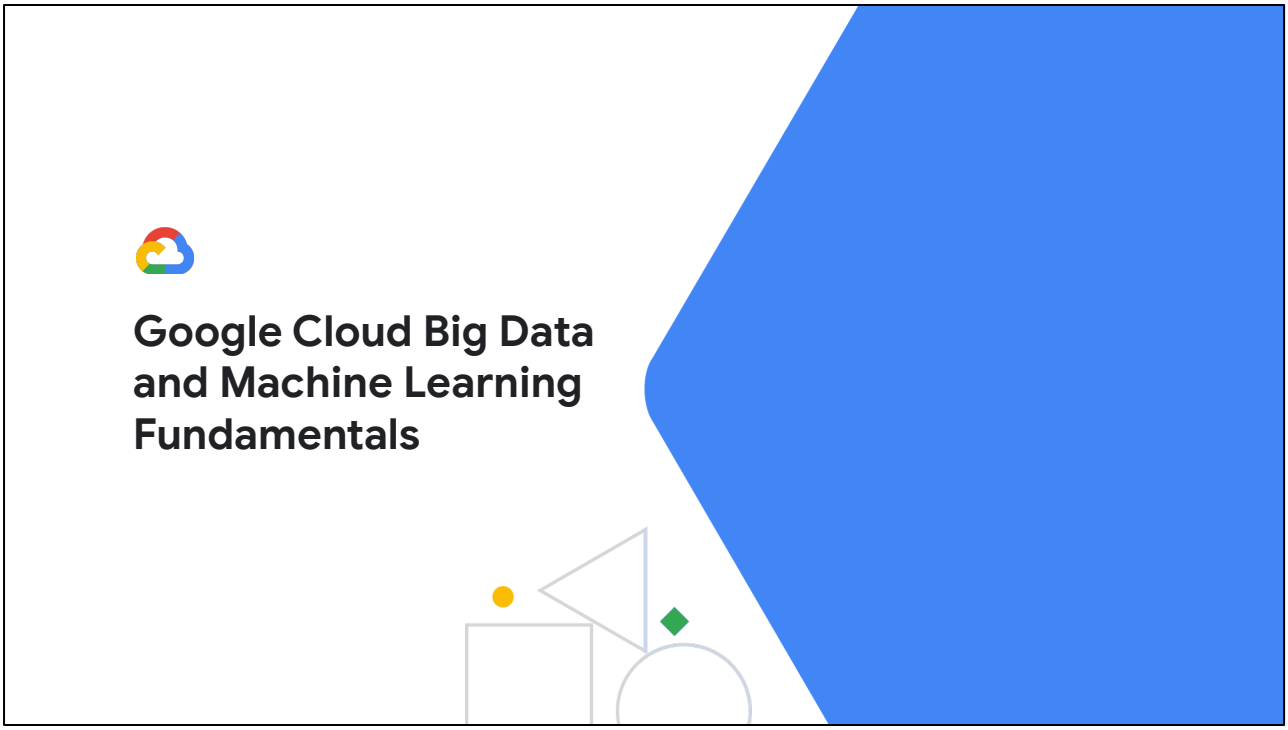

Welcome to Google Cloud Big Data and Machine Learning Fundamentals. This course was designed to showcase real world data and ML challenges and give you practical hands-on expertise in solving those challenges using Google Cloud in our labs. It's a critical course to master because it covers the most common use cases you and your team will encounter on your big data journey.

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Introductions

Your instructor + You

Background

Position

Organization

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Facilities

Parking

Facilities

Food

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Course etiquette

Please silence your phone and take calls outside.

Recording this class is prohibited.

Ask questions interactively or via chat (online).

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Agenda

The Infrastructure Behind Google Cloud

Product Recommendations Using Cloud SQL and Spark

Predicting Visitor Purchases Using BigQuery ML

Real-time Dashboards with Pub/Sub, and Data Studio

Deriving Insights from Unstructured Data Using Machine Learning

Google Cloud

These are the modules that make up this course.

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An explosion of data

> "By 2020, some 50 billion smart devices will be connected, along with additional billions of smart sensors, ensuring that the **global supply of data will continue to more than double every two years**"

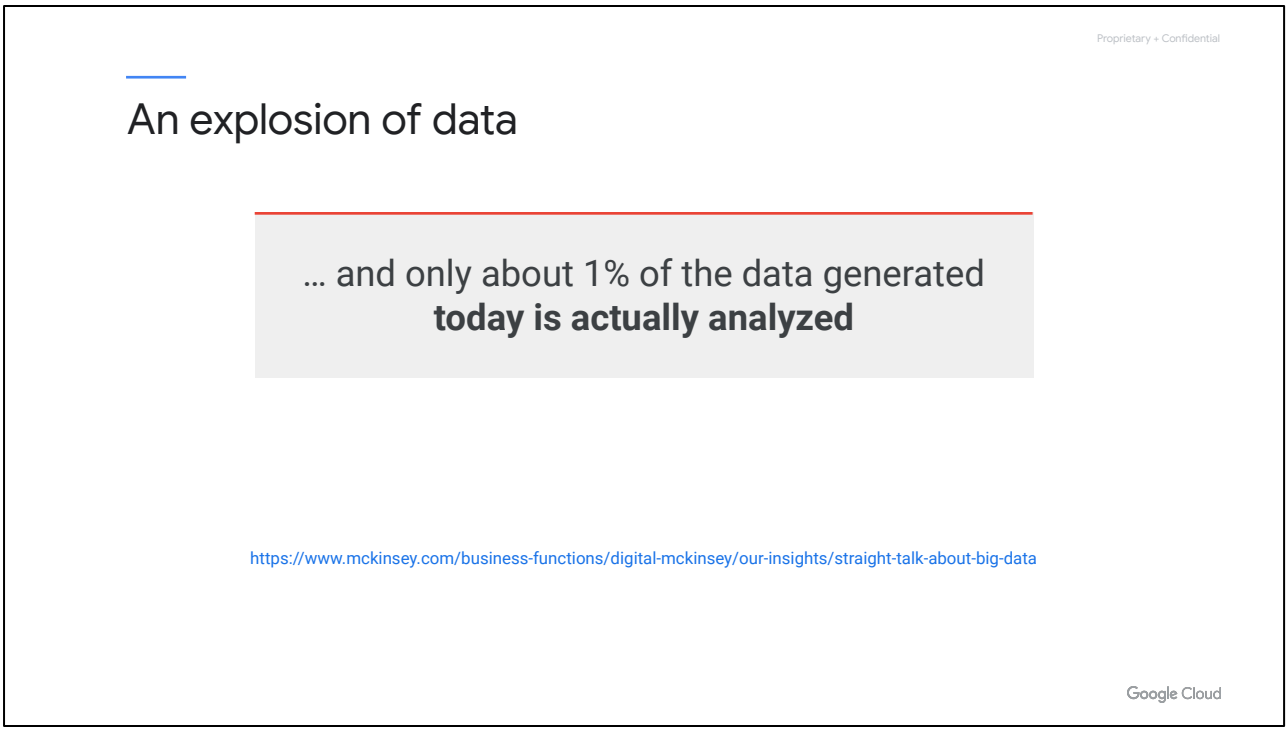
https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/straight-talk-about-big-data

Google Cloud

You're already taking this course, which means that you recognize the importance of big data processing. But why is this skill set in such high demand?

According to McKinsey research, by 2020 we'll have 50 billion devices connected in the Internet of Things. These devices will cause the supply of data to double every two years.

https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/straight-talk-about-big-data



Unfortunately, though, only about 1% of the data generated today is actually analyzed, according to McKinsey.

This state of affairs provides a wide-open opportunity because there is a lot of value in data.

I believe that the ability to build applications that handle large amounts of data and derive insights from that data in an automated manner is a skill that will be well-rewarded in the marketplace. Individuals who have this skill will have many opportunities open to them, and companies that develop this skill will become more successful.

https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/straight-talk-about-big-data

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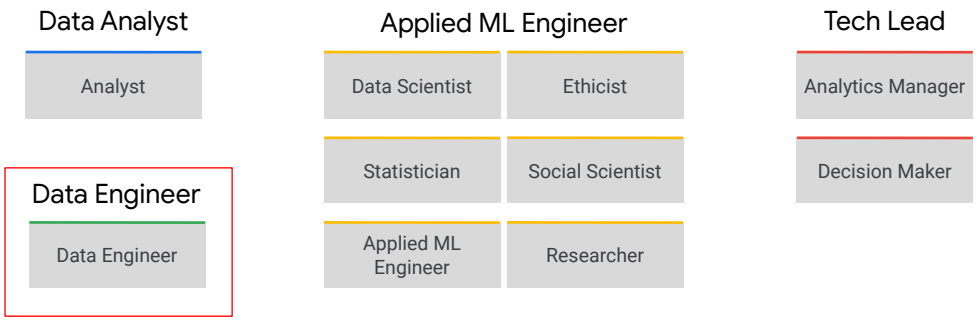
There is a great demand for data skills



Google Cloud

So, the opportunity for data analysts, data scientists, and data engineers—we'll talk about what these roles are, and what the differences are—the opportunity for all three of these roles is clear.

At its core, this course is primarily geared towards Data Engineers. That said, if you're an analyst, ML engineer, or tech lead for your team it's a valuable skill to know how all of the big data and ML products interact to solve some of the most common challenges that data engineers face.

And those challenges are...

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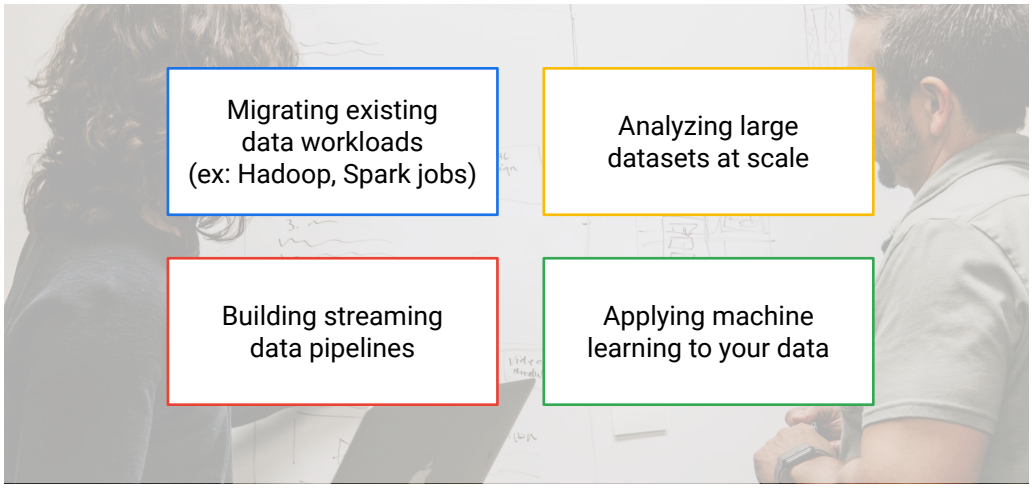
Big data challenges



Google Cloud

- Migrating your existing big data workloads to an environment where you can effectively analyze your data.
- Interactively analyzing large (and by that I mean terabytes to petabytes) datasets of historical data.
- Building scalable pipelines that can handle streaming data, so that your business can make data-driven decisions more quickly.
- And finally, building ML models so that you are not just reacting to data, you are able to make predictive, forward-looking actions using your data.

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Lab environment

For each lab, Qwiklabs offers:

- A free set of resources for a fixed amount of time
- A clean environment with permissions

Google Cloud

Qwiklabs provisions you with Google account credentials, so you can access the Google Cloud Console for each lab at no cost. Specifically, for each lab, Qwiklabs offers:

- A free set of resources for a fixed amount of time
- A clean environment with permissions

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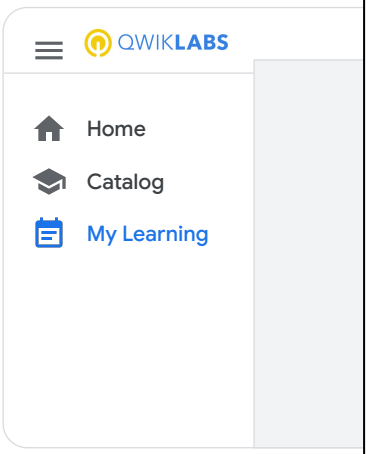
Open Qwiklabs

1. **Open an incognito window** (or private/anonymous window).
2. **Go** to the Qwiklabs URL your instructor provides.
3. **Sign In** with existing account or **Join** with new account (with email you used to register for the course).
4. Launch the course from **My Learning**.

Access issues

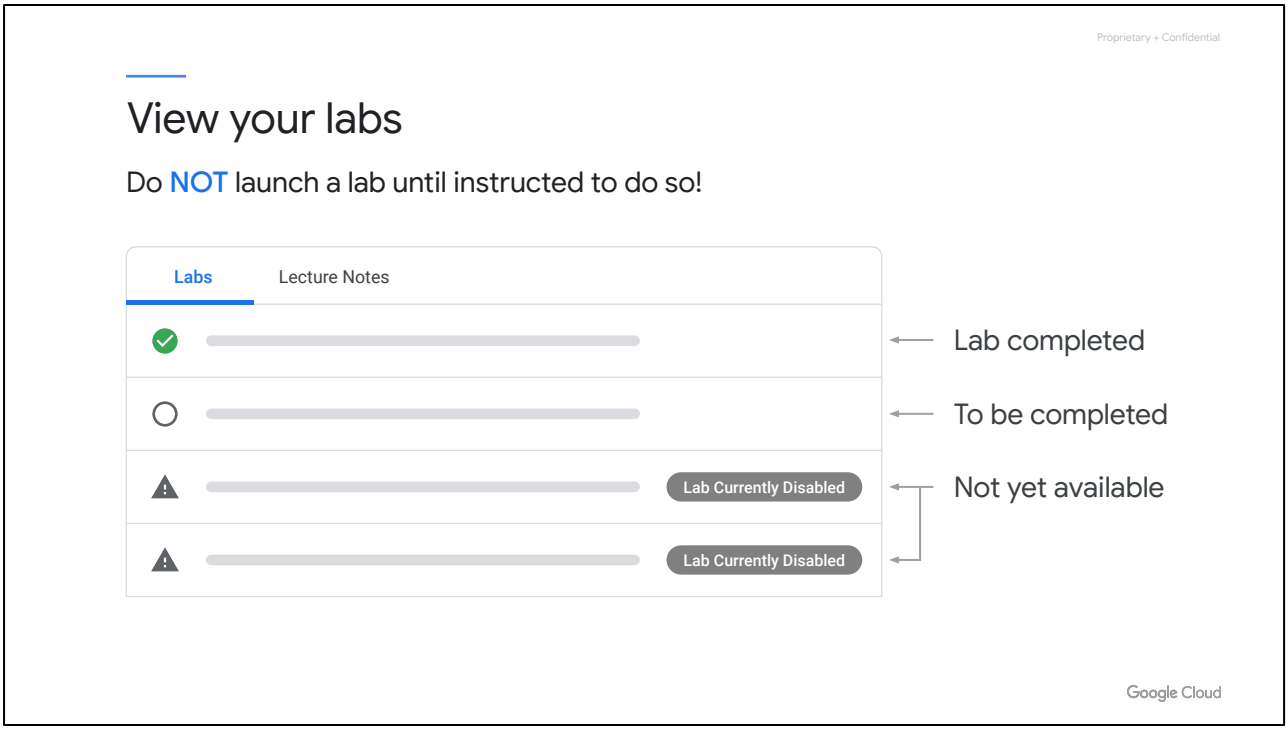
The process to open Qwiklabs can differ based on credentials used. Please reach out to your trainer if you have any access issues.



Google Cloud

Go ahead and open Qwiklabs:

1. **Open an incognito window** (or private/anonymous window). Use of an incognito browser window reduces the risk that you will accidentally do the labs using your own Google Cloud account instead of Qwiklabs.
2. **Go** to the Qwiklabs URL your instructor provides.
3. **Sign** in with an existing account or **Join** with a new account (with email you used to register for the course).
4. Launch the course from **My Learning**.



After you launch the course, you can view your labs. The lab list will indicate if a lab is:

- Completed (by you)
- To be completed
- Or not yet available

Your instructor will let you know when it’s time to launch a lab. Once you start a lab, you won't be able to pause and restart it, so you'll need a continuous block of time to complete the work.

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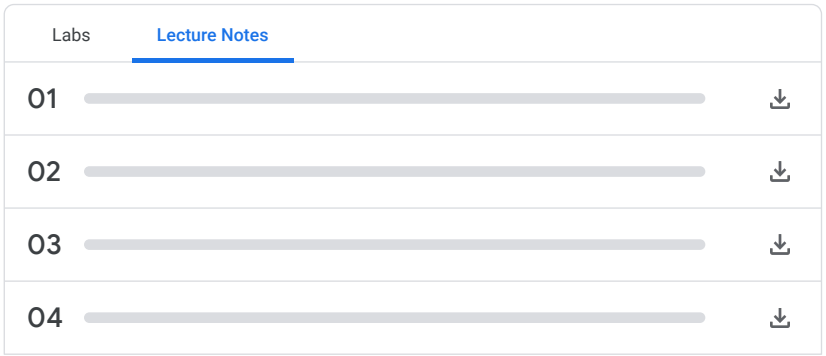
View lecture notes



You can download these as PDF files

Google Cloud

Within the course, you can also view the lecture notes. You can download these as PDF files.

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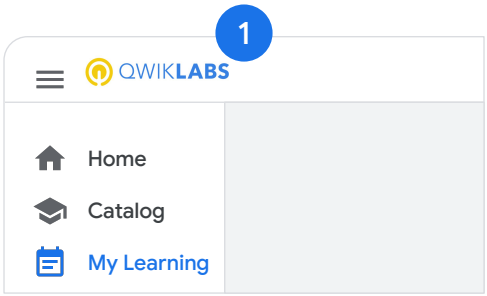
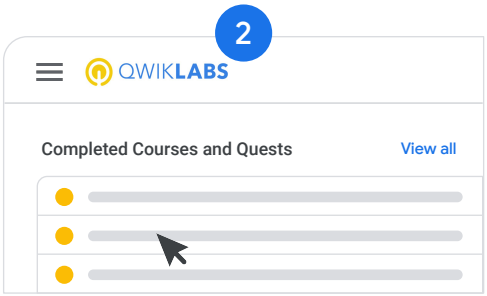
End of class: Materials

Materials are available for 2 years



Click on **My Learning** in the left-hand navigation bar



Select the class from the **Completed Courses** list

Google Cloud

You can view the course materials within Qwiklabs as follows:

1. Click on ***My Learning*** in the left-hand navigation bar.
2. Select the class from the ***Completed Courses*** list.

Materials are available for 2 years following the completion of a course.

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