

Effort: 20 mins

Objective

In this lab, you will learn:

- 0. Import the notebook in Watson Studio
- 1. Create a dashboard

IBM Watson Setup

If you have not created a Watson service before proceed with Step 1, otherwise go to Step 2:

Step 1: For New Users (with no Watson service):

For this project, you will use your IBM Watson Studio account from the previous chapter.

Go to the IBM Cloud Watson Studio page:

[Click here](#)

You will see the screen in the figure below. Click the icon in the red box:

IBM Cloud

Search resources and offerings...

Catalog

Docs

Support

Manage

Need Help?

Contact Support

View docs

Watson Studio

Lite

IBM

Service

IAM-enabled

Author: IBM • Date of last update: 07/18/2019

Create

About

Select a region

Dallas

Select a pricing plan

Monthly prices shown are for country or region: [United States](#)

PLAN	FEATURES	PRICING
✓ Lite	1 authorized user 50 capacity unit-hours monthly limit 1 free small compute environment with 1 vCPU and 4 GB RAM (does not require capacity unit-hours)	Free
Standard v1	1 authorized user + unlimited viewer collaborators 50 capacity unit-hours included monthly (additional capacity available) Unlimited elastic compute environments Capacity Type: 1 vCPU and 4 GB RAM = 0.5 capacity units required per hour Capacity Type: 2 vCPU and 8 GB RAM = 1 capacity units required per hour Capacity Type: 3 vCPU and 12 GB RAM = 1.5 capacity units required per hour Capacity Type: 4 vCPU and 16 GB RAM = 2 capacity units required per hour Capacity Type: 8 vCPU and 32 GB RAM = 4 capacity units required per hour Capacity Type: 16 vCPU and 64 GB RAM = 8 capacity units required per hour Decision Optimization = (Capacity Type) + 20 capacity units required per hour	\$99.00 USD/Instance \$0.50 USD/Capacity Unit-Hour \$99.00 USD/Authorized User
Enterprise v2	5 authorized users + unlimited viewer collaborators 5,000 capacity unit-hours included monthly (additional capacity available) Unlimited elastic compute environments Capacity Type: 1 vCPU and 4 GB RAM = 0.5 capacity units required per hour Capacity Type: 2 vCPU and 8 GB RAM = 1 capacity units required per hour Capacity Type: 3 vCPU and 12 GB RAM = 1.5 capacity units required per hour Capacity Type: 4 vCPU and 16 GB RAM = 2 capacity units required per hour Capacity Type: 8 vCPU and 32 GB RAM = 4 capacity units required per hour Capacity Type: 16 vCPU and 64 GB RAM = 8 capacity units required per hour Decision Optimization = (Capacity Type) + 20 capacity units required per hour HIPAA readiness option available in Dallas Multi-Tiered	Expand each section to view details

Summary

Watson Studio

Region: Dallas

Plan: Lite

Service name: Watson Studio-jr

Resource group: Default

Create

Add to estimate

View terms

FEEDBACK

Then click **Watson**, as shown below:

IBM Cloud

Search resources and offerings...

Catalog Docs Support Manage

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View docs

Dashboard

Resource List

Cloud Foundry

Kubernetes

OpenShift

VPC Infrastructure

Classic Infrastructure

VMware

API Management

Apple Development

Blockchain

DevOps

Functions

Integrate

Managed Solutions

Mobile

Observability

Schematics

Security

Watson

Web Apps

IO Lite IBM Service IAM-enabled

update: 07/18/2019

Monthly prices shown are for country or region: United States

PLAN	FEATURES	PRICING
Lite	1 authorized user 50 capacity unit-hours monthly limit 1 free small compute environment with 1 vCPU and 4 GB RAM (does not require capacity unit-hours)	Free
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Summary

Watson Studio

Region: Dallas

Plan: Lite

Service name: Watson Studio-jr

Resource group: Default

Create

Add to estimate

View terms

Then click **Browse Services**.

IBM Cloud

Search resources and offerings...

Catalog Docs Support Manage

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Watson

Overview

Starter Kits

Watson Services

Browse Services

Existing Services

Developer Resources

Documentation

SDKs

Learning Resources

Apps

Build with Watson

The AI platform for business

Build a chatbot

Create a chatbot to interact with your customers.

Get Started

Extract insights

Query the news to understand hot topics, sentiment and more.

Get Started

Convert audio into text

Convert speech in multiple languages into text.

Get Started

View all Starter Kits

Browse all Watson services

Consult with IBM

Get the most out of your IBM Cloud account by working with our consultants. Learn how to develop for the cloud, leverage Watson APIs, rearchitected an existing application, or experience the design thinking process in action.

IBM Watson Studio

Collaborate to find insights fast. Visualize and manipulate data with code, graphical tools, or APIs. Develop models and neural networks with powerful algorithms and popular frameworks.

Scroll down and select **Watson Studio - Lite**.

IBM Cloud

Search resources and offerings...

Q

Catalog

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Watson

Overview

Starter Kits

Watson Services

Browse Services

Existing Services

Developer Resources

Documentation

SDKs

Learning Resources

Apps

concepts,...

Speech to Text

Text to Speech

Natural Language Classifier

Personality Insights

Tone Analyzer

Language Translator

Watson Studio

Knowledge Studio

Feedback

Ask a Question

To create a Watson service using the Lite plan, click **Create**.

IBM Cloud

Search resources and offerings...

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Watson Studio

Lite

IBM

Service

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Need Help?

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Author: IBM

Date of last update: 07/18/2019

Create

About

Select a region

Dallas

Select a pricing plan

Monthly prices shown are for country or region: United States

PLAN	FEATURES	PRICING
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Enterprise v2	5 authorized users + unlimited viewer collaborators 5,000 capacity unit-hours included monthly (additional capacity available) Unlimited elastic compute environments Capacity Type: 1 vCPU and 4 GB RAM = 0.5 capacity units required per hour	Expand each section to view details

Summary

Watson Studio

Region: Dallas

Plan: Lite

Service name: Watson Studio-0o

Resource group: Default

Create

Add to estimate

View terms

Feedback

Now click **Get Started**.

IBM Cloud

Search resources and offerings...

Q

Catalog

Docs

Support


Manage

Account

Manage


Plan

Resource list /



Watson Studio-0o

Resource group: Default Location: Dallas [Add Tags](#)



Watson Studio

Welcome to Watson Studio. Let's get started!

Get Started

Documentation

From getting started to how to's — see what's available.

Community

Check out our tutorials, articles, along with sample notebooks and data sets you can use to get going.

After creating the service continue with **Step 2**.

Step 2: For Existing Users (who already have Watson Service):

Go to the IBM Cloud Dashboard and click **Services**.

IBM Cloud

Search resources and offerings...

Q

Catalog

Docs

Support

Manage

Account

Dashboard

Customize

Upgrade account

Create resource

Resource summary

Services

1

Add more resources

Planned maintenance

View events

Next event: Mon, Oct 28, 2019 3:00 PM

Migrate the service data store to the new IBM Cloud d...

Upcoming

The IBM Watson Machine Learning Deep Learning ser...

Update TLS certificates for select Starter Plan networks

Security and Kernel Update (Disaster Recovery Nodes)

Location status

View status

Asia Pacific

Europe

North America


South America

Usage

View usage

You can view usage for billable resources here.

Apps




You can view your apps here after you create them. [Learn more](#) about how to get started.

Create an app

Support cases


View support



You can view a summary of your support cases here after you submit them. [Learn more about how to get support.](#)

User access

Manage users



Working alone is no fun. With the right permissions, you can see other users when they join this account. [Learn more](#) about users and access.

Invite users

Learn

View more

Extend your resources with tools

Manage your account and users

Check out our solution tutorials

IBM Developer

Architecture Center

IBM Skills Gateway

FEEDBACK

When you click on Services, all your existing services will be shown in the list. Click the **Watson Studio** service you created:

IBM Cloud

Search resources and offerings...

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Feedback

Resource list

Create resource

Collapse all | Expand all

Name	Group	Location	Offering	Status	Tags
Filter by name or IP address...	Filter by group or org...	Filter...	Filter...	Filter...	Filter...
> Devices (0)					
> VPC Infrastructure (0)					
> Clusters (0)					
> Cloud Foundry Apps (0)					
> Cloud Foundry Services (0)					
> Services (1)					
Watson Studio-0o	Default	Dallas	Watson Studio	Provisioned	—
> Storage (1)					
> Network (0)					
> Cloud Foundry Enterprise Environments (0)					
> Functions Namespaces (0)					
> Apps (0)					
> Developer Tools (0)					

Then click **Get Started**.

IBM Cloud

Search resources and offerings...

Q

Catalog

Docs

Support

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Feedback

Manage

Plan

Resource list /

Watson Studio-0o

Resource group: Default Location: Dallas [Add Tags](#)

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Check out our tutorials, articles, along with sample notebooks and data sets you can use to get going.

Step 3: Creating a Project

Now you have to Create a project.

Click on **Create a project**:



Welcome Malika!

Watson Studio • Watson Machine Learning

Learn by example

Solve a specific business problem with a comprehensive tutorial in a sample project.

[Take a guided tutorial](#)

Start working

Create a project, add your team, and start preparing, analyzing, or modelling data.

[Create a project](#)

Add features

Create services with the tools, data, or other capabilities that you need.

[Create a service](#)

On the Create a project page, click **Create an empty project**

[← Back](#)

Create a project

Choose whether to create an empty project or to preload your project with data and analytical assets. Add collaborators and data, and then choose the right tools to accomplish your goals. Add services as necessary.



Create an empty project

Add the data you want to prepare, analyze, or model. Choose tools based on how you want to work: write code, create a flow on a graphical canvas, or automatically build models.

NEW AutoAI experiment tool: Fully automated approach to building a classification or re...

USE TO

Prepare and visualize data
Analyze data in notebooks
Train models



Create a project from a sample or file

Get started fast by loading existing assets. Choose a project file from your system, or choose a curated sample project.

USE TO

Learn by example
Build on existing work
Run tutorials

Provide a **Project Name** and **Description**, as shown below:

New project

Define project details


Name

Python Basics for Data Science Project

Description

This is the Python Basics for Data Science Project.

Choose project options

☐ Restrict who can be a collaborator 

Project will include integration with [Cloud Object Storage](#) for storing project assets.

Define storage

① Select storage service

[Add](#)

Add an object storage instance and then return to this page and click Refresh.

② Refresh

[Cancel](#)

[Create](#)

You must also create storage for the project.

Click **Add**

New project

Define project details


Name

Project name

Description

Project description

Choose project options

☐ Restrict who can be a collaborator 

Project will include integration with [Cloud Object Storage](#) for storing project assets.

Define storage

① Select storage service

[Add](#)

Add an object storage instance and then return to this page and click Refresh.

② Refresh

[Cancel](#)

[Create](#)

On the Cloud Object Storage page, scroll down and then click **Create**.

IBM Watson Studio

Upgrade

Cloud Object Storage

ExistingNew

Cloud Object Storage

IBM Cloud Object Storage is a highly scalable cloud storage service, designed for high durability, resiliency and security. Store, manage and access your data via our self-service portal and RESTful APIs. Connect applications directly to Cloud Object Storage use other IBM Cloud Services with your data.

Features

Storage for the IBM Cloud

IBM Cloud Object Storage provides unstructured data storage for cloud applications. Libraries and SDKs support a common set of S3 API functions for connecting new applications to scalable cloud storage and integrating your data into other services on the IBM Cloud Platform as well as IBM Watson services. IBM Cloud Object Storage is available with Regional, Cross Region and single site resiliency options worldwide.

Built-in Aspera high-speed transfer

With IBM Cloud Object Storage Aspera high-speed data transfer, you can improve data transfer performance by quickly transferring data over long distances, and under various network conditions. It is natively integrated into Cloud Object Storage and there is no additional cost for uploading data.

Storage Classes and Archive Policy

Choose storage classes based on your usage patterns for active, less-active, and cold workloads with Standard, Vault, and Cold Vault respectively. Use Flex class for dynamic data access with usage patterns that are hard to predict. For rarely used data that requires long-term retention, simply set an Archive policy with our existing storage-class tiers allowing you to reduce costs even further with our lowest priced Archive storage.

Access and Key Management

IBM Identity and Access Management (IAM) policies allow for granular access control at the bucket level using role-based policies. Key Protect support allows customers to have their own managed encryption keys for higher level data security.

Pricing Plan: Monthly Process shown above reflect the: United States

PLAN	FEATURES	PRICING
<input checked="" type="radio"/> Lite	1 COS Service Instance Storage up to 25 GB/mo. Up to 20,000 GET requests/mo. Up to 2,000 PUT requests/mo. Up to Data Retrieval 10 GB/mo. Up to 5GB Public Outbound Applies to aggregate total across all storage bucket classes	Free
The Lite service plan for Cloud Object Storage includes Regional and Cross Regional resiliency, flexible data classes, and built in security.		
<input type="radio"/> Standard	There is no minimum fee, so you pay only for what you use.	Expand each section to view details

Cancel

Create

In the Confirm Creation box, click **Confirm**.



Confirm Creation

Plan

Lite ▼

Resource group

Default ▼

Service name

cloud-object-storage-ai

Cancel

Confirm

On the New project page, note that the storage has been added, and then click **Create**.

IBM Watson Studio

Upgrade

IBM Watson Studio

New project

Define project details

Name

Python Basics for Data Science Project

Description

This is the Python Basics for Data Science Project.

Choose project options

☐ Restrict who can be a collaborator

Project will include integration with Cloud Object Storage for storing project assets.

Storage

cloud object storage lc

Cancel

Create

After creating the project continue with Step 3.

Step 3: Adding a Notebook to the Project:

You need to add a Notebook to your project. Click **Add to project**.

IBM Cloud Pak for Data

All

Search

Buy

Projects / test

Assets

Jobs

Manage

Find assets

2

Add to project +

3 assets

All assets

Asset types

All assets

Name

Last modified

peer Notebook

1 day ago
Niveditha Pandith (You)

In the list of asset types, click **Notebook**:

Add to project

Select the tool to create an operational or configuration asset.

Tool type

- All types
- Automatic builders
- Graphical canvas
- Code editors
- Other

Find tools by name or purpose

Code editors

Jupyter notebook editor

Create a notebook in which you run Python, R, or Scala code to prepare, visualize, and analyze data, or build a model.

Other

Connected data

Data in an external data source that is accessed through a connection.

Connection

Supply the information necessary to connect to a data source.

Model

Add an existing PMML (predictive model markup language) file (.xml) from your local system as a model.

Show descriptions ⓘ

Note: Select the default Python as selected language.

On the New Notebook page, enter a name for the notebook, and then click From URL.

Copy this link: [Click here](#)

Paste it into the **Notebook URL** box, and then click **Create Notebook**.

IBM Cloud Pak for Data

Upgrade ⓘ

Lakshmi Holla's Account

LH

New notebook

Blank From file **From URL**

Name

Final Assignment

Description (optional)

Type your description here

Select runtime

Default Python 3.7 XS (2 vCPU 8 GB RAM)

The selected runtime has 2 vCPU and 8 GB RAM.
It consumes 1 capacity unit per hour.
[Learn more](#) about capacity unit hours and Watson Studio pricing plans.

Notebook URL

https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDve

Cancel Create

You will see this Notebook:

IBM Cloud Pak for Data

Upgrade

Malika Singla's Account

My projects / SKO_Project / PY0101EN_Coursera_FinalAssig...

FileEditViewInsertCellKernelHelp

RunFormatMarkdown

IBM Developer SKILLS NETWORK

Analyzing US Economic Data and Building a Dashboard

Description

Extracting essential data from a dataset and displaying it is a necessary part of data science; therefore individuals can make correct decisions based on the data. In this assignment, you will extract some essential economic indicators from some data, you will then display these economic indicators in a Dashboard. You can then share the dashboard via an URL.

[Gross domestic product \(GDP\)](#) is a measure of the market value of all the final goods and services produced in a period. GDP is an indicator of how well the economy is doing. A drop in GDP indicates the economy is producing less; similarly an increase in GDP suggests the economy is performing better. In this lab, you will examine how changes in GDP impact the unemployment rate. You will take screen shots of every step, you will share the notebook and the URL pointing to the dashboard.

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- [Define a Function that Makes a Dashboard](#)
- [Question 1: Create a dataframe that contains the GDP data and display it](#)
- [Question 2: Create a dataframe that contains the unemployment data and display it](#)
- [Question 3: Display a dataframe where unemployment was greater than 8.5%](#)
- [Question 4: Use the function make_dashboard to make a dashboard](#)
- **(Optional not marked)** [Save the dashboard on IBM cloud and display it](#)

Estimated Time Needed: 180 min

Author(s)

Joseph Santarcangelo

Change log

Date	Version	Changed by	Change Description
2020-11-18	2.2	Malika Singla	Updated the screenshot
2020-10-05	2.1	Malika Singla	Updated the Effort and Objective

2020-09-05	2.0	Malika Singla	Updated the screenshot
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