of the most important metrics for any growing organization. It gives marketers a projected value a customer will generate for a company throughout their lifetime and an indicator of the strength of the company's relationship with its customers.

This metric can (and should) be leveraged to greatly influence how marketers target, acquire, and retain customers. Peter Fader, Wharton professor and author of Customer Centricity and The Customer Centricity Playbook uses this measure in great detail to describe how a customer-centric model can be leveraged to target high-value customers.

By focusing efforts on customers who will generate more value for a business, marketing teams can improve budget allocation to acquire and retain customers with high customer lifetime values. Moreover, once they personalize their analysis to predicting customer lifetime value for each customer with machine learning, they can optimize retention campaigns for each of those customers.

Skills Needed	Tools	Recommended Courses and Tracks
• Data manipulation • Data cleaning • Machine learning	Python or R SQL	**Marketing Analytics with R** (24 hours, 6 courses) **Marketing Analytics with Python** (24 hours, 6 courses) **Machine Learning for Marketing in Python** **Marketing Analytics: Predicting Customer Churn in Python** **Intermediate Regression in R** **Analyzing Business Data in SQL**
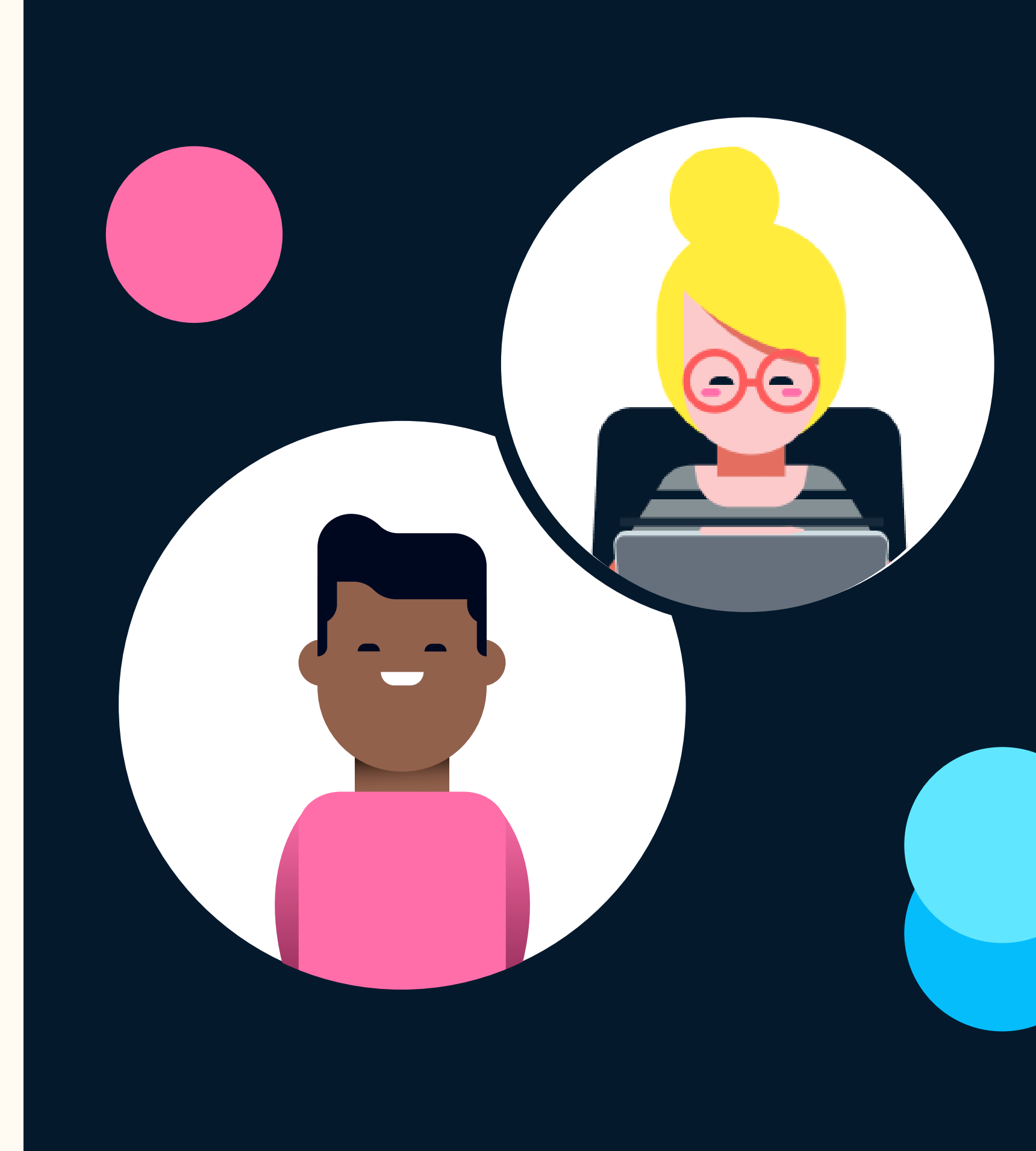
8 Analyze social media data to capture trends and customer sentiment

Understanding how customers are interacting with and reacting to various social media trends is essential to a strong digital marketing strategy. In 2021, Statista reported that over 90% of companies are using social media to market to their customers. This means that every organization can benefit from a better understanding of their customers for a more successful marketing strategy. With natural language processing tools, marketers have the ability to analyze social media text data and get a gauge for their customer bases' sentiment and level of engagement.

Accenture argues that sentiment analysis can be used to provide "marketing and competitive intelligence" as well as improve customer retention. There are many proprietary tools that provide social media data analysis, however, there are many open source libraries in R and Python analysts can adopt that provide out-of-the-box sentiment analysis capabilities.

Skills Needed	Tools	Recommended Courses and Tracks
• Data manipulation • Data cleaning • Natural language processing • Analyzing text data • Machine learning	Python or R	**Natural Language Processing in Python (25 hours, 6 courses)** **Text Mining with R (16 hours, 4 courses)** **Analyzing Social Media Data in R** **Analyzing Social Media Data in Python** **Sentiment Analysis in Python** **Sentiment Analysis in R**

Establish better targets and forecast your KPIs based on historical data with time-series analysis

Like most areas of the business, seasonality affects marketing activity greatly. Throughout the year, marketing results fluctuate based on the nexus of industry, time of year, and consumer confidence.

Time series forecasting can be an essential tool for marketers to better forecast and plan their budgets. By leveraging historical data, marketing teams can set realistic and confident goals. There are many open-source tools on R and Python, that streamline time series analysis and forecasting into bite-size steps. By leveraging these tools, marketers can adopt a dynamic mindset to KPIs and targets.

| Skills Needed	Tools	Recommended Courses and Tracks
• Data manipulation • Data cleaning • Time series analysis • Forecasting	Python or R SQL	**Time Series with Python** (20 hours, 5 courses) **Time Series with R** (25 hours, 6 courses) **Forecasting Product Demand in R** **Visualizing Time Series Data in Python** **Visualizing Time Series Data in R** **Time Series Analysis in SQL Server**

Better understand your customers by analyzing survey data

Survey data is a very useful source for gaining a better understanding of a potential target market. They are a great way to ask a subset of customers how they would react to certain decisions before deploying them to the overall population of that audience. While this is cost-effective and useful in practice, gaining insights from this type of data is essential for its value generation.
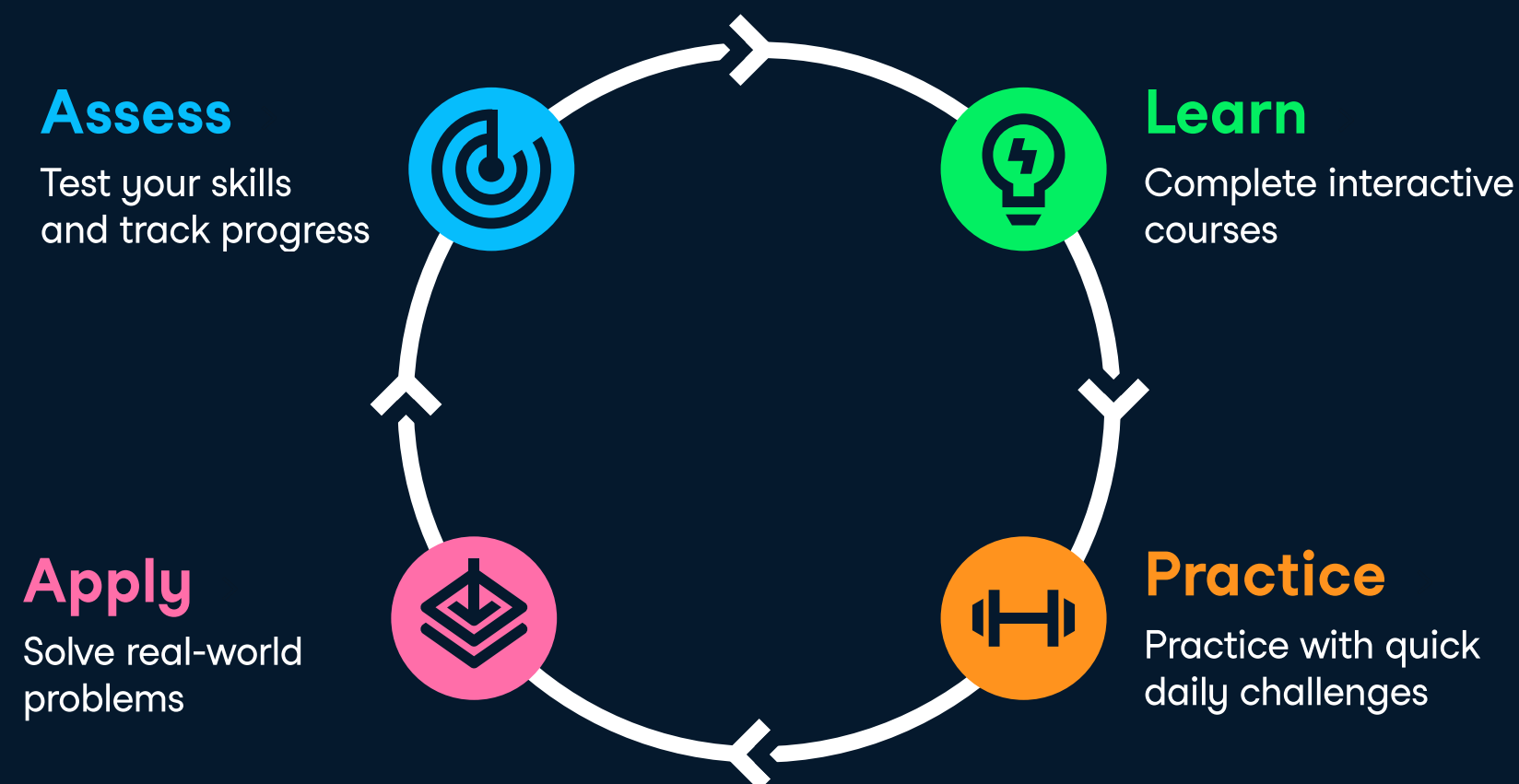
Survey design is a difficult practice that must be done correctly to receive meaningful results from this type of research. In his interview with the Net Promoter System Podcast, Sandy Rogers, managing director of Franklin Covey, describes the process they took in creating a survey that helped them offer a better customer experience. He discusses how they were able to understand not only how the customer felt, but also why. This type of data is invaluable but requires a lot of thought to get the right questions answered. Once this data is collected, marketers can parse the data across a spectrum of tools for useful insights that can help an organization market a product better, offer a better customer experience, or reallocate spending to increase ROI.

Skills Needed	Tools	Recommended Courses and Tracks
• Data manipulation • Data cleaning • Data analysis • Statistical thinking • Data visualization • Reporting	Python or R	**Survey and Measurement Development in R** **Analyzing Survey Data in R** **Categorical Data in the Tidyverse** **Analyzing US Census Data in Python** **Analyzing US Census Data in R**
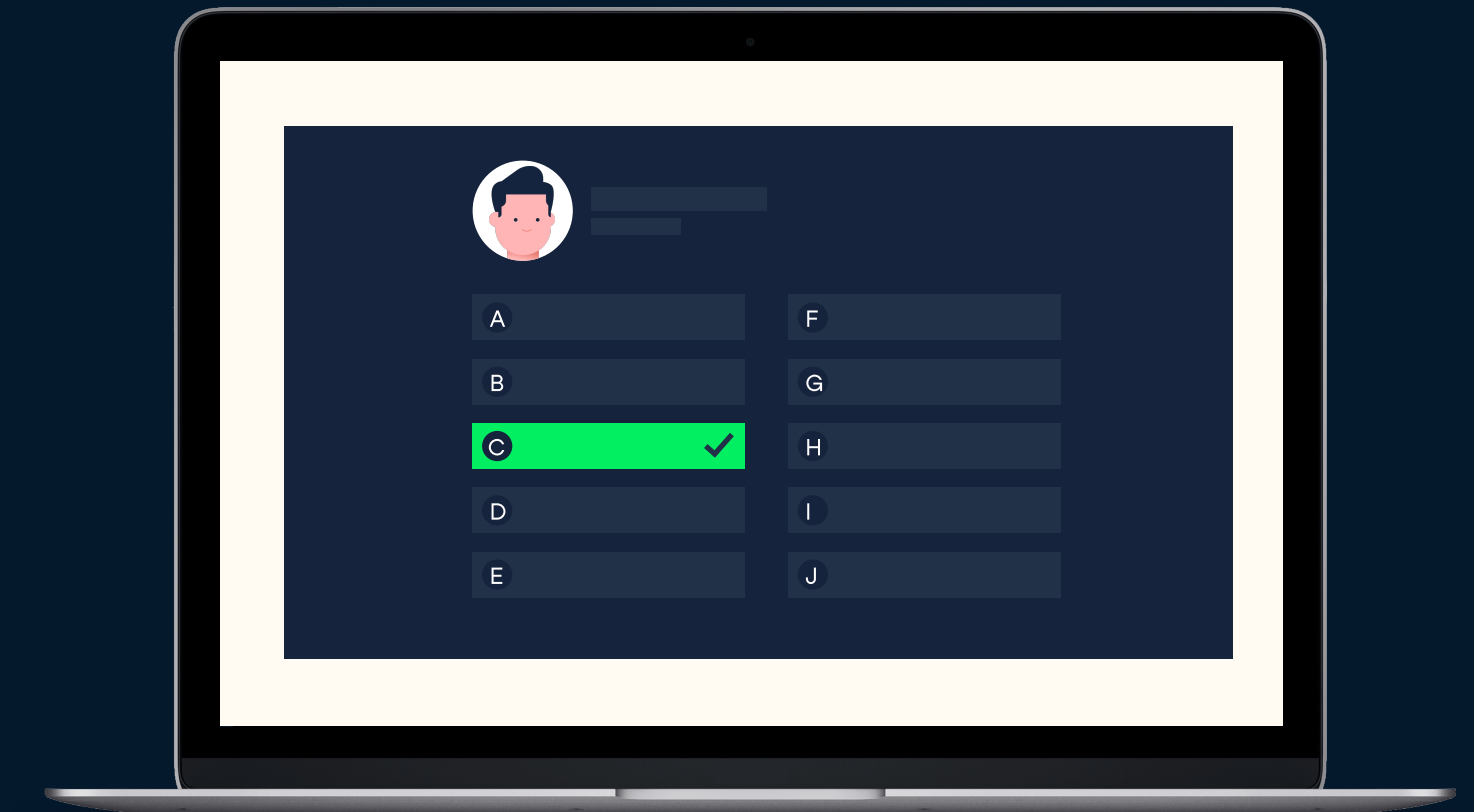
Take your marketing expertise to the next level with DataCamp

DataCamp's proven learning methodology provides a cyclical process for learning and retention. This learning methodology enables learners across the data fluency spectrum to assess their skills and identify gaps, develop a learning plan based on these gaps, practice skills, and apply them in a real-world setting. Marketers of any skill level can upskill on the latest data tools, techniques, and concepts.

Assess
Test your skills and track progress

Learn
Complete interactive courses

Apply
Solve real-world problems

Practice
Practice with quick daily challenges

Secure your personalized demo

For marketers

Assess

Effective learning starts with understanding skill gaps and strengths. With DataCamp Signal™, learners can understand specific skill gaps they have across various topics and tools. From data literacy assessments like understanding and interpreting data to program and machine learning assessments in R, Python, and SQL, our 10-minute adaptive evaluations provide learners with personalized skill gaps and learning paths to address their skill gaps.

Learn

DataCamp's growing course library houses more than 350 expert-led, hands-on courses across various technologies and domains for all data skills and levels. Learners can hit the ground running with our learn-by-doing approach— our bite-sized videos and interactive coding exercises allow them to start working with their preferred tool and topic right in the browser.

Practice

The next step in DataCamp's proven learning methodology is to practice all the information retained in courses. Using practice mode, learners can practice what they've learned with short challenges to test critical concepts. With over 3,400 practice questions, learners can practice their skills across various technologies and topics. Our mobile app is the perfect way to practice and learn on the go.

Apply

Once skills have been assessed, cultivated through courses, and sharpened through practice, learners are ready to apply their skills in a project-based environment. With DataCamp projects, learners can solve a variety of real-world R and Python data science projects. Learners can opt for guided projects, where they can follow step-by-step tasks and receive helpful feedback as they apply their newfound skills. They can also opt for unguided projects, which are open-ended, offering a variety of possible solutions and a live-code-along video to follow how an expert data scientist would approach a solution.

For managers

Create Custom Tracks

DataCamp makes it easy for you to create bespoke learning paths and assignments to meet the needs of all your roles, teams, and departments.

1. Market Basket Analysis in Python `Learn`
What do Amazon & Netflix have in common? They both rely on Market Basket Analysis to provide product recommendations

2. Data Manipulation with Python `Assess`
How have your skills grown? Track your learning progress in this custom track with a short 10 minute skill assessment.

3. Book Recommendations `Project`
Let's apply our skills to see how far you've come. In this capstone project, you'll manipulate and plot time series data.

1. Introduction to Python for Finance
The course introduces Python for financial analysis.

2. Intermediate Python for Finance
Build on top of your Python skills for Finance, by learning how to use datetime, if-statements, DataFramed, and more.

3. Machine Learning for Finance in Python
Learn to model and predict stock data values using linear models, decision tress, random forests, and neural networks.

Set Assignments

Assignments are a great way to set clear, time-sensitive learning goals. On average, courses assigned by Enterprise customers have completion rates that are twice as high as unassigned courses.

XP Gain XP	Course	Chapter
Custom Track	Assessment	Project

Track skills development with skill matrix

Track the data skills your team has today and map a path to the skills they need tomorrow. Using the Skill Matrix, admin users can easily filter to identify individuals with the skills you need to take on specific projects or teams with low use or data skills gaps. They can then create and assign custom tracks to help bridge these gaps and report on skill development.

200	200 ↗	200	200	200	169 ↘
179 ↗	135 ↗	96	68 ↘	128 ↗	96
86 ↗	139	112	95 ↘	197 ↗	127
6 ↗	104	28	58 ↗	7 ↘	19

Certify your people with certifications

Upskill with an industry recognized credential from the leader in data science education*. Our Data Scientist Professional Certification lets businesses recognize qualified talent, both internally as well as during the hiring process.

Manuella is hiring a data scientist

*Based on competitive analysis and current as of June 2021: datacamp.com/why-datacamp

Take your team's data literacy to the next level - with customized, tailored data training

Speak with a learning expert