

# Hands-on Lab: Getting Started with GitHub



**IBM Developer  
SKILLS NETWORK**

Effort: 20 min

In this lab, you will get started with GitHub by creating a GitHub account and project and adding a file to it using its Web interface.

## Objectives

After completing this lab, you will be able to:

1. Describe GitHub
2. Create a GitHub account
3. Add a Project / Repo
4. Edit / Create a file
5. Upload a file & Commit

## GitHub Overview

First, let us introduce to GitHub. GitHub in simple words is a collection of folders and files. It is a Git repository hosting service, but it adds many of its own features. While Git is a command-line tool and a server needs to be hosted and maintained via command line as well, GitHub provides this Git server for you and a Web-based graphical interface. It also provides access control and several collaboration features, such as wikis and basic task management tools for every project. GitHub provides cloud storage for source code, supports all popular programming languages, and streamlines the iteration process. GitHub includes a free plan for individual developers and for hosting open source projects.

## Exercise 1: Creating a GitHub Account

Please follow the steps given below to create an account in GitHub:

Step 1: Create an account: <https://github.com/join>

NOTE: If you already have a GitHub account, you can skip this step and simply login to your account.

Step 2: Provide the necessary details to create an account as shown below:

[Join GitHub](#)

# Create your account

Username \*

Email address \*

Password \*

Make sure it's at least 15 characters OR at least 8 characters including a number and a lowercase letter.  
[Learn more.](#)

Email preferences

Send me occasional product updates, announcements, and offers.

Verify your account

Please solve this puzzle so we  
know you are a real person

[Verify](#)



[Create account](#)

By creating an account, you agree to the [Terms of Service](#). For more information about GitHub's privacy practices, see the [GitHub Privacy Statement](#). We'll occasionally send you account-related emails.

and click [Create account](#).

Step 3: Click [Verify](#) to verify the account and click [Done](#)

## Verify your account

Please solve this puzzle so we  
know you are a real person

[Verify](#)



Step 4: After verification, click [Join a Free Plan](#)

### Email preferences

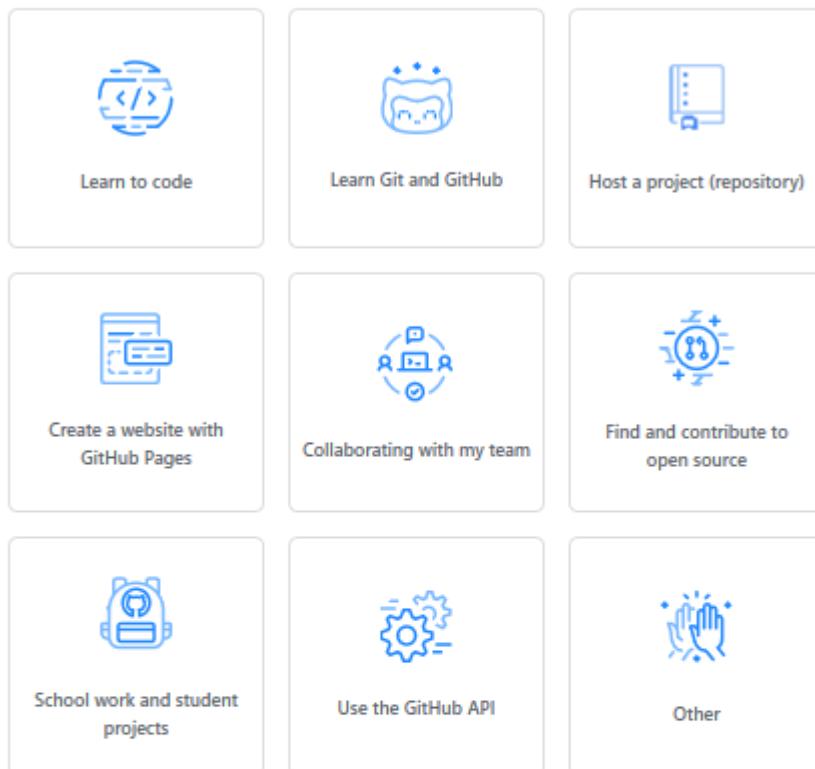
- Send me occasional product updates, announcements, and offers.

[Join a free plan](#)

Step 5: Select the details as shown below and click [Complete Setup](#)

## What do you plan to use GitHub for?

(Select up to 3)



## I am interested in:

languages, frameworks, industries

We'll connect you with communities and projects that fit your interests.

For example: zeplin elm apm

Complete setup

Step 6: Go to your email, find the verification email from GitHub, and click on the link/button in that email to verify your email.

NOTE: If you do not receive verification email, click [Resend verification email](#).



## Please verify your email address

Before you can contribute on GitHub, we need you to verify your email address.

An email containing verification instructions was sent to **Your email address**

[Resend verification email](#)

[Change your email settings](#)

Email is verified

Your email was verified.

X

## What do you want to do first?

Every developer needs to configure their environment, so let's get your GitHub experience optimized for you.

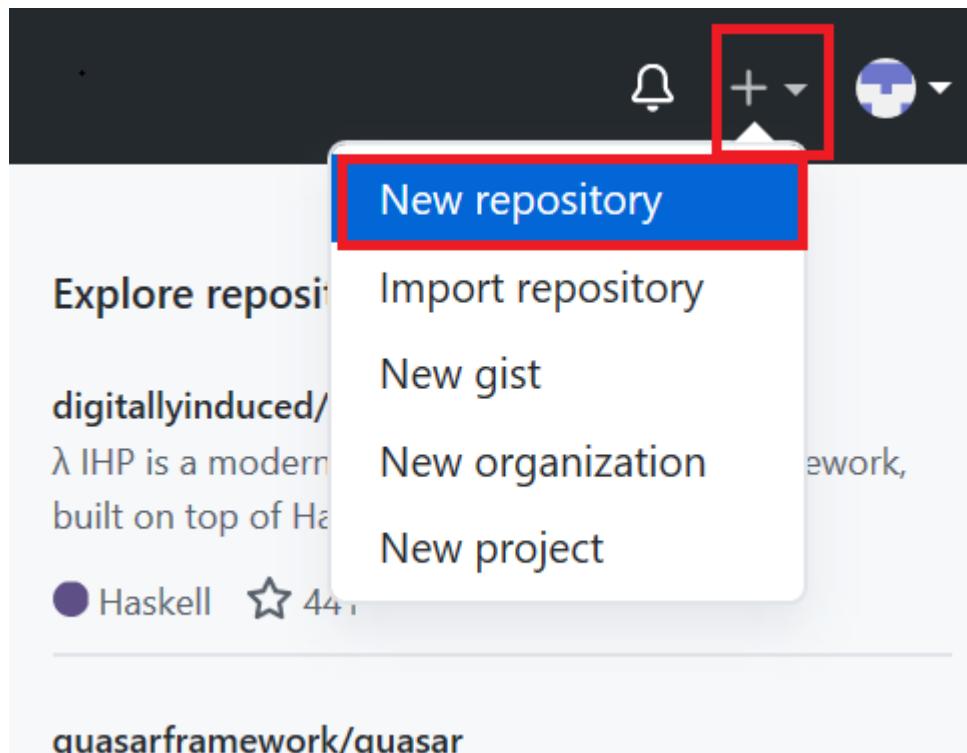
The image shows three rectangular cards arranged horizontally, each featuring a small illustration of a person at a desk with a computer and various tools. The first card is titled "Start a new project", the second is "Collaborate with your team", and the third is "Learn how to use GitHub". Each card has a brief description below the title and a blue button at the bottom labeled "Create a repository", "Create an organization", or "Start Learning" respectively.

<b>Start a new project</b> Start a new repository or bring over an existing repository to keep contributing to it.  <a href="#">Create a repository</a>	<b>Collaborate with your team</b> Improve the way your team works together and get access to more features with an organization.  <a href="#">Create an organization</a>	<b>Learn how to use GitHub</b> Get started with an "Introduction to GitHub" course in our Learning Lab.  <a href="#">Start Learning</a>
--	---	--

[Skip this for now >](#)

## Exercise 2: Adding a Project / Repo

Step 1: Click on the + symbol and click **New repository**.



Step 2: Provide a repository a name and initialize with the empty `README.md` file.

## Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner \* Repository name \*

 Malika-s / testrepo 

Great repository names are short and memorable. Need inspiration? How about [urban-octo-waffle](#)?

Description (optional)

 **Public**  
Anyone on the internet can see this repository. You choose who can commit.

 **Private**  
You choose who can see and commit to this repository.

Skip this step if you're importing an existing repository.

**Initialize this repository with a README**  
This will let you immediately clone the repository to your computer.

Add .gitignore: None | Add a license: None | 

**Create repository**

and click [Create repository](#).

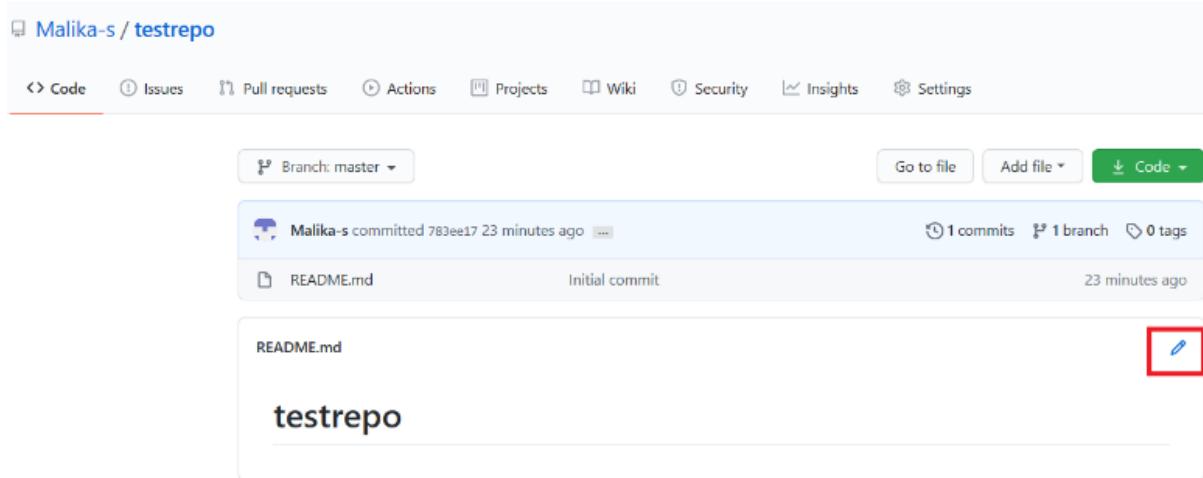
Now, you will be redirected to the repository you have created.

Let's start editing the repository.

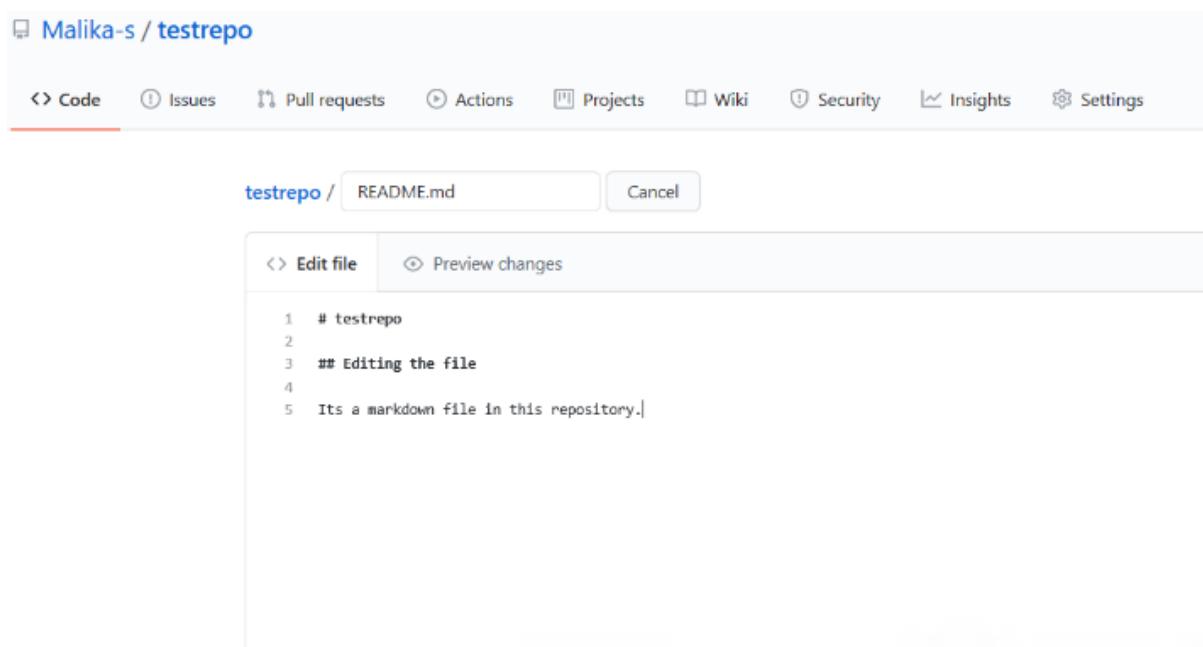
## Exercise 3: Create / edit a file

### Exercise 3a: Edit a file

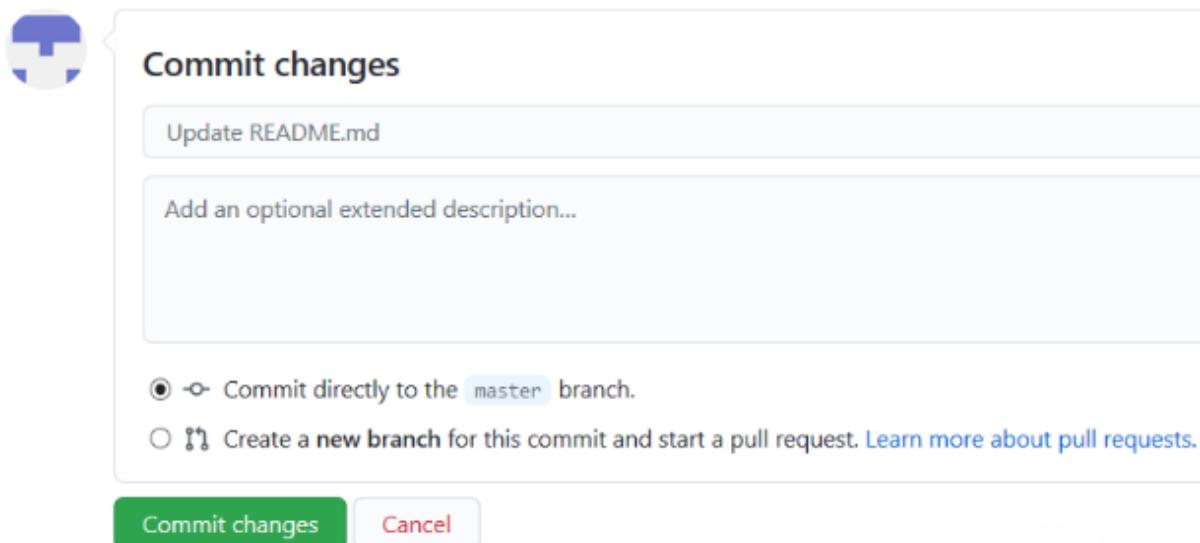
Step 1: Once the repository is created, the root folder of your repository is listed by default and it has just one file [ReadMe.md](#). Click on the pencil icon to edit the file.



## Step 2: Add text to file.



## Step 3: Scroll down the page after adding the text and click Commit Changes.



Now, check your file is edited with the new text.

### Exercise 3b: Create a new file

Step 1: Click on the repository name to go back to the master branch like in this testrepo.

A screenshot of a GitHub repository page for 'Malika-s / testrepo'. The top navigation bar shows 'Code' (highlighted), 'Issues', 'Pull requests', 'Actions', 'Projects', 'Wiki', 'Security', 'Insights', and 'Settings'. Below the bar, a dropdown shows 'Branch: master'. On the right, there are buttons for 'Go to file', 'Add file', and a green 'Code' button. The main area shows a commit from 'Malika-s' at 3861fb4 4 minutes ago, with 2 commits, 1 branch, and 0 tags. Two files are listed: 'README.md' and 'Update README.md', both updated 4 minutes ago. Below this is an editor for 'README.md' containing the text 'testrepo' and 'Editing the file'. A note says 'Its a markdown file in this repository.' and a preview image 'masterrepo.png (1730 x 668)' is shown.

Step 2: Click **Add file** and select **Create New file** to create a file in the repository.

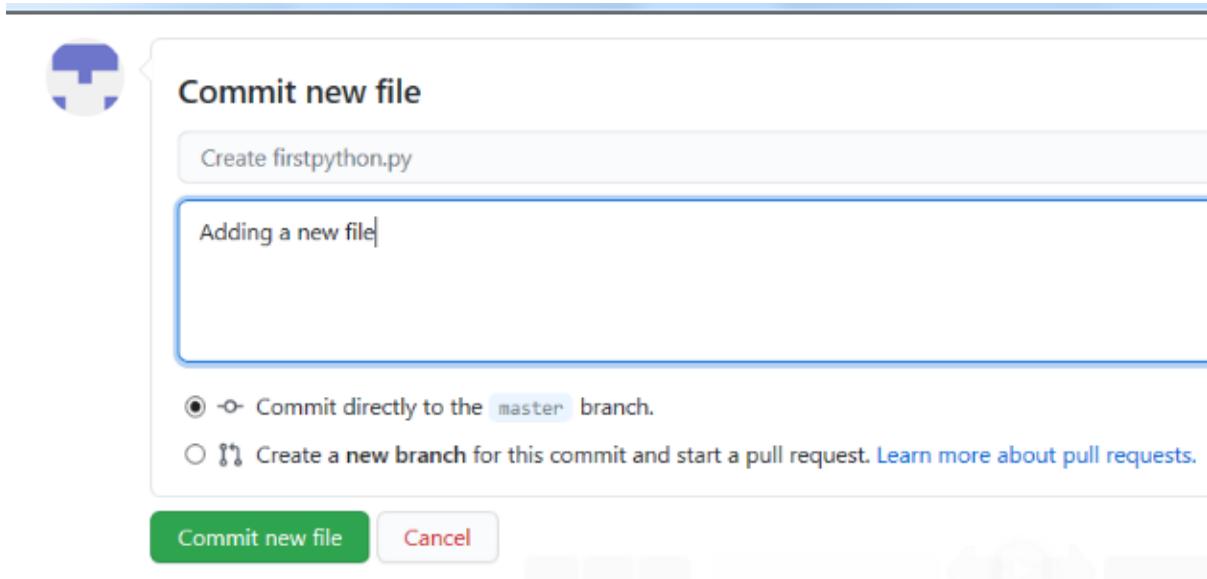
The screenshot shows a GitHub repository named 'Malika-s / testrepo'. The 'Code' tab is selected. At the top right, there is a 'Branch: master' dropdown, a 'Go to file' button, an 'Add file' button (which is highlighted with a red box), a 'Create new file' button, a 'Upload files' button, and a 'Code' dropdown. Below this, a commit from 'Malika-s' is shown: 'committed 3861fb4 5 minutes ago'. A file named 'README.md' is listed with an 'Update README.md' link and a timestamp of '5 minutes ago'. The README content is displayed below, showing the text 'testrepo' and 'Editing the file'. A note says 'Its a markdown file in this repository.'

Step 3: Provide the file name and the extension of the file. For example, firstpython.py and add the lines.

The screenshot shows the 'Edit new file' dialog for a file named 'firstpython.py'. The dialog has tabs for 'Edit new file' and 'Preview'. The code editor contains the following Python code:

```
1 # Display the output
2 print("New Python file")
```

Step 4: Scroll down the page after adding the text. Add description of the file (optional) and click Commit new file.



Step 5: Your file is now added to your repository and the repository listing shows when the file was added/changed.

## Exercise 4: Upload a file & Commit

Step 1: Click **Add file** and select **Upload files** to upload a file (Upload any .txt,.ipynb, .png file) in the repository from the local computer.

Malika-s / testrepo

Branch: master

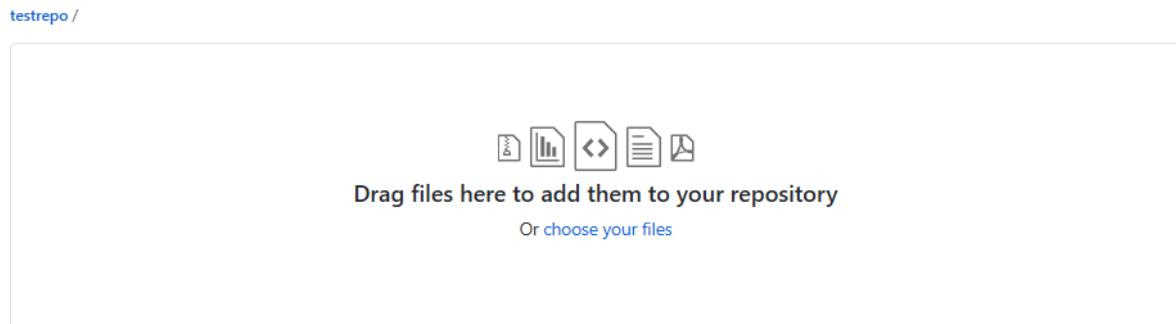
Go to file Add file ▾

Create new file

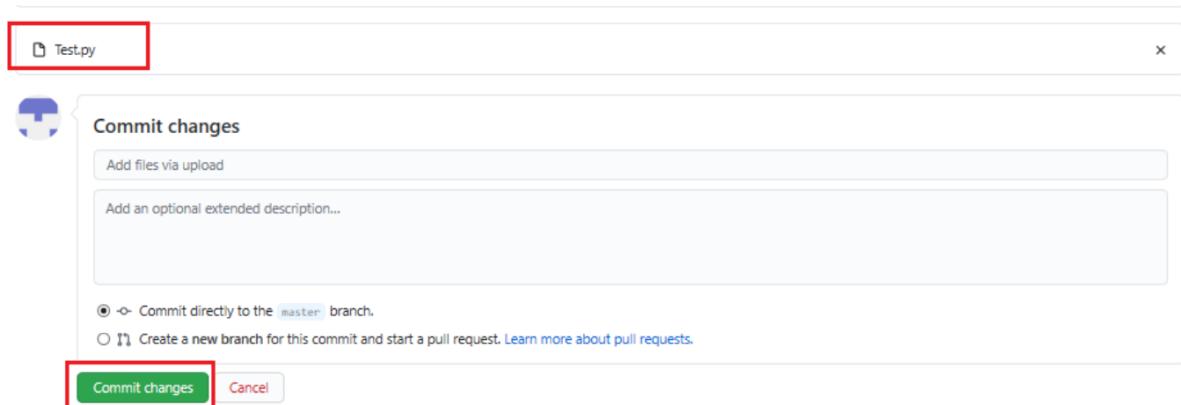
Upload files

File	Description	Last Updated
README.md	Update README.md	1 hour ago
firstpython.py	Create firstpython.py	1 hour ago
README.md		(pencil icon)

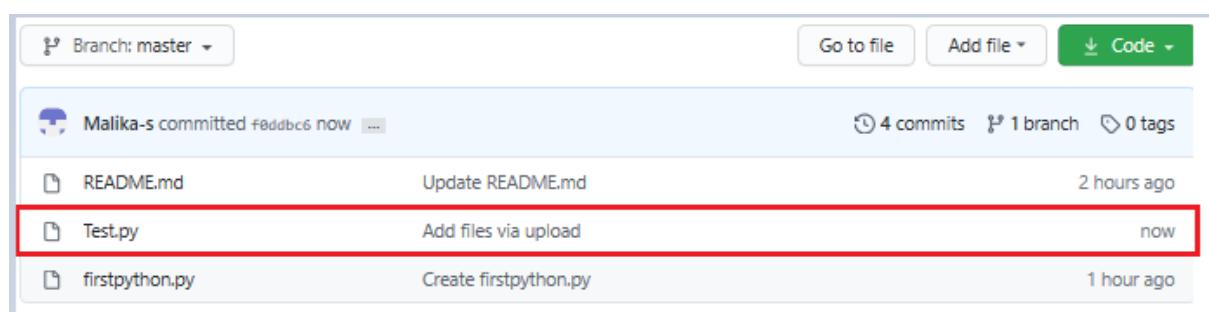
Step 2: Click on choose your files and choose any files from your computer.



Step 3: Once the file finishes uploading, click on **Commit Changes**



Step 4: Now, your file is uploaded in the repository.



## Summary

In this document, you have learned how to create a new repository, adding a new file, editing a file, and uploading a file in a repository and commit the changes.

## Hands-on Lab: Publishing notebooks from Watson to Github

Effort: 20 mins

Step 1: Click on the Get Started Link of Watson Studio to navigate to the page where projects are listed.

The screenshot shows the Watson Studio interface. At the top, there's a navigation bar with 'Resource list / Watson Studio-di' and buttons for 'Active' and 'Add tags'. On the right, there are 'Details' and 'Actions...' buttons. Below the navigation is a 'Manage' tab and a 'Plan' link. In the center, there's a circular icon with a purple robot head and shoulders. Below the icon, the text 'Watson Studio' is displayed. A message 'Welcome to Watson Studio. Let's get started!' is shown above a blue 'Get Started' button. At the bottom, there are two cards: 'Documentation' (with a brief description) and 'Gallery' (with a brief description and a blue circular icon).

Step 2: Next click on the project which you want to integrate with github. This is the project containing your notebooks to be published on Github.

*Note: This is just an example of a project . The project names will differ according what you have created.*

The screenshot shows the IBM Cloud Pak for Data interface. The top navigation bar includes 'IBM Cloud Pak for Data', a search bar, and user account information ('Lakshmi Holla's Account'). The left sidebar has 'Quick navigation' sections for 'Projects' and 'Deployments', and 'Support' sections for 'Documentation', 'FAQ', 'What's new', 'Give feedback', 'Stack overflow', and 'Manage Tickets'. The main area is titled 'Overview' and contains three panels: 'Recent projects' (listing 'ssss', 'sk01', 'sss', 'createaproj1', and 'dbSCAN1'), 'Notifications' (showing 'No notifications'), and 'Deployment spaces' (listing 'one'). The 'dbSCAN1' project in the 'Recent projects' panel is highlighted with a red box. The bottom right corner features a blue circular icon with a white speech bubble.

Step 3: Next click on the Settings Tab and scroll down to check the Integrations section.

The screenshot shows the Databricks interface for a project named 'dbscan1'. The top navigation bar includes 'Projects / dbscan1', 'Up', 'Launch IDE', 'Add to project', and a search bar. Below the navigation is a horizontal menu with tabs: 'Overview', 'Assets' (which is selected and underlined in blue), 'Environments', 'Jobs', 'Access Control', and 'Settings' (which is highlighted with a red box). A search bar below the menu asks 'What assets are you looking for?'. Under 'Data assets', it says '0 assets selected.' and lists one item: 'XLS Canada.xlsx' (Data Asset, created by Lakshmi Holla on Feb 15, 2021, 03:55 PM). Under 'Notebooks', there are four entries: 'Segmenting-Clustering Neighborhoods-Washington DC' (Shared, Python 3.7, last modified Feb 24, 2021), 'Clus-DBSCAN-weather' (Shared, Python 3.7, last modified Jun 02, 2021), 'createnew' (Shared, Python 3.7, last modified Feb 15, 2021), and 'Peer graded ETL' (Shared, Python 3.7, last modified Apr 14, 2021). A 'New Notebook' button is located at the top right of the Notebooks section. Below the Notebooks section is a large empty area labeled 'Integrations'.

Name	Shared	Scheduled	Status	Language	Last editor	Last modified
Segmenting-Clustering Neighborhoods-Washington DC				Python 3.7	Lakshmi Holla	Feb 24, 2021
Clus-DBSCAN-weather	⌚			Python 3.7	Lakshmi Holla	Jun 02, 2021
createnew				Python 3.7	Lakshmi Holla	Feb 15, 2021
Peer graded ETL	⌚			Python 3.7	Lakshmi Holla	Apr 14, 2021

**Integrations**

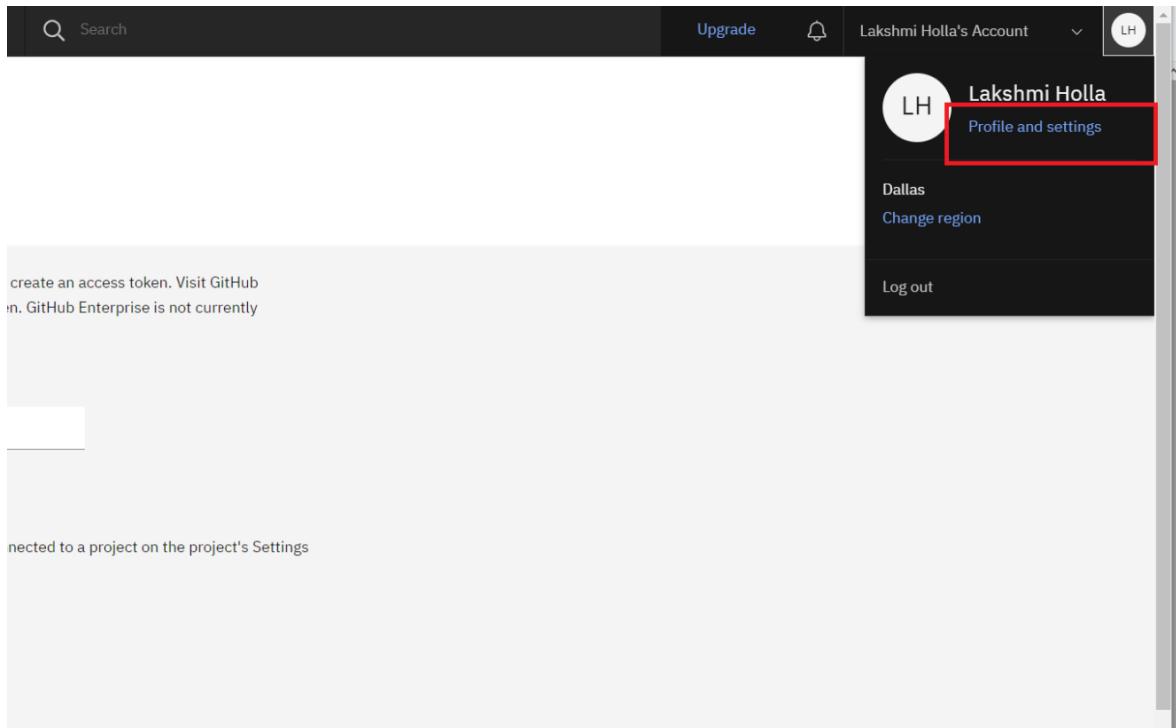
Github repository	Not connected
Figure Eight <small>BETA</small>	Setup required
DefinedCrowd <small>BETA</small>	Setup required

Step 4: Click on the GitHub repository on the integrations section .When you click on the textbox under the Repository url you will get the error as shown below:

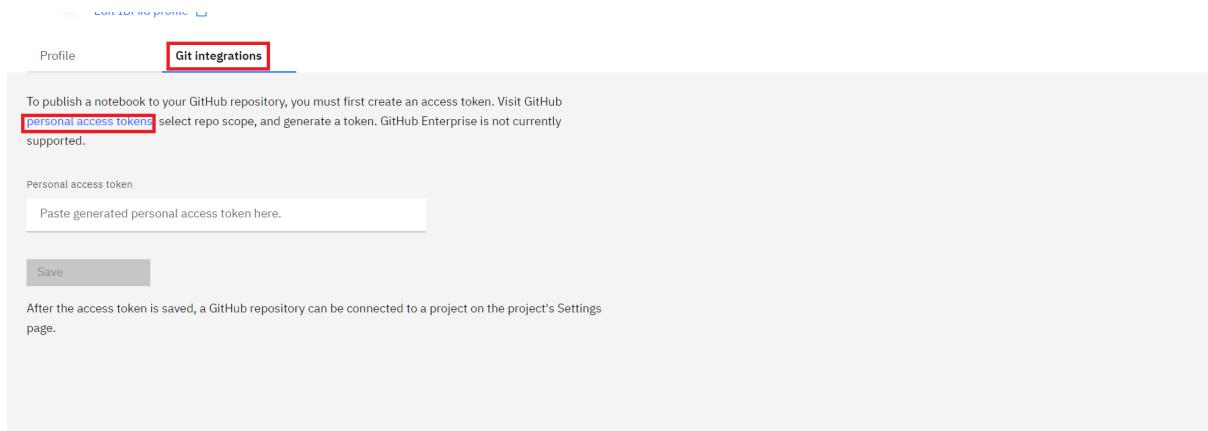
The screenshot shows the 'Integrations' settings page for the GitHub repository. It displays two sections: 'Github repository' (status: 'Not connected') and 'Figure Eight' (status: 'Setup required'). The 'DefinedCrowd' section is also present. Below the GitHub section, there is a warning message: '⚠️ A GitHub personal access token has not been setup. Configure [settings](#).'. Underneath this message is a 'Repository URL' input field containing 'https://github.com/owner/repository-name', which is highlighted with a red box. A red box also surrounds the error message 'This field is required.' and the 'Update' button at the bottom.

To create and configure the personal access token follow the subsequent steps.

Step 5: Next click on Profiles and Settings right below your initials on the top right screen.



Step 6: Click on the gitIntegrations tab.



Step 7: Click on personal access token. This will prompt you to enter your github password and login to github.

Later create a token by specifying the name in the Note and choose repo scope.

GitHub Apps

OAuth Apps

Personal access tokens

## New personal access token

Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to [authenticate to the API over Basic Authentication](#).

**Note**

IBM Watson Studio

What's this token for?

**Select scopes**

Scopes define the access for personal tokens. [Read more about OAuth scopes](#).

<input checked="" type="checkbox"/> <b>repo</b>	Full control of private repositories
<input type="checkbox"/> repo:status	Access commit status
<input type="checkbox"/> repo_deployment	Access deployment status
<input type="checkbox"/> public_repo	Access public repositories
<input type="checkbox"/> repo:invite	Access repository invitations
<input type="checkbox"/> security_events	Read and write security events
<input type="checkbox"/> workflow	Update GitHub Action workflows
<input type="checkbox"/> write:packages	Upload packages to GitHub Package Registry
<input type="checkbox"/> read:packages	Download packages from GitHub Package Registry
<input type="checkbox"/> delete:packages	Delete packages from GitHub Package Registry
<input type="checkbox"/> admin:org	Full control of orgs and teams, read and write org projects
<input type="checkbox"/> write:org	Read and write org and team membership, read and write org projects
<input type="checkbox"/> read:org	Read org and team membership, read org projects

Scroll down and click 'Generate Token'.

Step 8: Copy the token generated.



Step 9: Paste it under the Personal Access token in the Git Integrations tab of Watson and click on save.

Edit IBMid profile

Profile      **Git Integrations**

To publish a notebook to your GitHub repository, you must first create an access token. Visit GitHub [personal access tokens](#), select repo scope, and generate a token. GitHub Enterprise is not currently supported.

Personal access token

.....

**Save**

After the access token is saved, a GitHub repository can be connected to a project on the project's Settings page.

Step 10: Go back to your github repository by clicking this [link](#).

Select your repository on the left pane.

Create a branch called master under your repository.

Step 11: Click the button on the left side of your screen that shows the current branch as "main" and has a dropdown arrow.

Step 12: Create a new branch called "master"

The screenshot shows a GitHub repository interface. At the top, there is a navigation bar with links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. Below the navigation bar, the repository name is 'main'. A dropdown menu is open, showing the current branch 'main' and a new branch 'master' listed under 'Switch branches/tags'. The 'Create branch: master from 'main'' option is highlighted with a red box. To the right of the dropdown, a list of commits is displayed, showing various uploads and a commit from 'ce5b133' 6 hours ago. The commits are ordered by date, with the most recent at the top.

This is necessary because when you connect a repository to a project in Watson Studio and try to publish a notebook to GitHub, it automatically pushes your notebook to the master branch. If you only have a main branch in your repository and not one titled "master," Watson will not have anywhere to push your notebook.

Step 13: Once done with this step navigate to your project on watson by clicking the Navigation menu.

The screenshot shows the navigation menu of the IBM Cloud Pak for Data interface. The menu is titled 'Navigation Menu' and includes a message stating 'Your personal access token is saved.' The menu items include Home, Data, Projects, View all projects, Deployments, and Services. The 'Projects' item is currently selected, as indicated by the blue underline. The main content area displays a message about creating an access token for GitHub. The URL in the browser is 'dataplatform.cloud.ibm.com/settings/integrations?context=cpdaas'.

Step 14: Go to the settings tab and provide the github link of your repository.

If you have not yet created the repository follow the steps given in the link [Github Repository Creation](#) for creating a repository.

The screenshot shows the 'Integrations' section of a project settings page. A GitHub repository named 'LakshmiHolla-2808/first.git' is listed with the status 'Ready to use'. Below it, two other items are listed: 'Figure Eight BETA' and 'DefinedCrowd BETA', both marked as 'Setup required'. A modal window titled 'Project linked to GitHub repository' is open, stating 'You can now publish notebooks to GitHub.' with a 'Close' button. At the bottom left, there's a 'Project scope' section with 'IBM Cloud Account' and 'Restrict who can be a collaborator' set to 'No'.

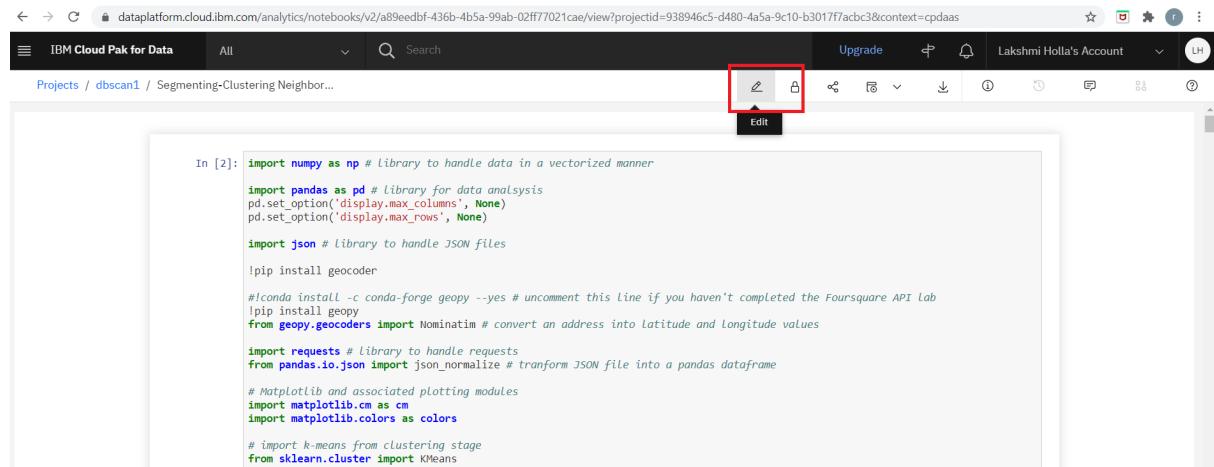
If update is not enabled, click outside text box which will enable it and then click 'Update'.

Step 15: Navigate to the Assets tab of your project and then click on the notebook which you want to publish.

The screenshot shows the 'Assets' tab of a project. The 'Assets' tab is highlighted with a red box. Below it, there's a search bar with placeholder text 'What assets are you looking for?'. Under 'Data assets', it says '0 assets selected.' and lists one item: 'XLS Canada.xlsx' (Data Asset, Lakshmi Holla, Feb 15, 2021, 03:55 PM). Under 'Notebooks', it lists four items: 'Segmenting-Clustering Neighborhoods-Washington DC' (Shared, Python 3.7, Lakshmi Holla, Feb 24, 2021), 'Clus-DBSCAN-weather' (Shared, Python 3.7, Lakshmi Holla, Jun 02, 2021), 'createnew' (Shared, Python 3.7, Lakshmi Holla, Feb 15, 2021), and 'Peer graded ETL' (Shared, Python 3.7, Lakshmi Holla, Apr 14, 2021). Each notebook row has edit and delete icons.

This will open your notebook.

**Step 16: Click on the edit option to edit your notebook.**



The screenshot shows a Jupyter Notebook interface within the IBM Cloud Pak for Data environment. The top navigation bar includes 'IBM Cloud Pak for Data', 'Upgrade', 'Lakshmi Holla's Account', and other standard browser controls. A red box highlights the 'Edit' button located in the top right corner of the toolbar. Below the toolbar, the code cell content is visible, starting with imports for numpy, pandas, json, and geocoder, followed by conda and pip installation commands, and finally requests and matplotlib imports.

```
In [2]: import numpy as np # Library to handle data in a vectorized manner
import pandas as pd # library for data analysis
pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)

import json # library to handle JSON files
!pip install geocoder

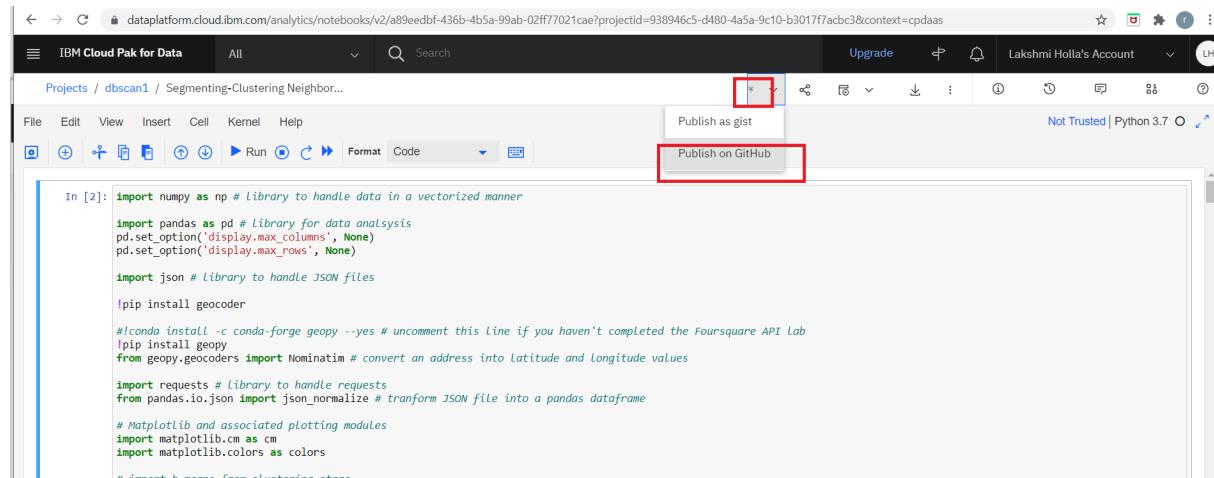
#conda install -c conda-forge geopy --yes # uncomment this line if you haven't completed the Foursquare API Lab
!pip install geopy
from geopy.geocoders import Nominatim # convert an address into Latitude and Longitude values

import requests # library to handle requests
from pandas.io.json import json_normalize # transform JSON file into a pandas dataframe

# Matplotlib and associated plotting modules
import matplotlib.cm as cm
import matplotlib.colors as colors

# import k-means from clustering stage
from sklearn.cluster import KMeans
```

**Step 17: Select Publish on github.**



This screenshot shows the same Jupyter Notebook interface as the previous one, but with additional options in the toolbar. A red box highlights the 'Publish as gist' button. Below it, another red box highlights the 'Publish on GitHub' button. The code cell content remains the same as in Step 16.

```
In [2]: import numpy as np # Library to handle data in a vectorized manner
import pandas as pd # library for data analysis
pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)

import json # library to handle JSON files
!pip install geocoder

#conda install -c conda-forge geopy --yes # uncomment this line if you haven't completed the Foursquare API Lab
!pip install geopy
from geopy.geocoders import Nominatim # convert an address into latitude and longitude values

import requests # library to handle requests
from pandas.io.json import json_normalize # transform JSON file into a pandas dataframe

# Matplotlib and associated plotting modules
import matplotlib.cm as cm
import matplotlib.colors as colors

# import k-means from clustering stage
from sklearn.cluster import KMeans
```

**Step 18: Next click on Publish to publish your notebook.**



# Hands-on Lab: Create Db2 service instance and Get started with the Db2 console

Estimated time needed: 15 minutes

From now on, the hands-on labs for this course require an environment for working with a relational database. To get you up and running quickly we will do so on the Cloud, so you don't have to worry about downloading or installing anything, rather, simply access your database from your web browser. IBM Cloud provides a large number of Data and Analytics services, including IBM Db2, a next generation SQL database.



## Objectives

After completing this lab, you will be able to:

- Use IBM cloud account to create and use resources
- Create an instance of a Db2 service
- Locate and explore the Db2 console

## Pre-requisites

You will need an IBM Cloud account to do this lab. If you have not created one already, click on this [link](#) and follow the instructions to create an IBM Cloud account.

## Task 1: Create an instance of IBM Db2 Lite plan

Now let us introduce you to Db2 on IBM Cloud. IBM Db2 is a next generation SQL database provisioned for you in the cloud. You can use Db2 on IBM Cloud just as you would use any database software (RDBMS), but without the overhead and expense of hardware setup or software installation and maintenance. Among the service

plans offered for Db2 on IBM Cloud is the Lite plan, which is free to use. You can use your database instance to store relational data, analyze data using a built-in SQL editor, or by connecting your own apps.

Note that IBM Cloud also provides other variants of Db2 such as Db2 Hosted and Db2 Warehouse on Cloud, which is also referred to in this course. However, for the labs in this course, we will utilize the Db2 service since it comes with a Lite plan which is free to use.

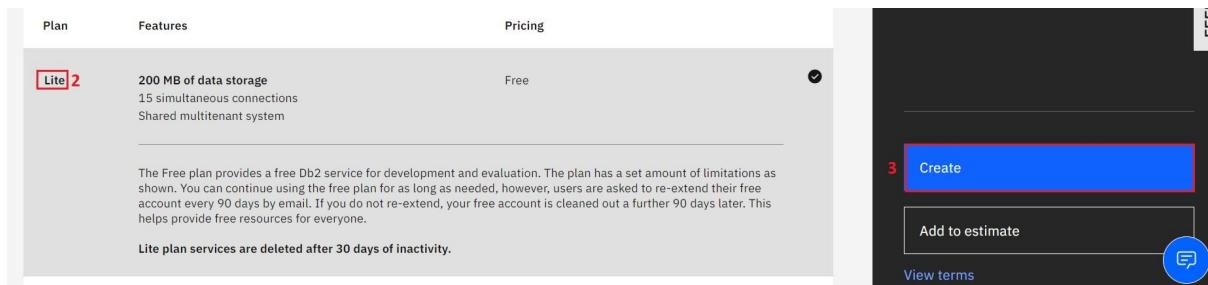
Please follow the steps given below to provision an instance of Db2 on IBM Cloud.

1. Login to [IBM Cloud](#)
2. Go to [the DB2 Services page on IBM Catalog](#).
3. Select a location where you want the service to be hosted.

Note: Depending on the Country of your IBM Cloud account a location to deploy will be pre-selected. For example, if you are in the US, the default region will be Dallas. Users from the UK will see London and so on. It is best to go with the default location that is closest to you. Make sure a Region is selected as location, not a Data center.

The screenshot shows a web browser window with the URL 'cloud.ibm.com/catalog/services/db2' in the address bar. The page is titled 'Db2' and includes a 'Create' button and an 'About' section. A dropdown menu for selecting a region is open, showing 'London' as the current selection. The top navigation bar includes links for Catalog, Docs, and Support.

4. Scroll down to the Pricing Plans section and select the Lite plan (it's a free plan, and available only in DALLAS at this point of time) or any other plans as required.
5. Then click on the Create button towards the lower-right of the page. It will spin for a few seconds (typically less than 30s) and then you should see a Service Created message indicating that your instance of Db2 was created successfully.



## Task 2: Locate and Explore the Db2 console

Now that you have created your database instance, you need to know how to get to it, explore the console and start working with it.

- NOTE: You are not required to compose and run any SQL query on this exercise.
1. To access your database instance, go to your IBM Cloud Resource List (you may need to log into IBM Cloud in the process) directly at: [cloud.ibm.com/resources](https://cloud.ibm.com/resources)
    - Alternative: Go to your IBM Cloud dashboard (you may need to login to IBM Cloud in the process) at: [cloud.ibm.com](https://cloud.ibm.com) and click Services.

The screenshot shows the IBM Cloud dashboard. At the top, there is a navigation bar with a menu icon, the text 'IBM Cloud', and a search bar labeled 'Search resources and offerings...'. Below the navigation bar, the word 'Dashboard' is centered. Underneath, there is a 'Resource summary' section. This section contains two main categories: 'Services' and 'Storage'. The 'Services' category is highlighted with a red border and has a green checkmark icon with the number '3' next to it. The 'Storage' category has a value of '1'. In the bottom right corner of the 'Resource summary' section, there is a blue button labeled 'Add more resources' with a plus sign. The background of the dashboard is white, and the overall interface is clean and modern.

2. In the Resource list, expand the Services and locate and click on your instance of Db2 you provisioned in exercise 2 (the name typically starts with Db2-xx for

example Db2-fk, Db2-50, etc.)

Cloud IBM resources

IBM Cloud Search resources and offerings...

↓ Name ↑ Group

Filter by name or IP address... Filter by group

↓ Devices (0)

↓ VPC infrastructure (0)

↓ Clusters (0)

↓ Cloud Foundry apps (0)

↓ Cloud Foundry services (0)

↑ Services (6)

 Db2-2a	Default
 Language Translator-6c	Default
 Speech to Text-6d	Default

3. Click on the Go to UI button.

The screenshot shows the Azure Resource list interface for a resource named "Db2-pr". The "Manage" button is highlighted with a red box. To the right, there is a "Getting started" section with a "Go to UI" button also highlighted with a red box, and a "Getting started docs" link.

Resource list /

Db2-pr Active Add tags

Manage

Getting started

Service credentials

Connections

Getting started

Where can I find my credentials?  
Get your username and password by clicking the "Service Credentials" link to the left and selecting "New Credentials".

Go to UI Getting started docs

4. The Db2 console will open in a new tab in your web browser. Click on the 3-bar menu icon in the top left corner and then click on RUN SQL.

The screenshot shows the Db2 console interface. The 3-bar menu icon is highlighted with a red box. The "Run SQL" button is also highlighted with a red box. The main dashboard displays resource usage information, including a storage usage chart for the last hour.

Overview In-flight executions Connections Storage

Dashboard

SQL Run SQL

Data Run SQL

Administration

About

APIs

Documentation

Resource usage

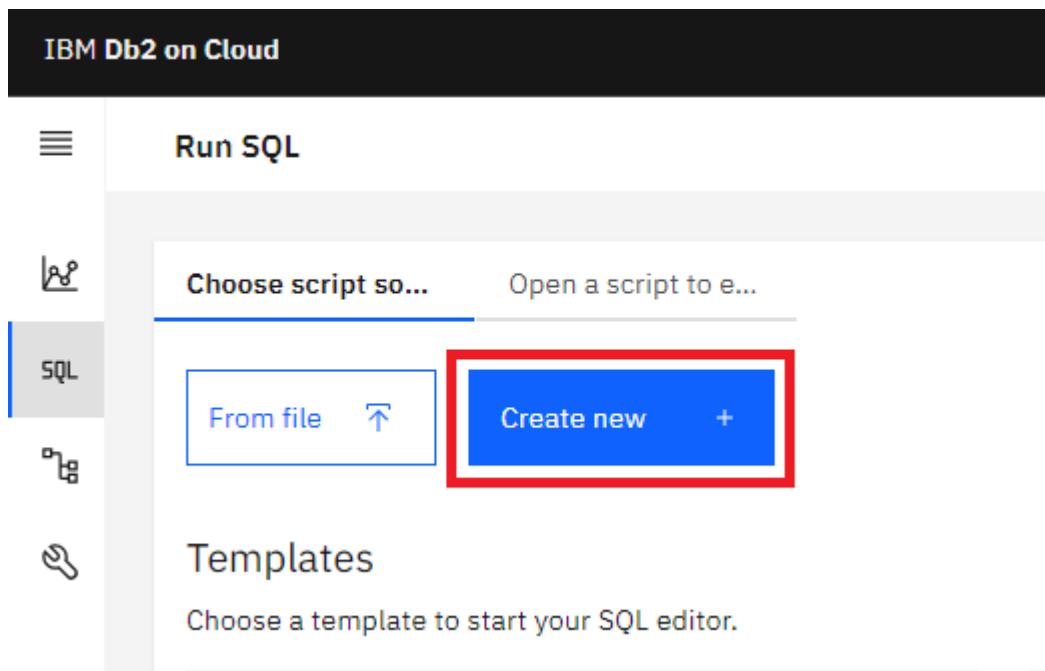
Last 1 hour

Storage (12M / 200M)  
6% current value

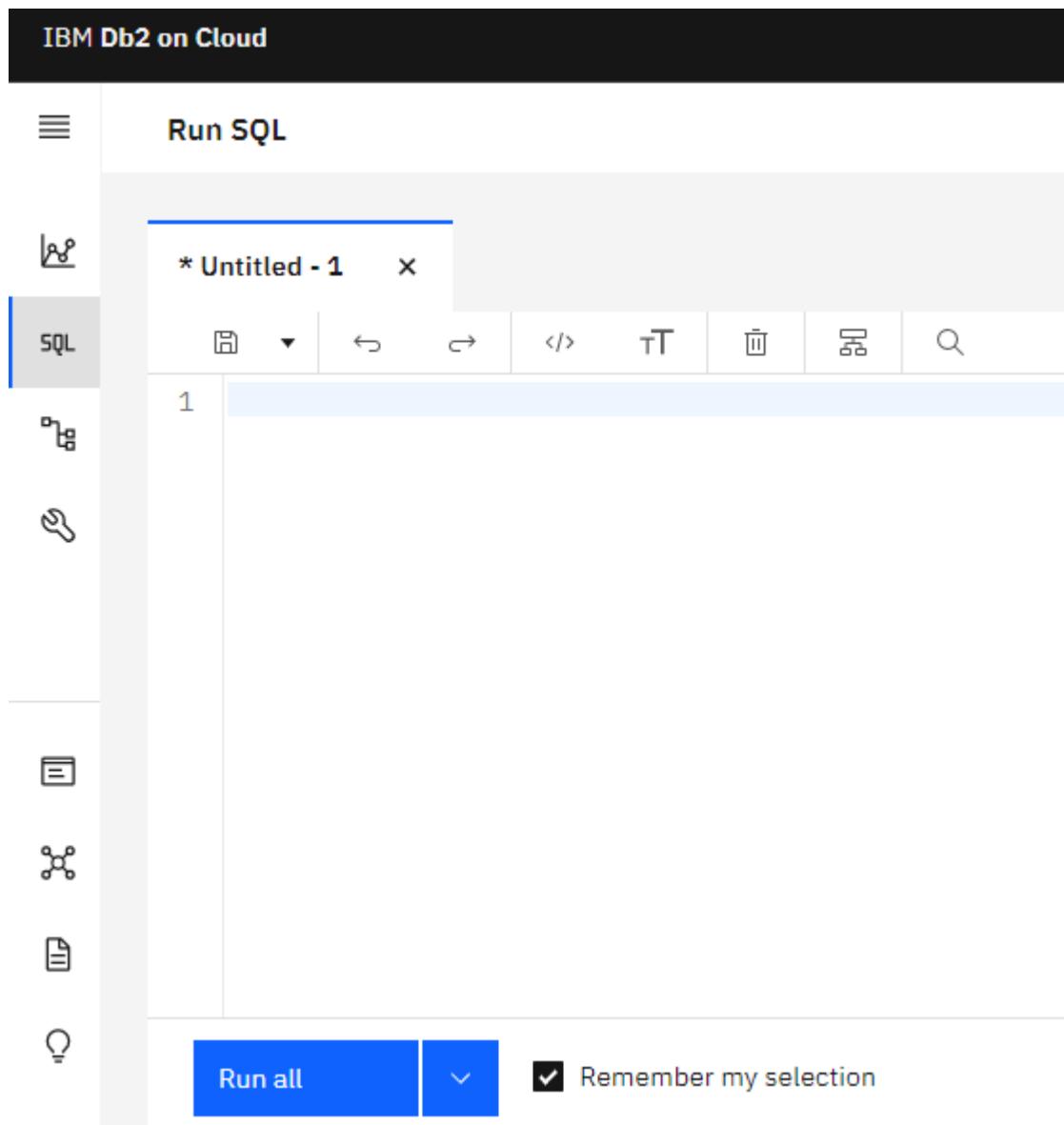
Storage usage (%)

Time

5. On the next screen click on Create new.



6. The SQL editor will open where you can start typing and running queries.



7. The SQL editor has several areas for performing different tasks.

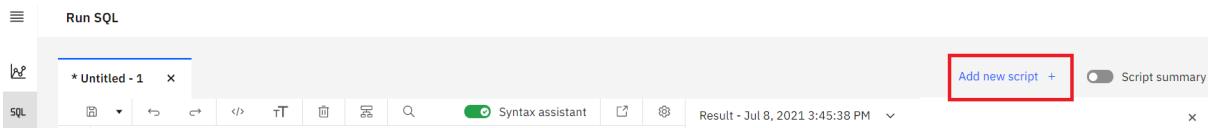
This screenshot shows the same 'Run SQL' interface with various annotations:

- A blue box labeled 'INSERT YOUR SQL QUERIES HERE' points to the main workspace where a query is typed.
- A blue box labeled 'CLICK HERE TO RUN SQL QUERIES' points to the 'Run all' button at the bottom.
- A blue box labeled 'GREEN MARK INDICATES SUCCESS' points to a green checkmark icon next to the query results.
- A blue box labeled 'QUERY RESULT' points to the table of results.

The results table displays the following data:

E1001	JOHN	THOMAS	123456	01/09/1976
E1002	Alice	James	123457	07/31/1972
E1003	Steve	Wells	123458	08/10/1980
E1004	Santosh	Kumar	123459	07/20/1985
E1005	Ahmed	Hussain	123410	01/04/1981
E1006	Nancy	Allen	123411	02/06/1978

- Click on the Add New Script + icon if you want to add a new script for composing queries and then select Create new.



- When you are asked in the upcoming labs, compose the appropriate SQL query for each problem and run by clicking Run all .

- When you will run the script, looking at the Result section of the executed queries you will know whether the SQL statements ran successfully or not.

Query	Status	Message	Run Time
SELECT F_NAME , L_NAME FROM DEPARTMENTS;	Failed	"F_NAME" is not valid in the context where it is used.. SQLCODE=-206, SQLSTATE=42703, DRIVER=4.26.14	0.011 s
SELECT F_NAME , L_NAME FROM EMPLOYEES;	Success		0.001 s

- By clicking the Result section of the executed queries, you can see the query error details or result set to check and ensure the output is what you expected.

- NOTE: You may find that some results don't appear in the result set pane; in this case, click the highlighted diagonal arrow (View More) and it will open the full Result Set window containing the results.

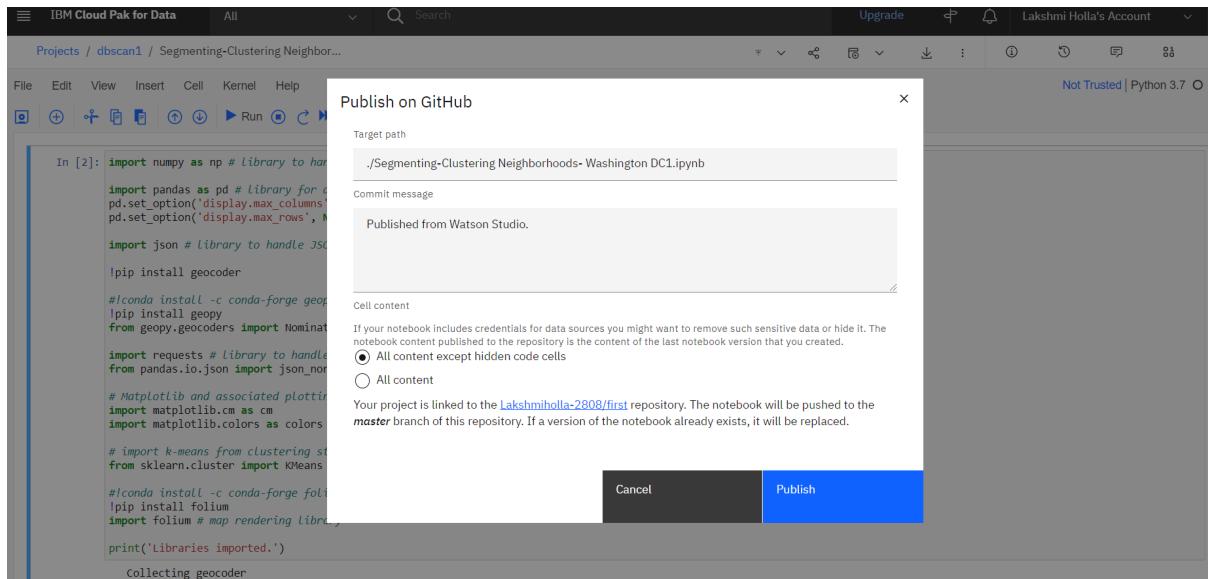
F_NAME	L_NAME
John	Thomas
Alice	James
Steve	Wells
Santosh	Kumar
Ahmed	Hussain

5 /10 rows truncated to display. [Show More](#)

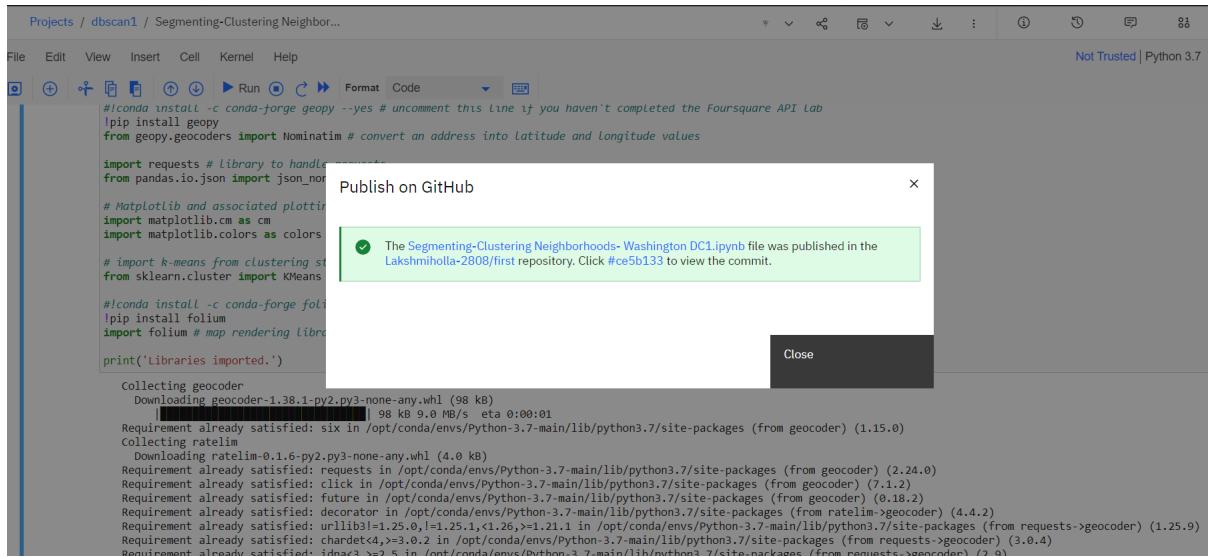
12.

## Summary

You can now find your way into and around the database instance, and you will use these skills in later labs.

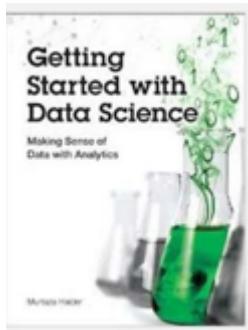


Step 19: This will publish your notebook to github.



Course Text Book: 'Getting Started with Data Science' Publisher: IBM Press; 1 edition (Dec 13 2015) Print.

Author: Murtaza Haider



Prescribed Reading: Chapter 3 Pg. 60-62

### The Report Structure

Before starting the analysis, think about the structure of the report. Will it be a brief report of five or fewer pages, or will it be a longer document running more than 100 pages in length? The structure of the report depends on the length of the document. A brief report is more to the point and presents a summary of key findings. A detailed report incrementally builds the argument and contains details about other relevant works, research methodology, data sources, and intermediate findings along with the main results.

I have reviewed reports by leading consultants including Deloitte and McKinsey. I found that the length of the reports varied depending largely on the purpose of the report. Brief reports were drafted as commentaries on current trends and developments that attracted public or media attention. Detailed and comprehensive reports offered a critical review of the subject matter with extensive data analysis and commentary. Often, detailed reports collected new data or interviewed industry experts to answer the research questions.

Even if you expect the report to be brief, sporting five or fewer pages, I recommend that the deliverable follow a prescribed format including the cover page, table of contents, executive summary, detailed contents, acknowledgments, references, and appendices (if needed).

I often find the cover page to be missing in documents. It is not the inexperience of undergraduate students that is reflected in submissions that usually miss the cover page. In fact, doctoral candidates also require an explicit reminder to include an informative cover page. I hasten to mention that the business world sleuths are hardly any better. Just search the Internet for reports and you will find plenty of reports from reputed firms that are missing the cover page.

At a minimum, the cover page should include the title of the report, names of authors, their affiliations, and contacts, the name of the institutional publisher (if

any), and the date of publication. I have seen numerous reports missing the date of publication, making it impossible to cite them without the year and month of publication. Also, from a business point of view, authors should make it easier for the reader to reach out to them. Having contact details at the front makes the task easier.

"A table of contents (ToC)" is like a map needed for a trip never taken before. You need to have a sense of the journey before embarking on it. A map provides a visual proxy for the actual travel with details about the landmarks that you will pass by in your trip. The ToC with main headings and lists of tables and figures offers a glimpse of what lies ahead in the document. Never shy away from including a ToC, especially if your document, excluding cover page, table of contents, and references, is five or more pages in length.

Even for a short document, I recommend an "abstract" or an "executive summary". Nothing is more powerful than explaining the crux of your arguments in three paragraphs or less. Of course, for larger documents running a few hundred pages, the executive summary could be longer. An "introductory section" is always helpful in setting up the problem for the reader who might be new to the topic and who might need to be gently introduced to the subject matter before being immersed in intricate details. A good follow-up to the introductory section is a review of available relevant research on the subject matter. The length of the literature review section depends upon how contested the subject matter is. In instances where the vast majority of researchers have concluded in one direction, the literature review could be brief with citations for only the most influential authors on the subject. On the other hand, if the arguments are more nuanced with caveats aplenty, then you must cite the relevant research to offer adequate context before you embark on your analysis. You might use the literature review to highlight gaps in the existing knowledge, which your analysis will try to fill. This is where you formally introduce your research questions and hypothesis.

In the "methodology" section, you introduce the research methods and data sources you used for the analysis. If you have collected new data, explain the data collection exercise in some detail. You will refer to the literature review to bolster your choice for variables, data, and methods and how they will help you answer your research questions.

The results section is where you present your empirical findings. Starting with descriptive statistics (see Chapter 4, "Serving Tables") and illustrative graphics (see Chapter S, "Graphic Details" for plots and Chapter 10, "Spatial Data Analytics" for

maps), you will move toward formally testing your hypothesis (see Chapter 6, "Hypothetically Speaking").

In case you need to run statistical models, you might turn to regression models (see Chapter 7, "Why Tall Parents Don't Have Even Taller Children") or categorical analysis (see Chapters 8, "To Be or Not to Be" and 2., "Categorically Speaking About Categorical Data"). If you are working with time-series data, you can turn to Chapter 11, Doing Serious Time with Time Series. You can also report results from other empirical techniques that fall under the general rubric of data mining (see Chapter 12, "Data Mining for Gold"). Note that many reports in the business sector present results in a more palatable fashion by holding back the statistical details and relying on illustrative graphics to summarize the results.

The results section is followed by the discussion section, where you craft your main arguments by building on the results you have presented earlier.

The "discussion section" is where you rely on the power of narrative to enable numbers to communicate your thesis to your readers. You refer the reader to the research question and the knowledge gaps you identified earlier. You highlight how your findings provide the ultimate missing piece to the puzzle.

Of course, not all analytics return a smoking gun. At times, more frequently than I would like to acknowledge, the results provide only a partial answer to the question and that, too, with a long list of caveats.

In the "conclusion" section, you generalize your specific findings and take on a rather marketing approach to promote your findings so that the reader does not remain stuck in the caveats that you have voluntarily outlined earlier. You might also identify future possible developments in research and applications that could result from your research. What remains is housekeeping, including a list of references, the acknowledgment section (acknowledging the support of those who have enabled your work is always good), and "appendices", if needed.

## Have You Done Your Job as a Writer?

As a data scientist, you are expected to do thorough analysis with the appropriate data, deploying the appropriate tools. As a writer, you are responsible for communicating your findings to the readers. *Transport Policy*, a leading research publication in transportation planning, offers a checklist for authors interested in publishing with the journal. The checklist is a series of questions authors are expected to consider before submitting their manuscripts to the journal. I believe the

checklist is useful for budding data scientists and, therefore, I have reproduced it verbatim for their benefit.

- Have you told readers, at the outset, what they might gain by reading your paper?
- Have you made the aim of your work clear?
- Have you explained the significance of your contribution?
- Have you set your work in the appropriate context by giving sufficient background (including a complete set of relevant references) to your work?
- Have you addressed the question of practicality and usefulness?
- Have you identified future developments that might result from your work?
- Have you structured your paper in a clear and logical fashion?

## Hands-on Lab : Getting Started with PowerPoint for the Web

Estimated time needed: 20 minutes

Microsoft PowerPoint is the most widely used presentation software even three decades after its initial release. For all these years it has been available as a standard application that needed to be installed on your desktop; but it is not just a desktop app anymore. Now, you can even use PowerPoint when you're online by using 'PowerPoint for the web' - and run it right in your web browser without installing anything on your desktop!

'PowerPoint for the Web' (sometimes referred to as PowerPoint Online) can be used at no charge as part of a free Microsoft account. Although it does not have all of the capabilities of the desktop and paid online versions, the free web version provides many of the key features.

## Software Used in this Lab

For the story telling/project report of this module, you will be using the free 'PowerPoint for the web' version as this is available to everyone.

Although you can use the PowerPoint Desktop software if you have access to this version, it is recommended that you use PowerPoint for the web for your project

report as it is available for free, and there are some small differences in the interface and available features.

## Objectives

After completing this lab, you will be able to:

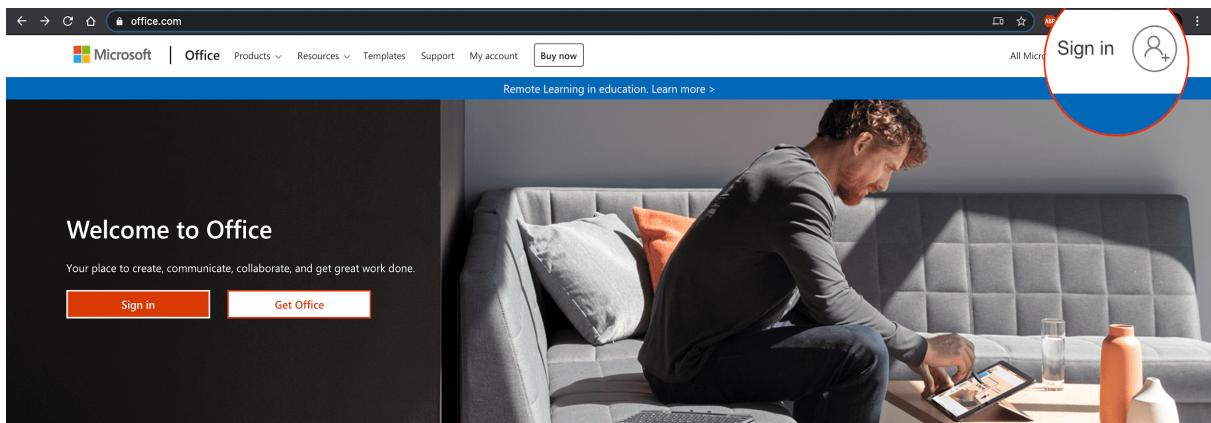
- Sign up for a Microsoft Account to use PowerPoint for the web
- Sign in and open a new blank presentation in PowerPoint for the web

## Exercise 1: Sign-up for a Microsoft Account to use PowerPoint for the Web

In this exercise, you will sign up for a Microsoft Account to use PowerPoint for the web.

If you already have a Microsoft account, you can skip Exercise 1 and proceed to Exercise 2 directly.

1. Go to [www.office.com](http://www.office.com). Click Sign in



Sign in to use your favorite productivity apps from any device



Word



Excel



PowerPoint



OneNote



OneDrive

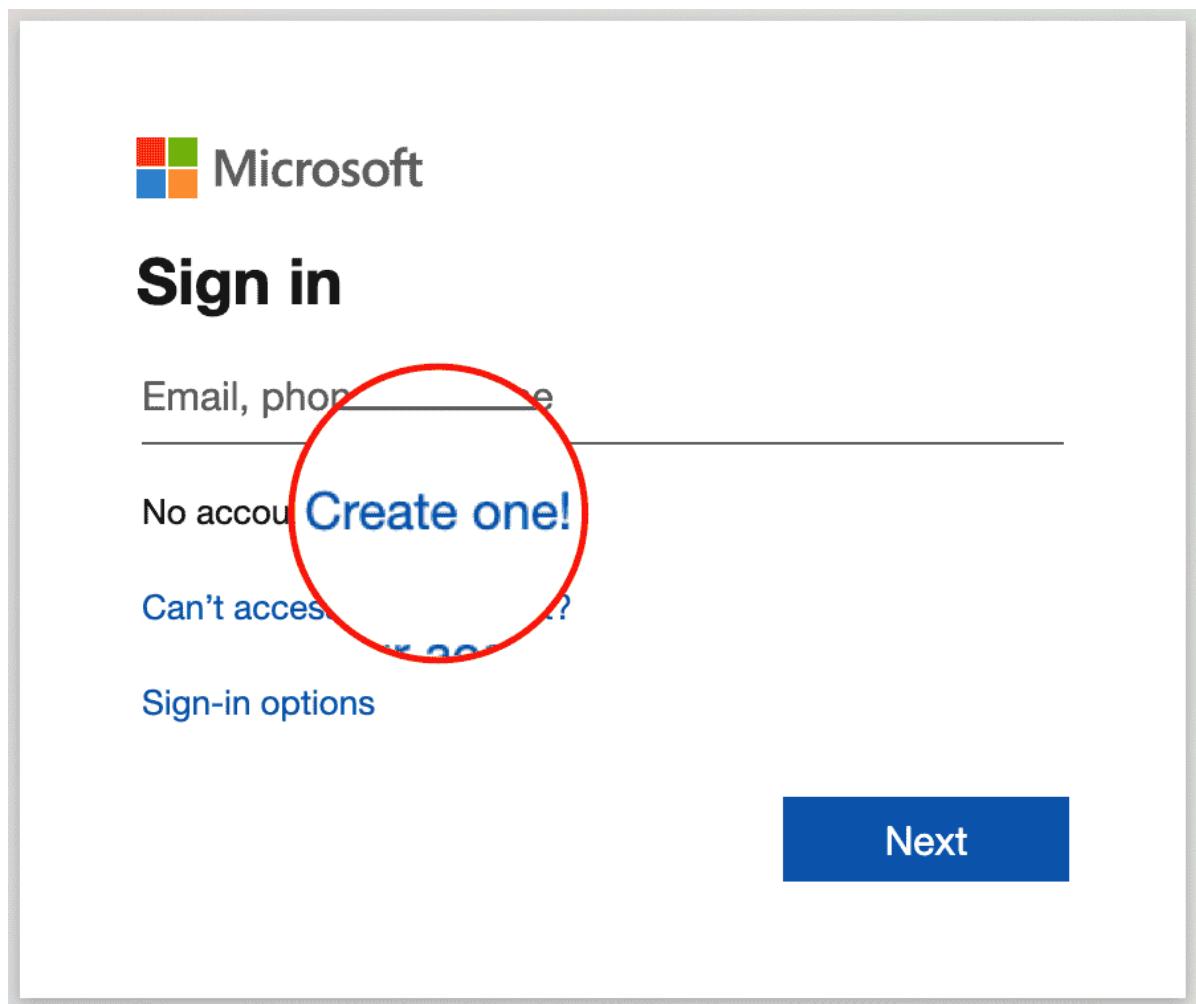


Outlook

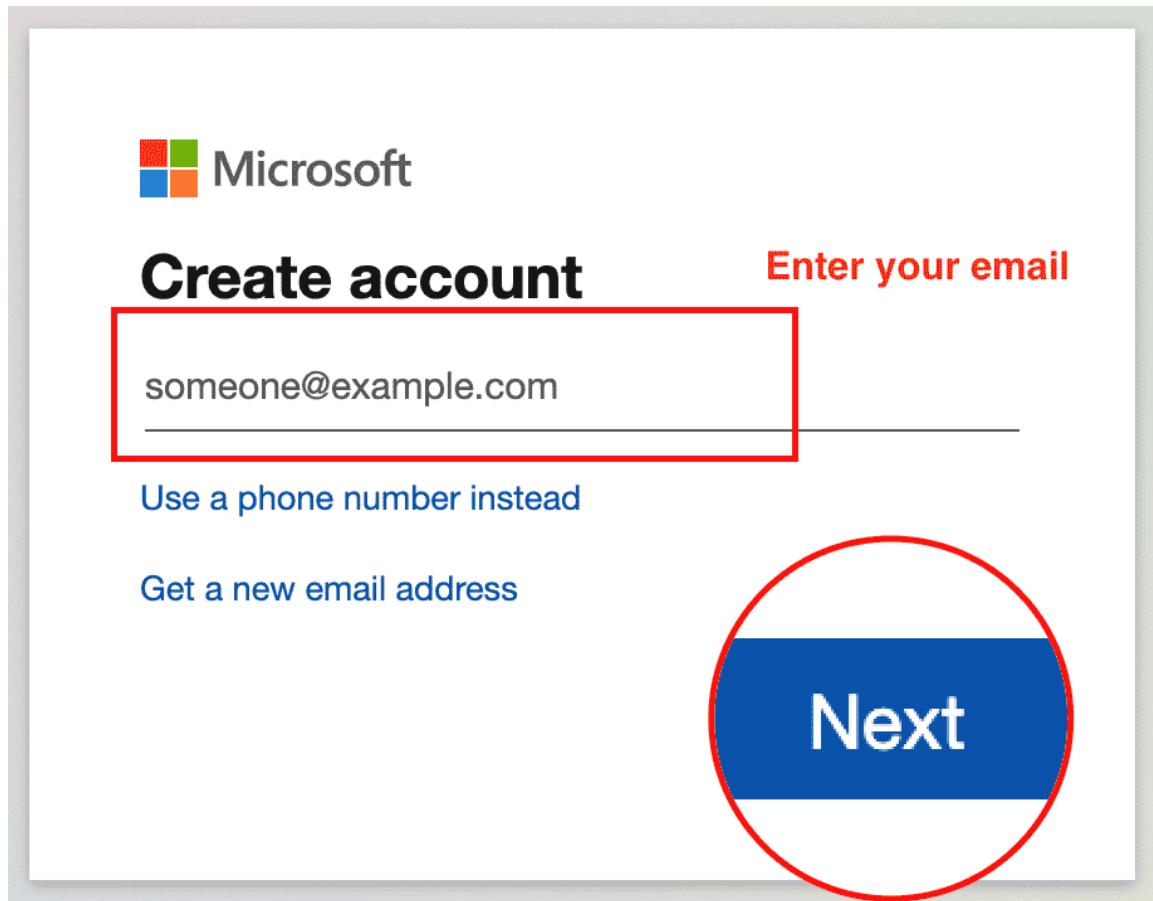


Teams

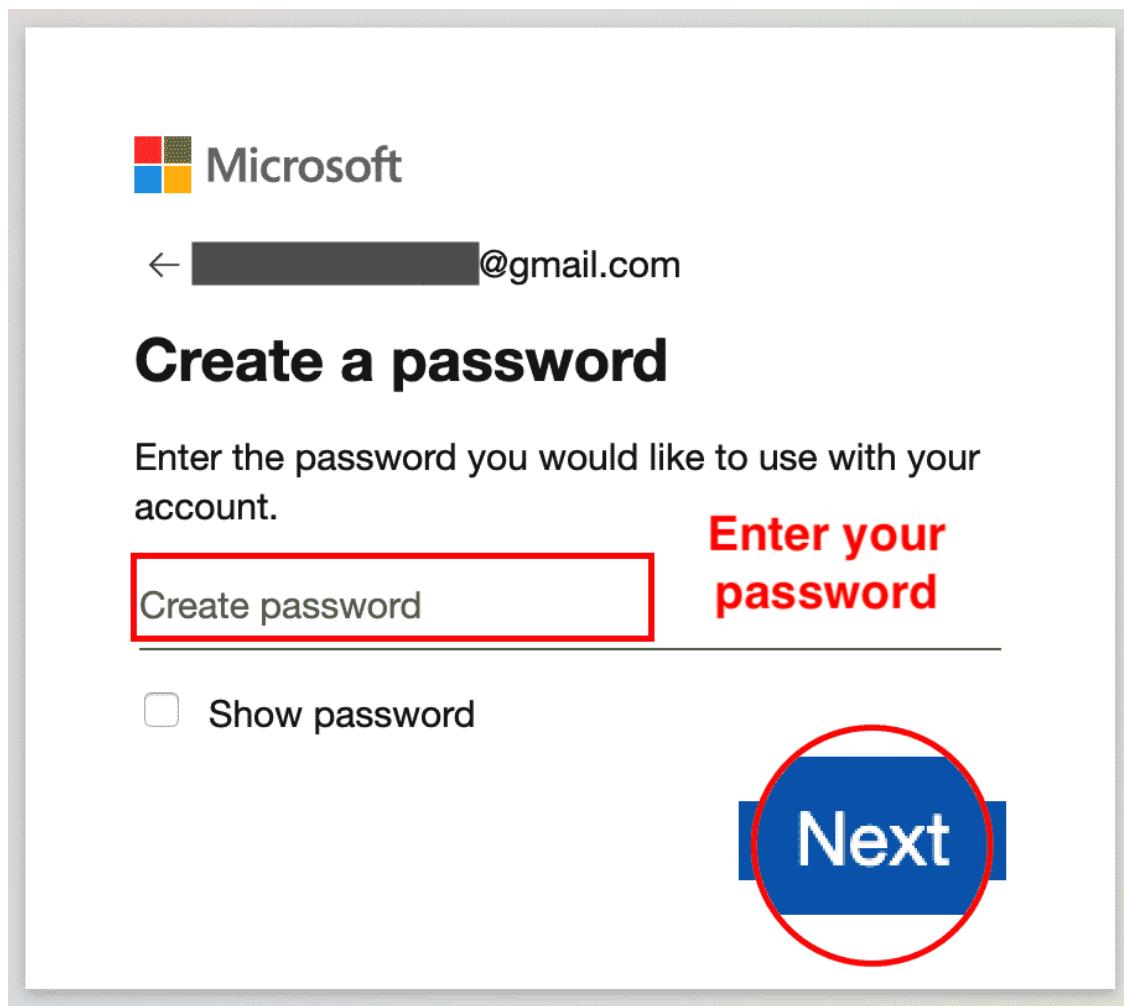
2. Click Create one!



3. Enter your existing email id with which you want to create a Microsoft account. Click Next.



4. Enter your password and click Next.



5. Enter the code you received by email. Click Next.

 Microsoft

← [REDACTED]@gmail.com

## Verify email

Enter the code we sent to  
[REDACTED]@gmail.com. If you didn't get the  
email, check your junk folder or [try again](#).

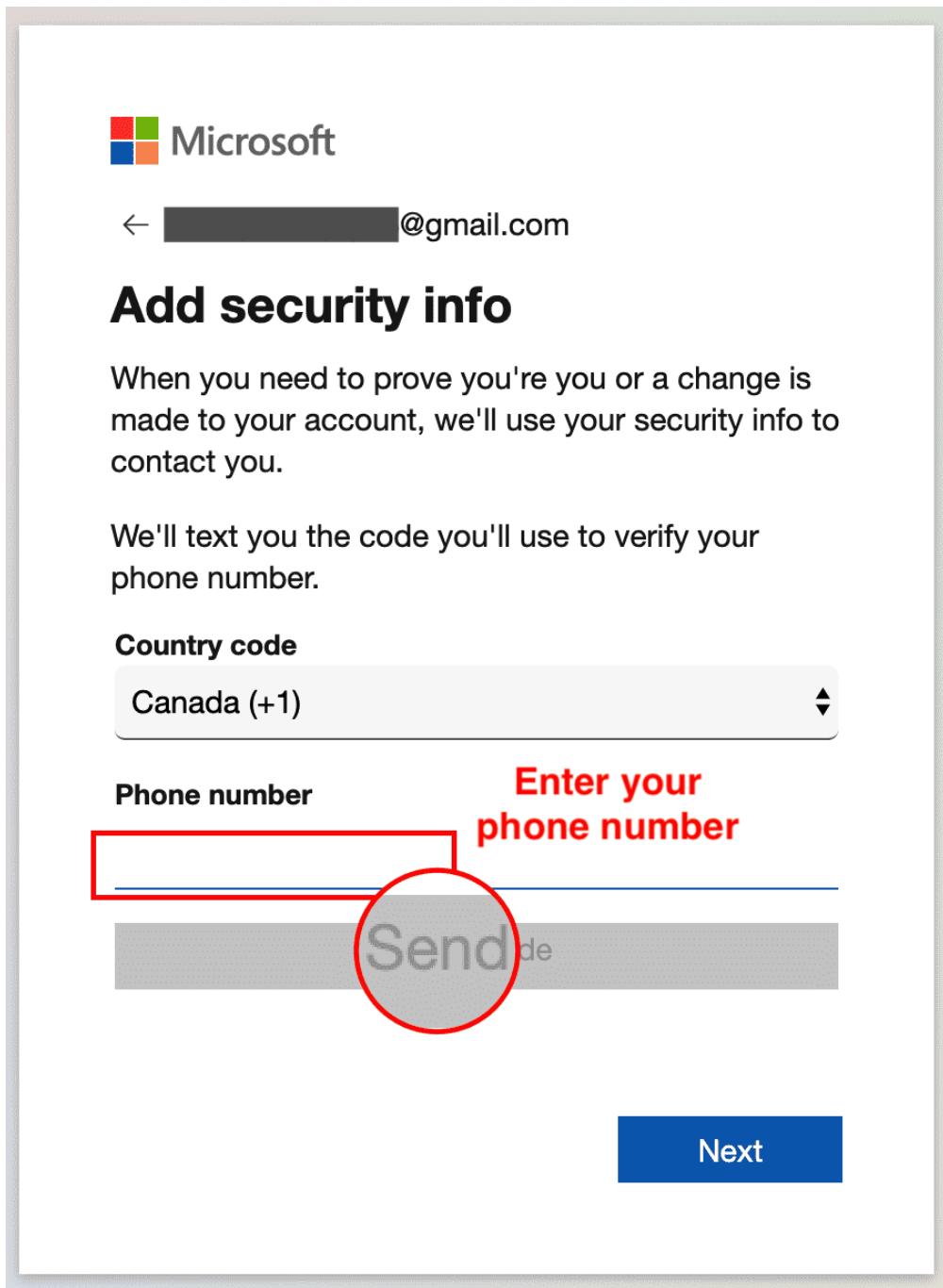
Enter the verification code  
sent to your email address

I would like information, tips, and offers about  
Microsoft products and services.

Choosing **Next** means that you agree to the [Microsoft Services  
Agreement](#) and [privacy and cookies statement](#).

**Next**

6. Enter your phone number and click Send Code.



The screenshot shows a Microsoft account sign-in page. At the top left is the Microsoft logo. Below it is an email address placeholder: ← [REDACTED]@gmail.com. The main heading is "Add security info". A sub-instruction reads: "When you need to prove you're you or a change is made to your account, we'll use your security info to contact you." Another instruction below says: "We'll text you the code you'll use to verify your phone number." A dropdown menu for "Country code" is open, showing "Canada (+1)" with a downward arrow. To the right of the dropdown is a red callout bubble with the text "Enter your phone number". Below the dropdown is a text input field with a red border, which has a red rectangular highlight above it. Below the input field is a large grey button with the word "Send" in white. A red circle highlights the "Send" button. At the bottom right is a blue "Next" button.

← [REDACTED]@gmail.com

## Add security info

When you need to prove you're you or a change is made to your account, we'll use your security info to contact you.

We'll text you the code you'll use to verify your phone number.

**Country code**

Canada (+1)

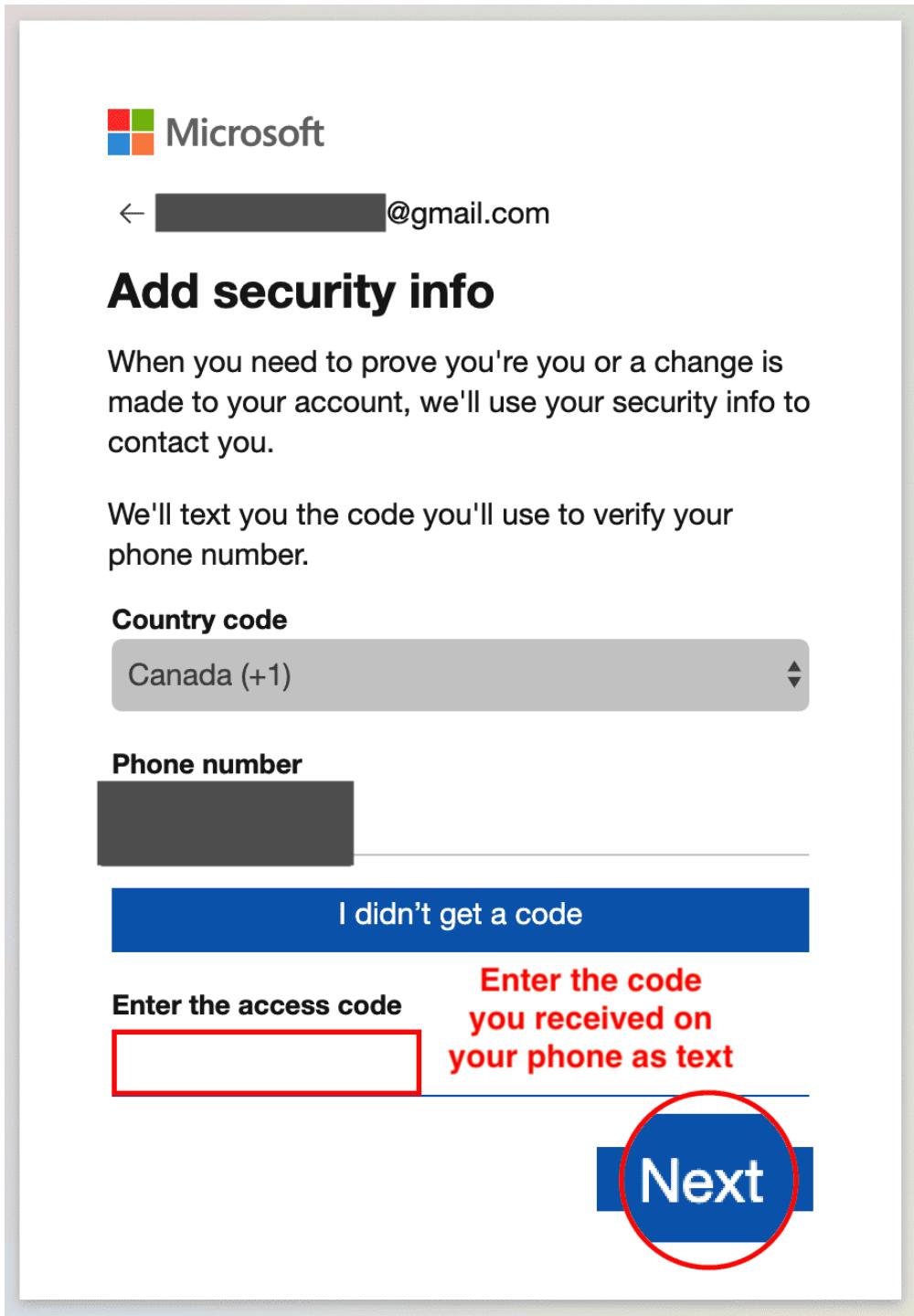
**Phone number**

Enter your phone number

Send

Next

7. Enter the access code you received as a text on your phone, then click Next.



The image shows a screenshot of a Microsoft account setup page titled "Add security info". At the top, it displays the Microsoft logo and the email address "← [REDACTED]@gmail.com". Below this, the section title "Add security info" is centered. A descriptive text explains that when a change is made to the account, Microsoft will use security info to contact the user. It states that a code will be texted to the user's phone number for verification. The "Country code" dropdown menu is set to "Canada (+1)". The "Phone number" field is redacted. A blue button labeled "I didn't get a code" is visible. Below these fields, there are two input fields: one for "Enter the access code" (which is redacted) and another for "Enter the code you received on your phone as text" (which is also redacted). A large blue "Next" button at the bottom right is circled in red, indicating it is the next step to be taken.

← [REDACTED]@gmail.com

## Add security info

When you need to prove you're you or a change is made to your account, we'll use your security info to contact you.

We'll text you the code you'll use to verify your phone number.

**Country code**

Canada (+1)

**Phone number**

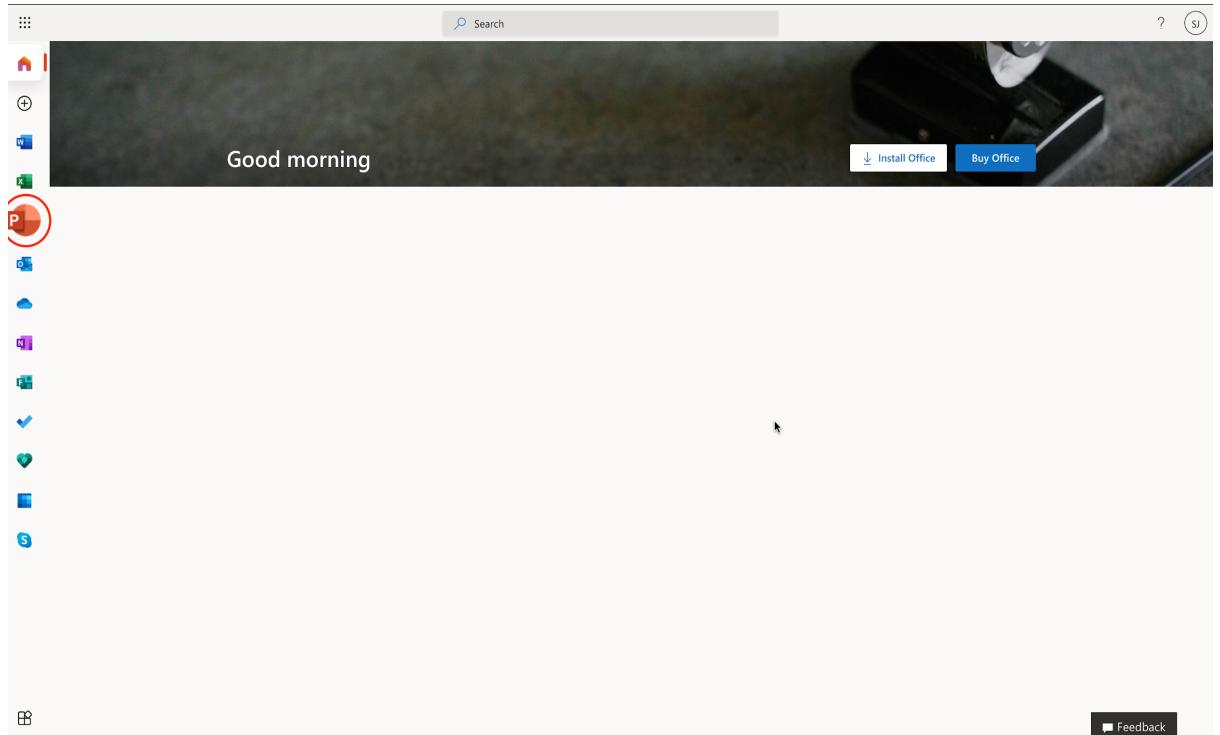
I didn't get a code

Enter the access code

Enter the code you received on your phone as text

Next

8. You are now done with the sign up procedure. Now since you are signed in after sign up at this stage, you can proceed directly to Task B of Exercise 2.

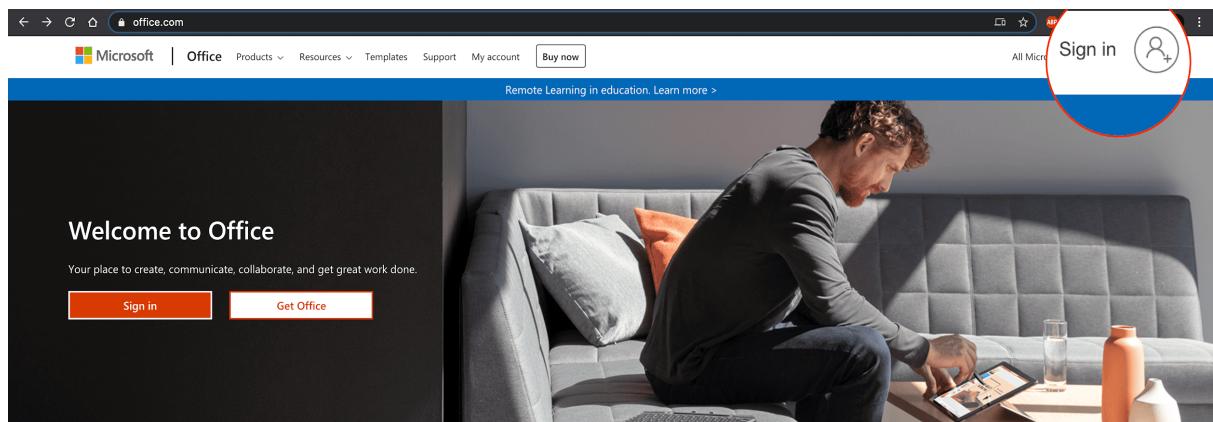


## Exercise 2: Sign-in, Upload and Open presentation in PowerPoint for the Web

In this exercise, you will sign in to PowerPoint for the web. Then open a new blank presentation. Lastly upload, open and edit a presentation.

### Task A: Sign in to PowerPoint for the Web

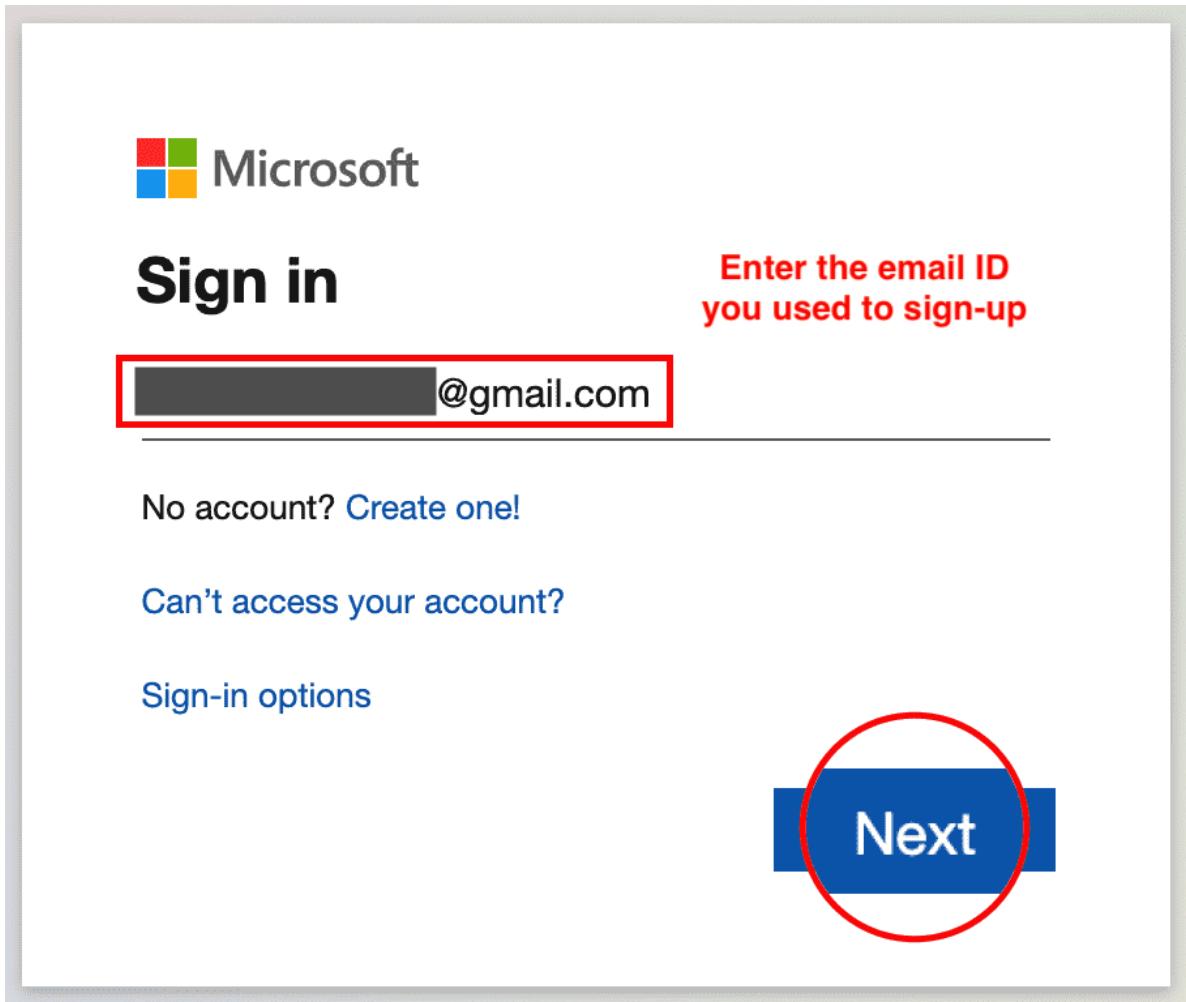
1. Go to [www.office.com](http://www.office.com). Click Sign in.



Sign in to use your favorite productivity apps from any device



2. Enter your sign in email.



The image shows the Microsoft Sign-in page. At the top left is the Microsoft logo. Below it is the word "Sign in". To the right of the sign-in button is a red text overlay that reads "Enter the email ID you used to sign-up". Below the sign-in button is a text input field containing a placeholder email address (@gmail.com) which is also highlighted with a red border. Underneath the input field are three links: "No account? Create one!", "Can't access your account?", and "Sign-in options". At the bottom right is a large blue "Next" button, which is also circled with a red line.

Microsoft

# Sign in

Enter the email ID  
you used to sign-up

[REDACTED]@gmail.com

No account? [Create one!](#)

Can't access your account?

[Sign-in options](#)

Next

3. Enter your password.



The image shows a Microsoft sign-in page. At the top left is the Microsoft logo. Below it is an email address placeholder with a redacted domain. A large bold heading "Enter password" is centered. To its right is a red-bordered input field labeled "Password" with the placeholder "Enter the password you created". Below the input field is a checkbox labeled "Keep me signed in". Underneath the checkbox is a blue link "Forgot password?". At the bottom right is a large blue button with the white text "Sign in", which is circled in red.

Microsoft

[REDACTED]@gmail.com

## Enter password

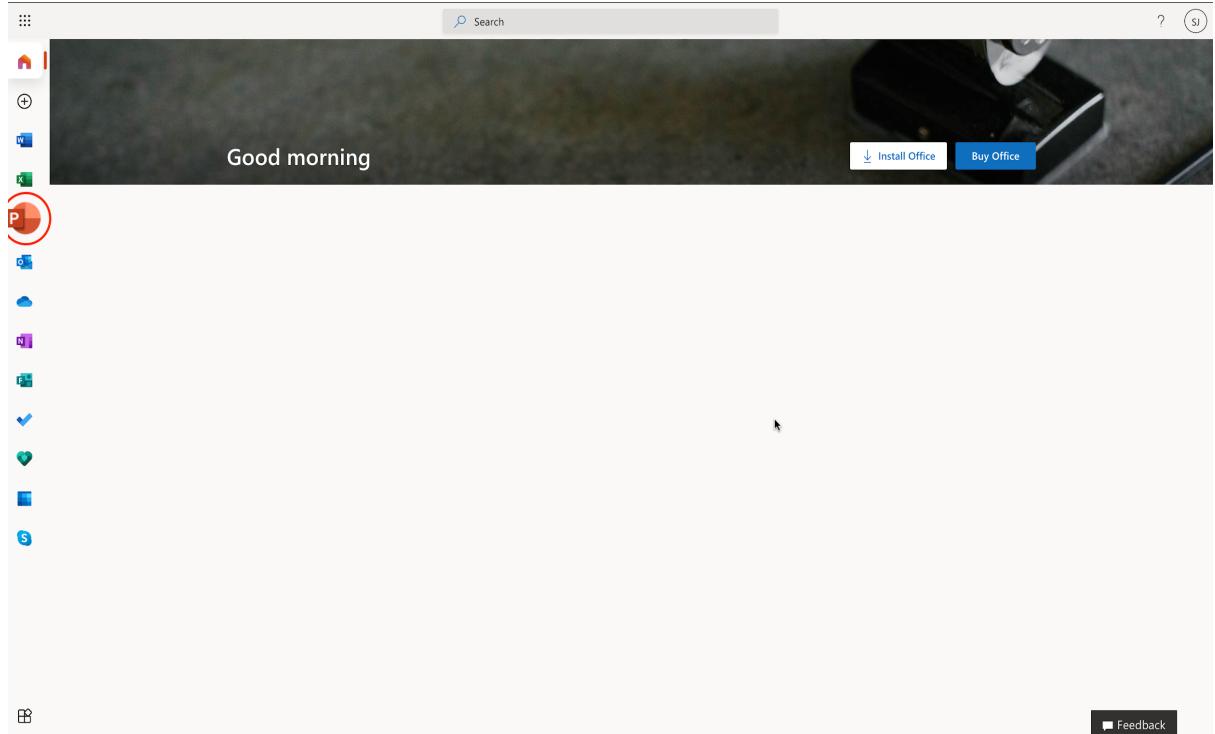
Password *Enter the password  
you created*

Keep me signed in

[Forgot password?](#)

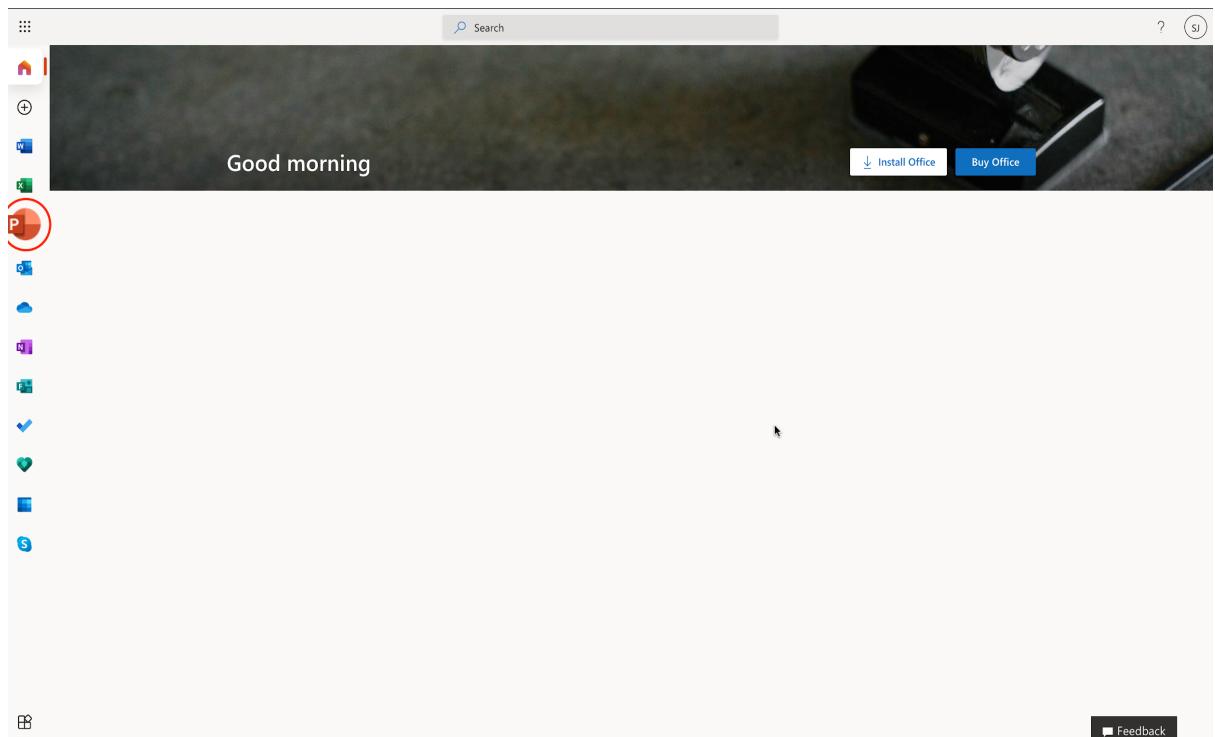
**Sign in**

4. You are now signed in.

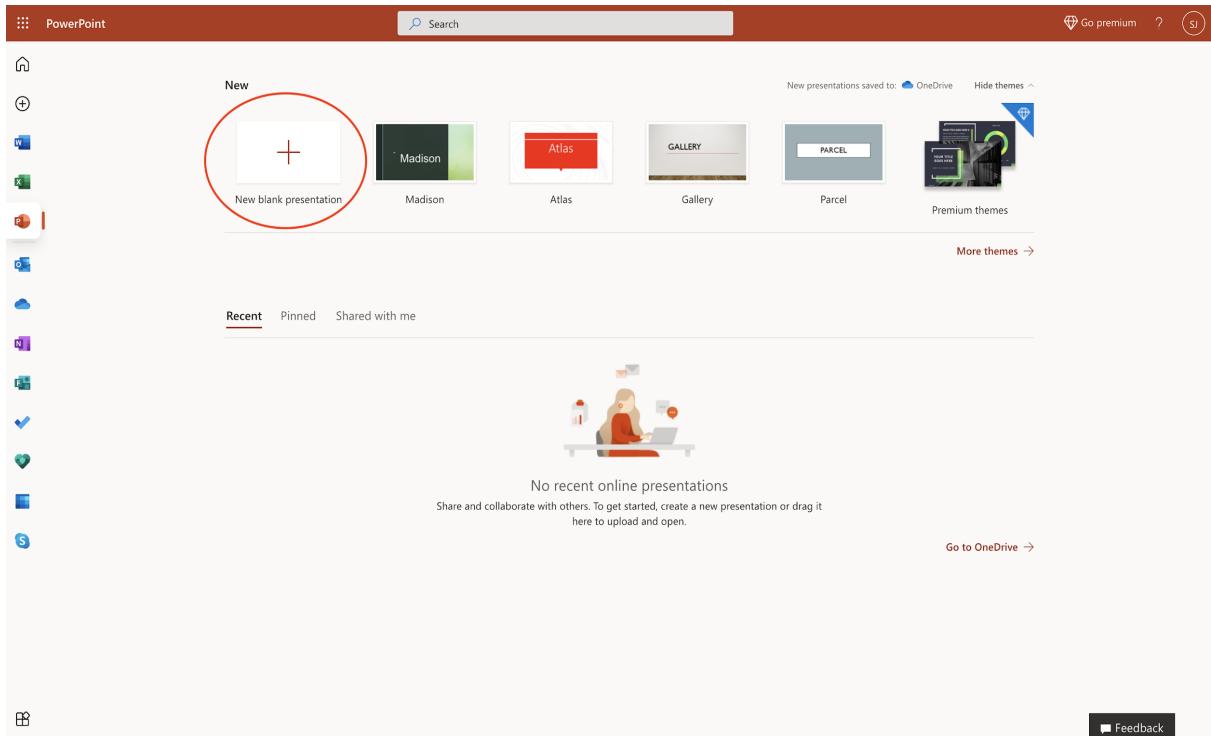


## Task B: Open a new blank presentation in PowerPoint for the Web

1. Click on the PowerPoint icon.



2. Click New blank presentation.



3. You have successfully opened a new blank presentation in PowerPoint for the web.

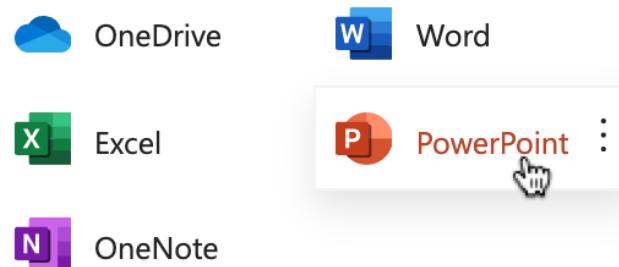
The screenshot shows a new blank slide in Microsoft PowerPoint. The slide has a title placeholder 'Click to add title' and a subtitle placeholder 'Click to add subtitle'. On the left, there's a slide thumbnail labeled '1'. The ribbon menu at the top includes 'File', 'Home' (which is selected), 'Insert', 'Draw', 'Design', 'Transitions', 'Animations', 'Slide Show', 'Review', 'View', 'Help', 'Open in Desktop App', and a 'Tell me what you want to do' search bar. There are also 'Share', 'Comments', and 'Present' buttons. The status bar at the bottom shows 'Slide 1 of 1 English (U.S.)' and various document details.

## Task C: Upload, Open and Edit a Presentation

1. Download the file [capstone-story-template.pptx](#).
2. To upload and open a presentation file in PowerPoint for the web, click the App Launcher (cube of dots) in the top left corner. Click PowerPoint icon.

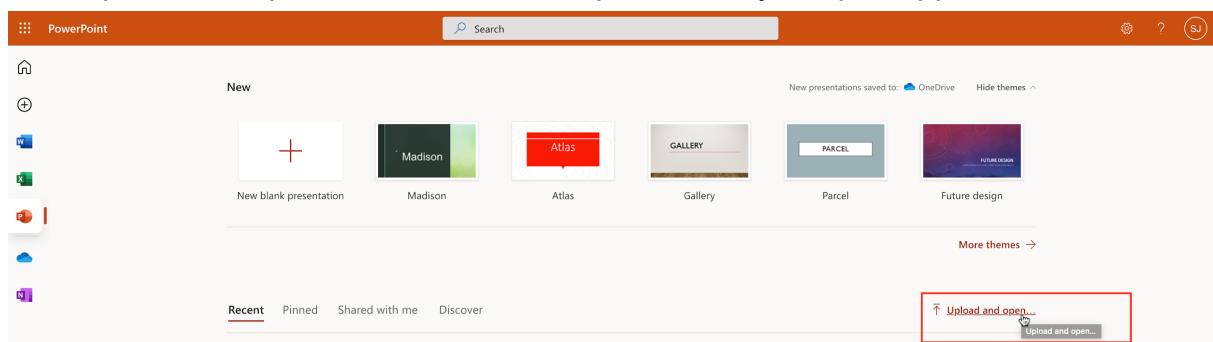


## Apps



All apps →

3. Click Upload and open... and select the capstone-story-template.pptx file.



4. The file will be uploaded to your OneDrive of the Microsoft Account you signed up and used to open PowerPoint for the web.

## Uploading to OneDrive

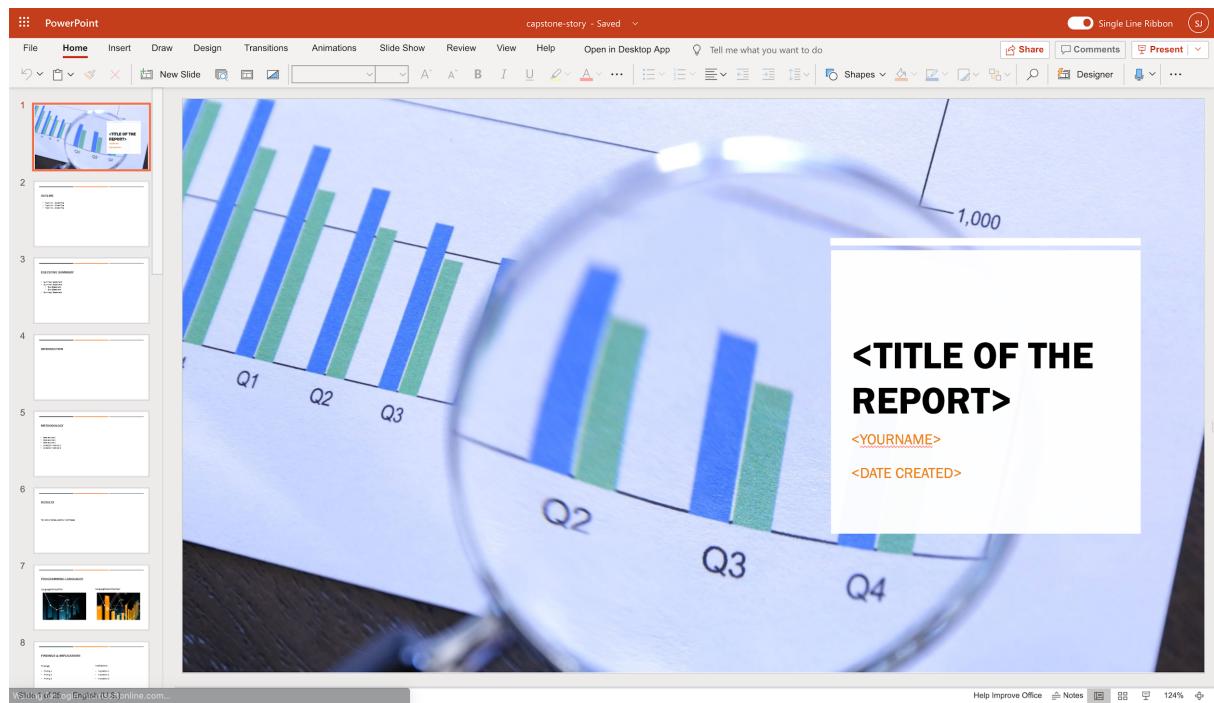
Your file will be opened automatically after upload is complete.

511 KB/511 KB

Tip: You can now drag and drop files to upload them.

Cancel

5. Now edit the presentation with your information required for this module. Your edits are saved automatically.



Congratulations! You have completed this Lab.

# Hands-on Lab : Basics of PowerPoint

Estimated time needed: 15 minutes

Microsoft PowerPoint is the most widely used presentation software even three decades after its initial release. For all these years it has been available as a standard application that needed to be installed on your desktop; but it is not just a desktop app anymore. Now, you can even use PowerPoint when you're online by using 'PowerPoint for the web' - and run it right in your web browser without installing anything on your desktop!

'PowerPoint for the Web' (sometimes referred to as PowerPoint Online) can be used at no charge as part of a free Microsoft account. Although it does not have all of the capabilities of the desktop and paid online versions, the free web version provides many of the key features.

## Software Used in this Lab

For the story telling/project report of this module, you will be using the free 'PowerPoint for the web' version as this is available to everyone.

Although you can use the PowerPoint Desktop software if you have access to this version, it is recommended that you use PowerPoint for the web for your project report as it is available for free, and there are some small differences in the interface and available features. If you do not yet have access to PowerPoint for the Web, you can follow the instructions in the following lab to get started with it: [Hands-on Lab - Getting Started with PowerPoint for the Web](#)

## Objectives

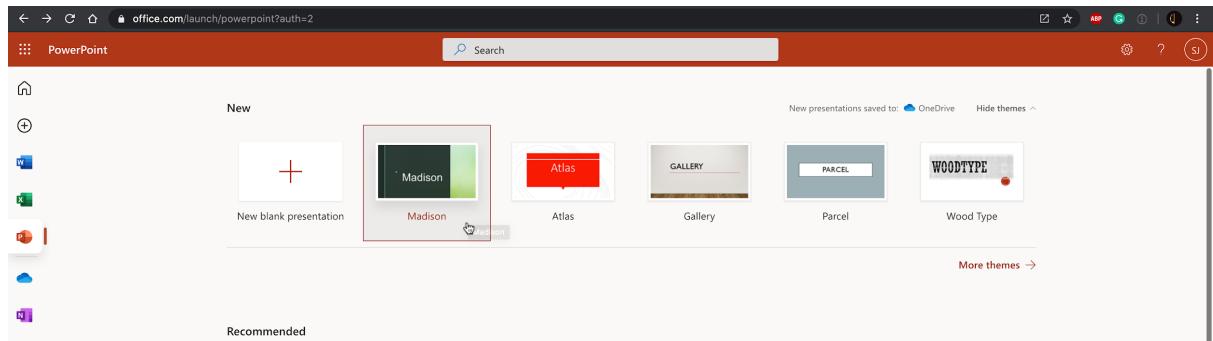
After completing this lab, you will be able to:

- Create presentations from scratch / template
- Add new slide and change slide layout and design
- Add text, images, art, and videos

## Exercise 1: Create presentations from scratch / template

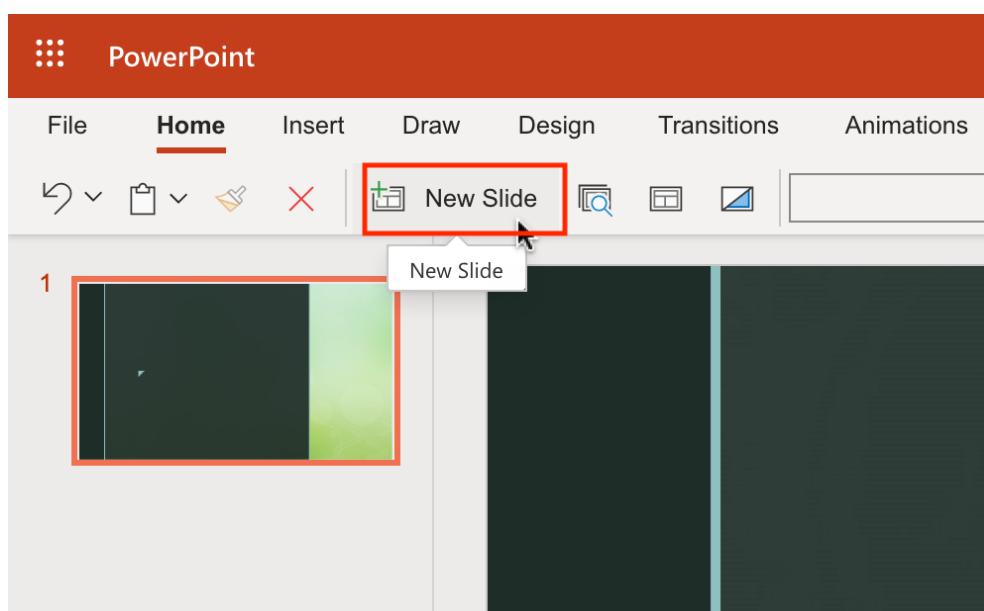
1. Go to [www.office.com](http://www.office.com). Sign in and go to PowerPoint for the Web.

2. On the PowerPoint homepage, you can either select New blank presentation to start from scratch or some templates. Select Madison as a template.

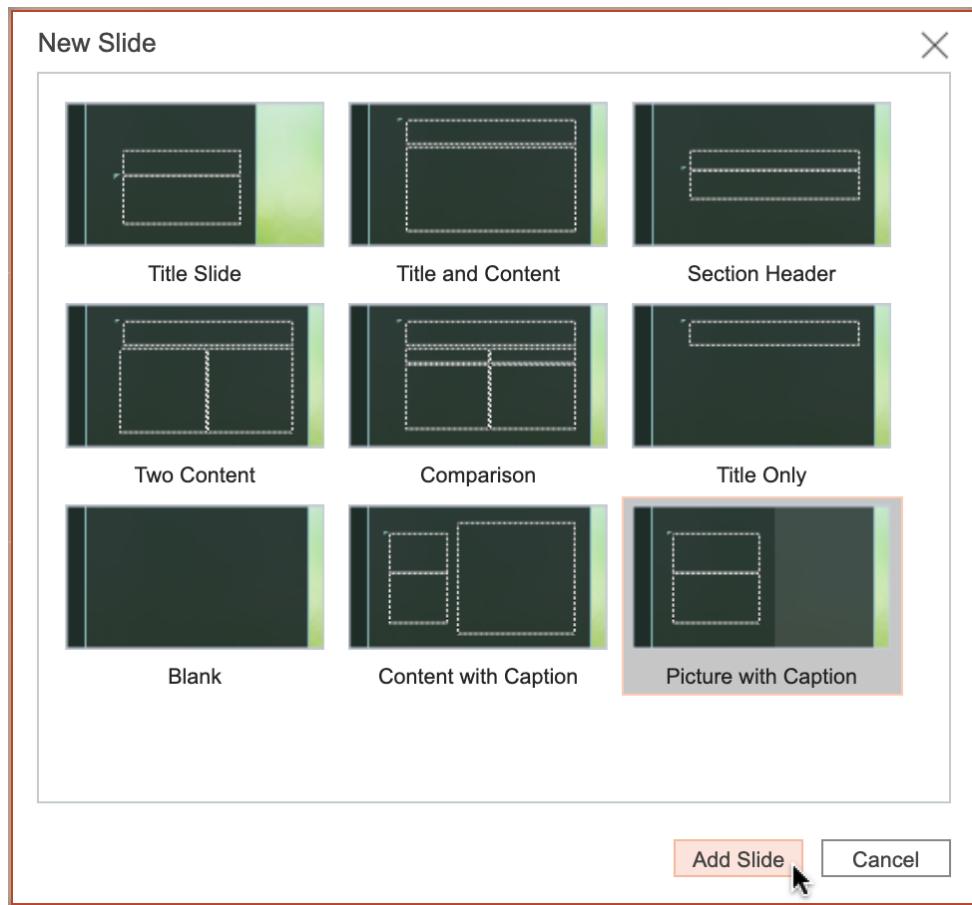


## Exercise 2: Add new slide and change slide layout and design

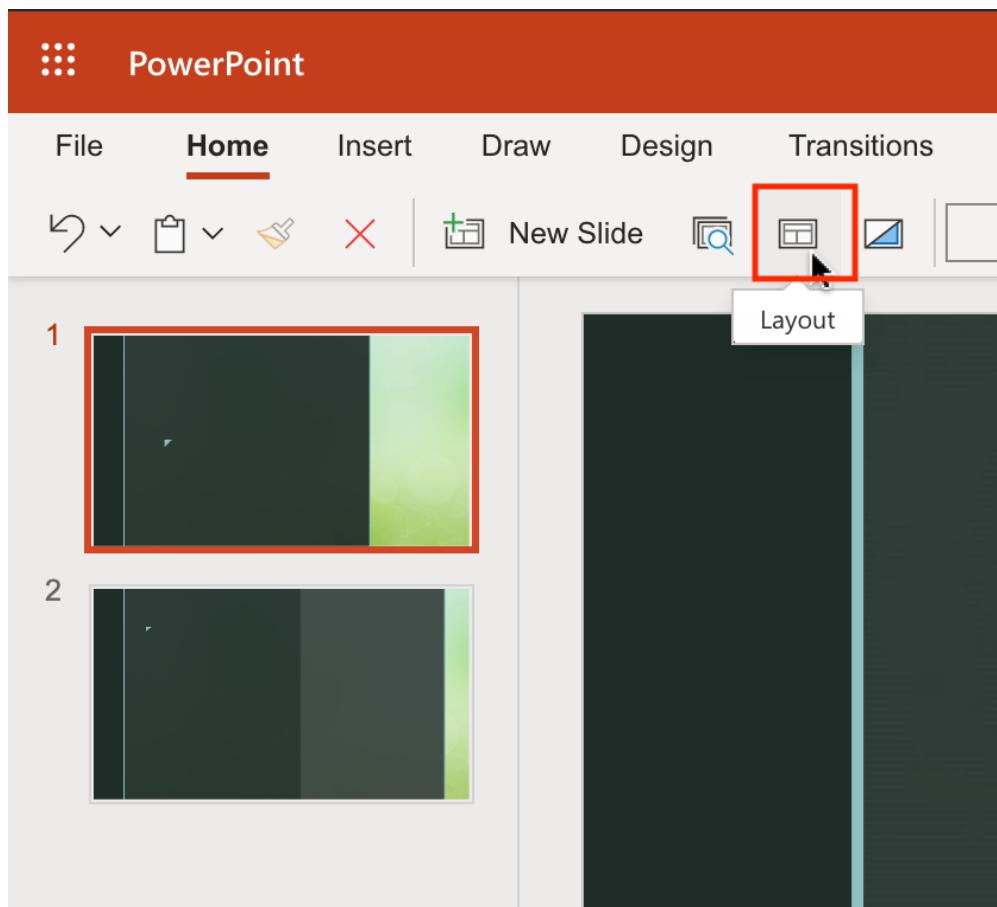
1. Click New Slide



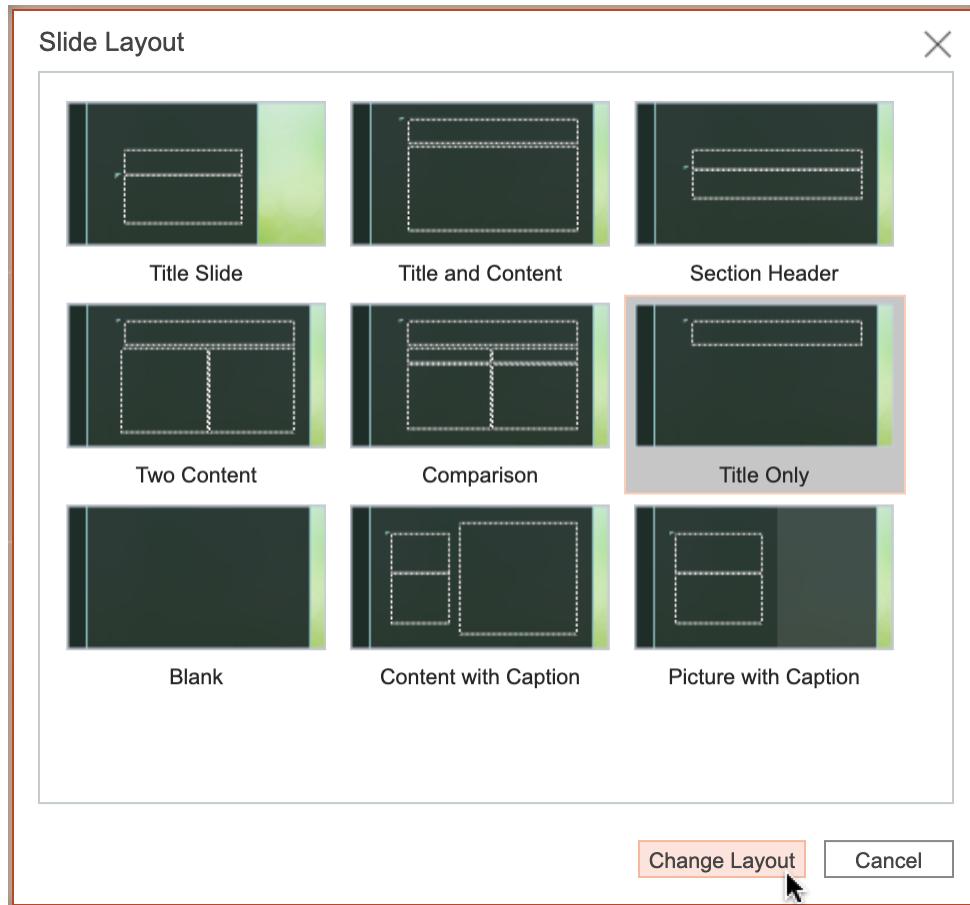
2. Select Picture with Caption type slide and click Add Slide.



3. Go back to slide 1 and click Layout icon.



4. Select Title Only layout and click Change Layout.

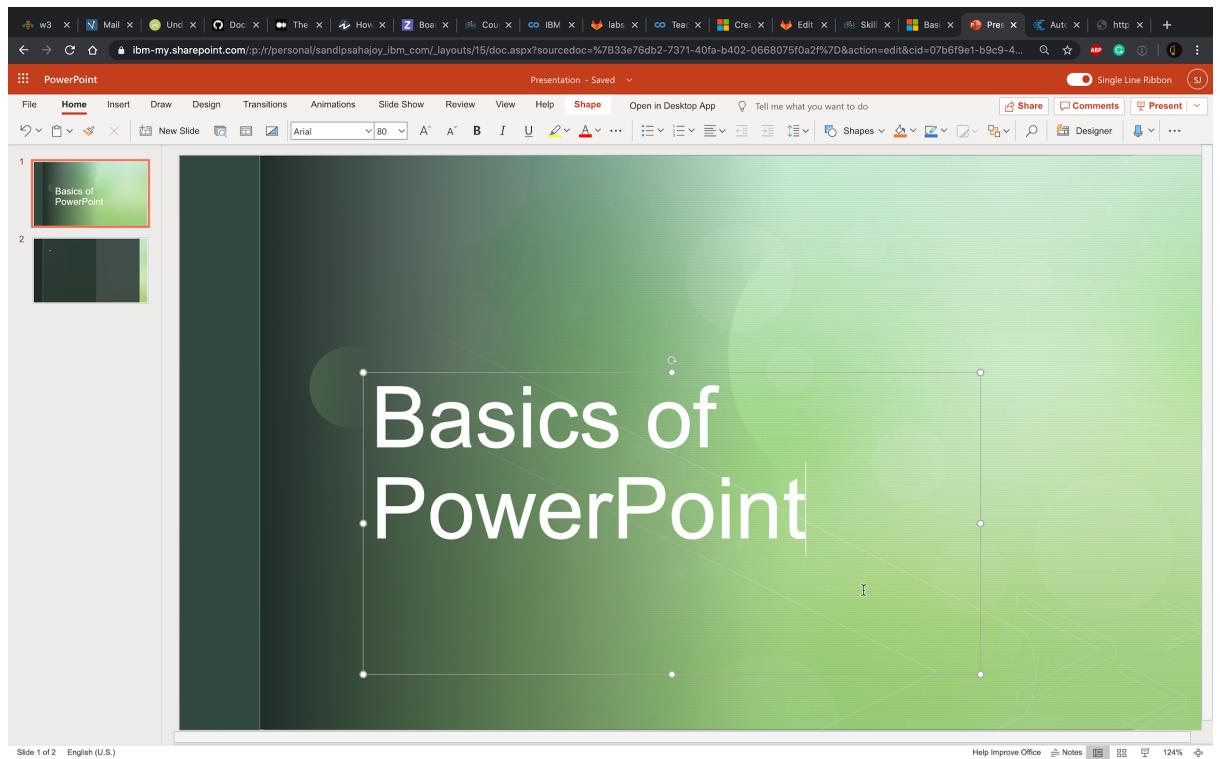


5. Select Designer. Select any design from the right Designer pane to change the design of slide 1.

The screenshot shows the Microsoft PowerPoint interface with the 'Designer' pane open on the right. The 'Designer' tab is selected in the ribbon. A specific design template, featuring a green gradient background and a large title placeholder, is highlighted with a red border. The main slide area displays the placeholder text 'Click to add title'. The ribbon tabs shown are File, Home, Insert, Draw, Design, Transitions, Animations, Side Show, Review, View, Help, and Open in Desktop App.

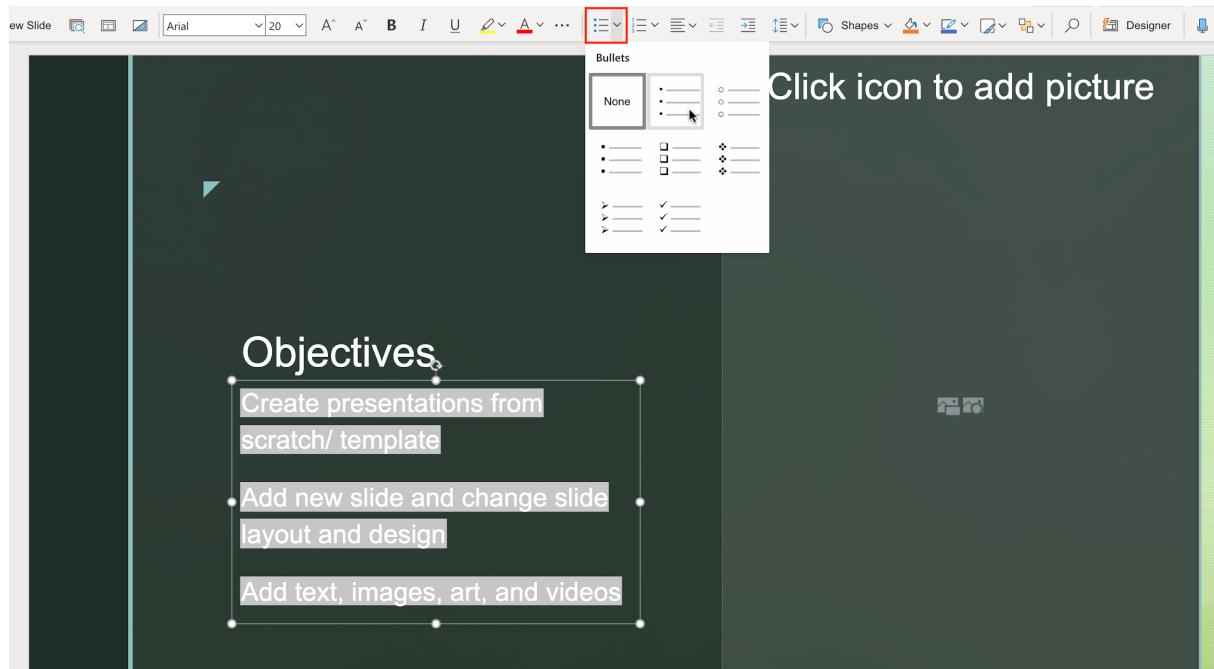
# Exercise 3: Add text, images, art, and videos

1. Switch to slide 1 if needed. Click on the textbox Click to add title and type "Basics of PowerPoint" as title.

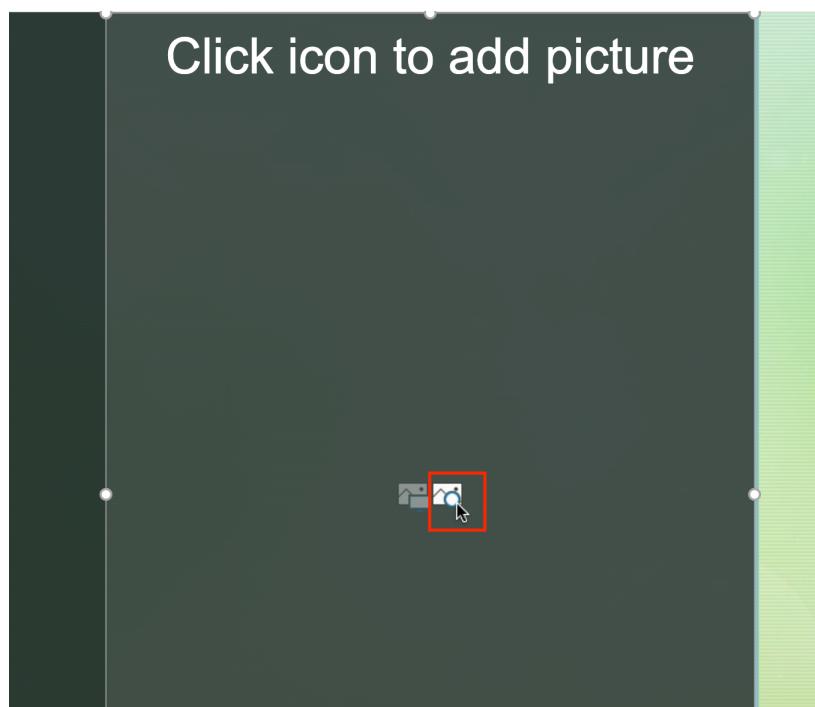


2. Switch to slide 2. Click on the textbox Click to add title and type "Objectives" as title.
3. Click on the textbox Click to add text and type:
  - Create presentations from scratch/ template
  - Add new slide and change slide layout and design
  - Add text, images, art, and videos

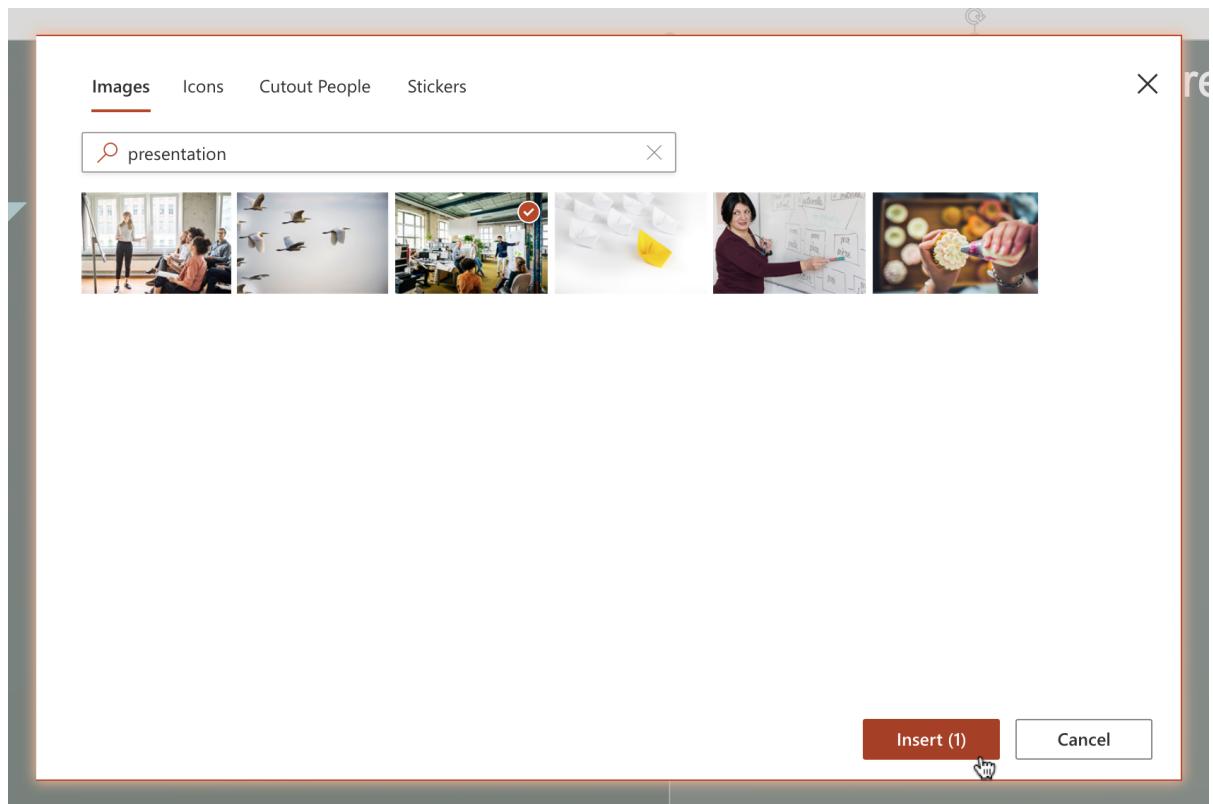
4. Select all text from second textbox and click Bulleted Library to select a bullet option.



5. Now click the web search option like below from the right-hand section of the slide.



- Type "presentation" and select an appropriate picture you like to add to your slide. Then click Insert.



- From the right Designer pane , select a design you like to visualize the inserted picture on the slide.

A screenshot of Microsoft PowerPoint. On the left, the slide navigation pane shows two slides: 'Basics of PowerPoint' and 'Objectives'. The second slide, 'Objectives', has a red box around its thumbnail. The main workspace shows a slide titled 'Objectives' with a grayscale photograph of a man pointing at a whiteboard. Below the photo is a bulleted list: 'Create presentations from scratch/ template', 'Add new slide and change slide layout and design', and 'Add text, images, art, and videos'. To the right of the slide is the 'Designer' ribbon tab, which is selected. The 'Designer' pane on the far right displays several design options, with one specific design having a red box around its thumbnail.

Congratulations! You have completed this Lab.

