

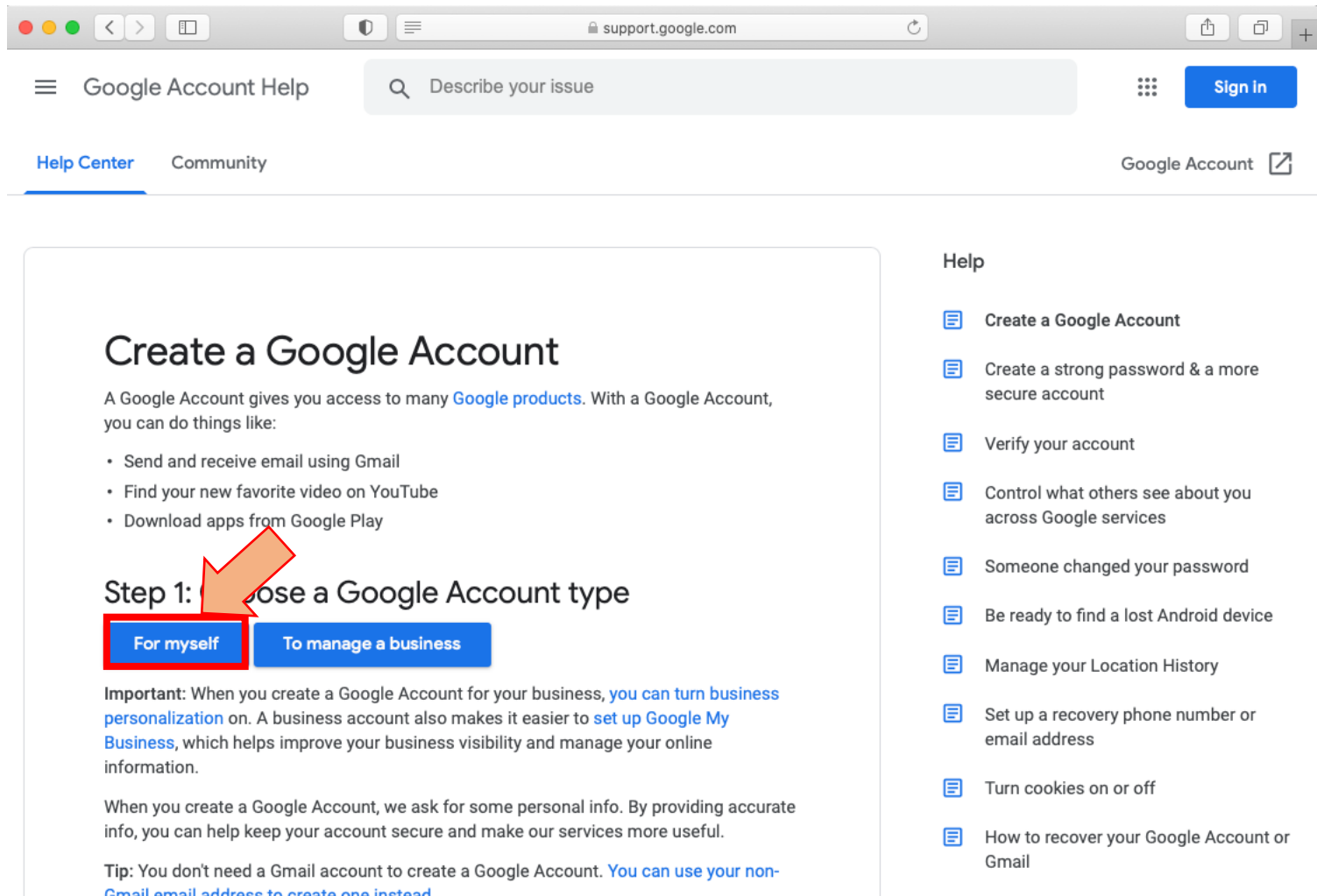
How to Use *Google Colab*

How to use Google Colab

- ① Create you Google account
(you can skip this step if you already have a Google account.)
- ② Accessing Google Colab

Creating Google Account

Visit: https://support.google.com/accounts/answer/27441?hl=en&ref_topic=3382296



The screenshot shows the Google Account Help page. The main heading is "Create a Google Account". Below it, there is a paragraph explaining that a Google Account gives access to many Google products. A list of benefits includes sending and receiving email, finding videos on YouTube, and downloading apps. The "Step 1: Choose a Google Account type" section has two buttons: "For myself" (highlighted with a red box and an orange arrow) and "To manage a business". Below this, there is an "Important" note about business accounts and a "Tip" about not needing a Gmail account.

Create a Google Account

A Google Account gives you access to many [Google products](#). With a Google Account, you can do things like:

- Send and receive email using Gmail
- Find your new favorite video on YouTube
- Download apps from Google Play

Step 1: Choose a Google Account type

[For myself](#) [To manage a business](#)

Important: When you create a Google Account for your business, [you can turn business personalization](#) on. A business account also makes it easier to [set up Google My Business](#), which helps improve your business visibility and manage your online information.

When you create a Google Account, we ask for some personal info. By providing accurate info, you can help keep your account secure and make our services more useful.

Tip: You don't need a Gmail account to create a Google Account. [You can use your non-Gmail email address to create one instead](#)

Help

- [Create a Google Account](#)
- [Create a strong password & a more secure account](#)
- [Verify your account](#)
- [Control what others see about you across Google services](#)
- [Someone changed your password](#)
- [Be ready to find a lost Android device](#)
- [Manage your Location History](#)
- [Set up a recovery phone number or email address](#)
- [Turn cookies on or off](#)
- [How to recover your Google Account or Gmail](#)

Creating Google Account

The screenshot shows the Google Account creation interface. At the top, the browser address bar displays 'accounts.google.com'. The page title is 'Create your Google Account'. The main content area includes the Google logo and the heading 'Create your Google Account'. Below this, there are several input fields: 'First name' and 'Last name' (grouped together), 'Username' (with a dropdown menu showing '@gmail.com'), and 'Password' and 'Confirm' (grouped together). A checkbox labeled 'Show password' is present below the password fields. A blue button labeled 'Next' is highlighted with a red box and an orange arrow pointing to it from the right. To the right of the form is a graphic of a blue shield with a white person icon, and below it, the text 'One account. All of Google working for you.' At the bottom left, there is a language selector set to 'English (United States)'. At the bottom right, there are links for 'Help', 'Privacy', and 'Terms'.

Creating Google Account

Google

Hacka, welcome to Google

hthon780@gmail.com

Phone number (optional)

We'll use your number for account security. It won't be visible to others.

Recovery email address (optional)

We'll use it to keep your account secure

Month Day Year

Your birthday

Gender

Why we ask for this information

Back

Next

Your personal info is private & safe

Creating Google Account

Google

Privacy and Terms

To create a Google Account, you'll need to agree to the [Terms of Service](#) below.

In addition, when you create an account, we process your information as described in our [Privacy Policy](#), including these key points:

Data we process when you use Google

- When you set up a Google Account, we store information you give us like your name, email address, and telephone number.
- When you use Google services to do things like write

data from trillions of search queries to build spell-correction models that we use across all of our services.

You're in control

Depending on your account settings, some of this data may be associated with your Google Account and we treat this data as personal information. You can control how we collect and use this data now by clicking "More Options" below. You can always adjust your controls later or withdraw your consent for the future by visiting My Account (myaccount.google.com).

[MORE OPTIONS](#) ▾

[Cancel](#) [I agree](#)

English (United States) ▾ [Help](#) [Privacy](#) [Terms](#)

Creating Google Account

Congratulations – you have created your Google account successfully!

The screenshot shows a web browser window at the URL `myaccount.google.com`. The page features a navigation sidebar on the left with the following items: Home (selected), Personal info, Data & personalization, Security, People & sharing, Payments & subscriptions, and About. The main content area displays a large red profile picture with the letter 'H' and the text "Welcome, Hacka Thon". Below this, a message reads: "Manage your info, privacy, and security to make Google work better for you. [Learn more](#)". There are four main informational cards: 1. "Privacy & personal-ization" with a description: "See the data in your Google Account and choose what activity is saved to personalize your Google experience" and a link "Manage your data & personalization". 2. "Security issues found" with a description: "Protect your account now by resolving these issues" and a link "Secure account". 3. "Account storage" with a description: "Your account storage is shared across Google services, like Drive, Gmail, and Photos". 4. "Take the Privacy Checkup" with a description: "This step-by-step guide helps you choose the privacy settings that are right for you". At the bottom left, there are links for "Privacy", "Terms", "Help", and "About".

Accessing Colab

Visit: <https://colab.research.google.com/>

Welcome To Colaboratory

File Edit View Insert Runtime Tools Help

Share Settings **Sign in**

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 - Data science
 - Machine learning
 - More Resources
 - Machine Learning Examples
- Section

What is Colaboratory?

Colaboratory, or "Colab" for short, allows you to write and execute Python in your browser, with

- Zero configuration required
- Free access to GPUs
- Easy sharing

Whether you're a **student**, a **data scientist** or an **AI researcher**, Colab can make your work easier. Watch [Introduction to Colab](#) to learn more, or just get started below!

Getting started

The document you are reading is not a static web page, but an interactive environment called a **Colab notebook** that lets you write and execute code.

For example, here is a **code cell** with a short Python script that computes a value, stores it in a variable, and prints the result:

```
[ ] seconds_in_a_day = 24 * 60 * 60
seconds_in_a_day

86400
```

To execute the code in the above cell, select it with a click and then either press the play button to the left of the code, or use the keyboard shortcut "Command/Ctrl+Enter". To edit the code, just click the cell

Starting a new Colab notebook

The screenshot shows the Google Colaboratory web interface. The browser address bar displays `colab.research.google.com`. The top navigation bar includes a 'Share' button, a settings gear, and a user profile icon. The main menu bar contains 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. The 'File' menu is open, and the 'New notebook' option is highlighted with a red box. Two red arrows, labeled '1' and '2', point to the 'File' menu and the 'New notebook' option respectively. The main content area displays a 'What is Colaboratory?' page with a list of features: Zero configuration required, Free access to GPUs, and Easy sharing. Below this, there is a code cell with a Python script that calculates the number of seconds in a day.

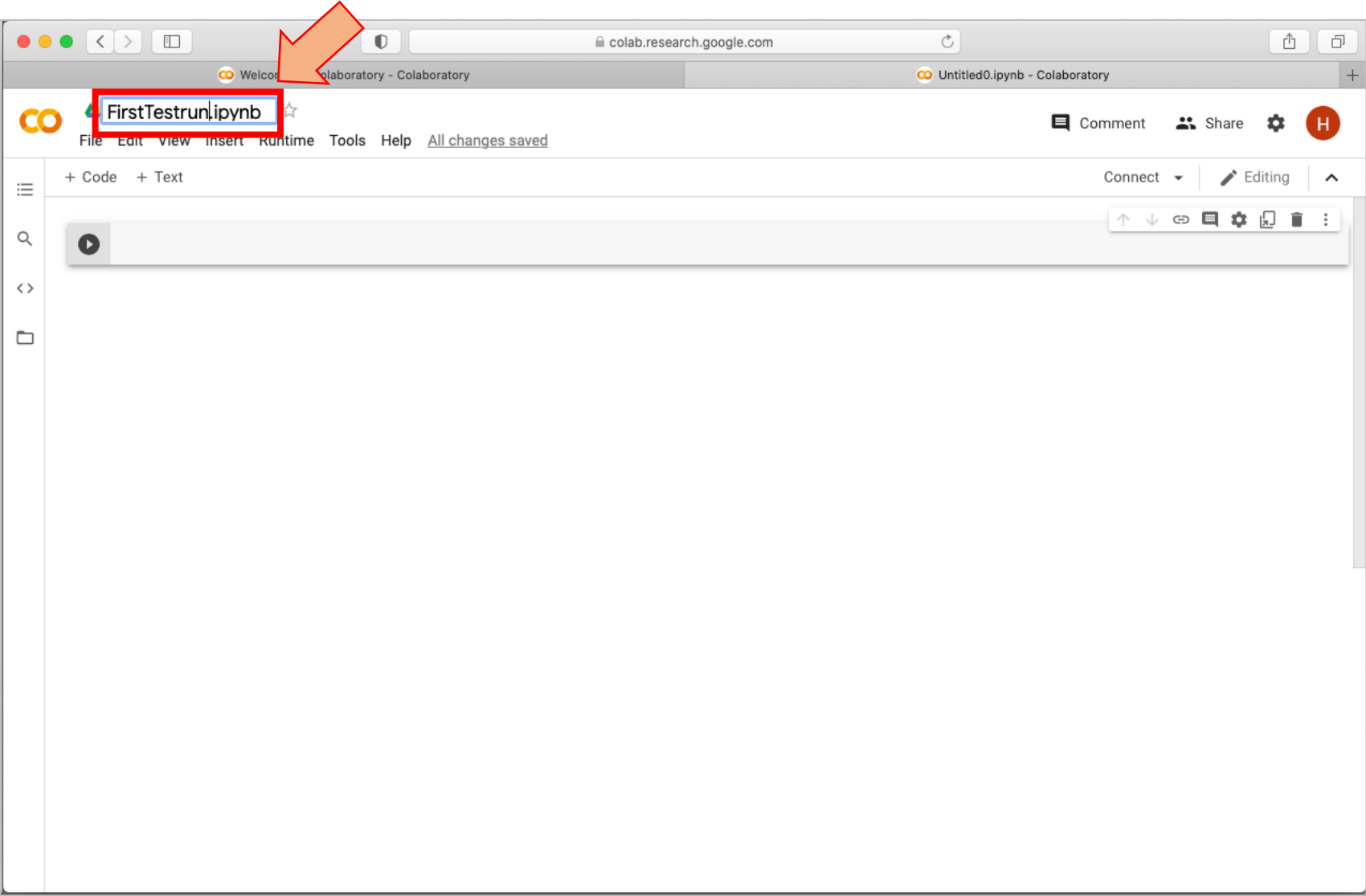
```
[3] seconds_in_a_day = 24 * 60 * 60
    seconds_in_a_day

86400
```

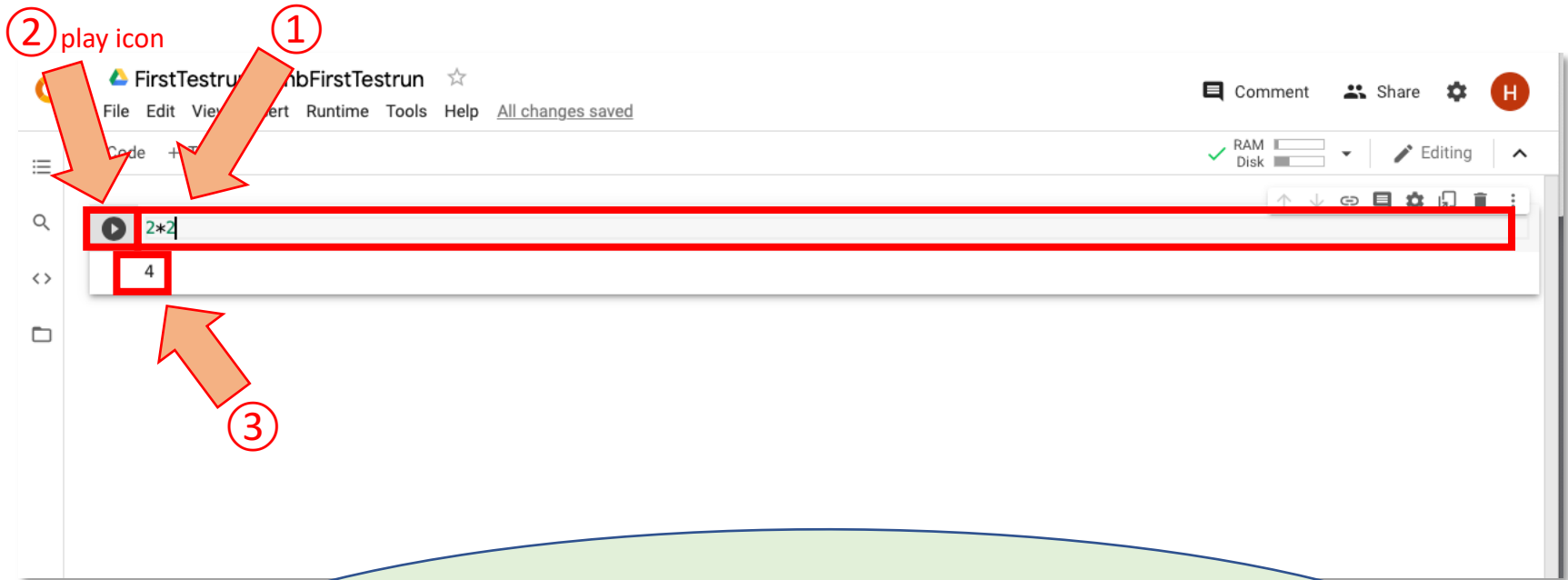
To execute the code in the above cell, select it with a click and then either press the play button to the left of the code, or use the keyboard shortcut "Command/Ctrl+Enter". To edit the code, just click the cell and start editing.

Variables that you define in one cell can later be used in other cells:

Changing the name of the notebook



Write code in a cell, and execute it: Example 1



The screenshot shows a Jupyter Notebook interface. At the top, there's a menu bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. Below the menu bar, there's a toolbar with a 'play icon' (a play button) and the code '2*2'. The output of the code is '4'. Three numbered arrows point to these elements: arrow 1 points to the code '2*2', arrow 2 points to the play icon, and arrow 3 points to the output '4'. The entire code input area is highlighted with a red box.

You can execute the code by clicking on the *play icon*.
Alternatively, you can use the keyboard shortcut
"Command + Enter" or **"Ctrl + Enter"**



Write code in a cell, and execute it: Example 2

The screenshot shows a Jupyter Notebook interface for a file named 'FirstTestrun.ipynb'. The code in the cell is as follows:

```
# Defining a function that converts Celsius to Fahrenheit
def convert_to_fahrenheit(c):
    f = (c * 9/5) + 32
    print(f)

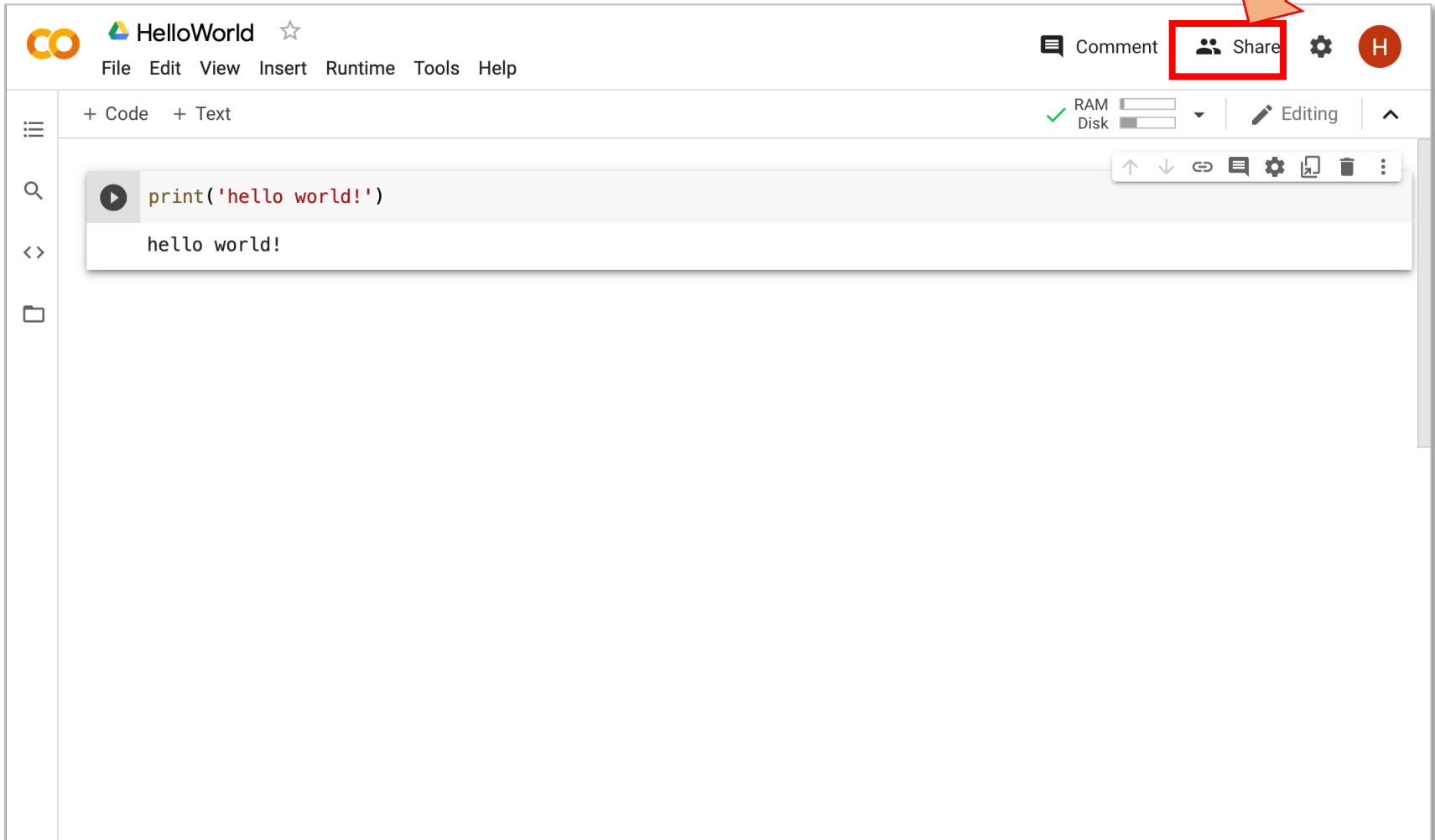
# Using the function |
convert_to_fahrenheit(7)
```

The output of the cell is 44.6. Red annotations include: a circled '1' pointing to the code, a circled '2' pointing to the run button, and a circled '3' pointing to the output.

You can write multiple lines of code in a cell



Sharing a notebook



The screenshot shows a web-based notebook interface. At the top left, there is a logo with the letters 'CO' and the text 'HelloWorld' followed by a star icon. Below this is a menu with the items 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. On the top right, there are three icons: a speech bubble labeled 'Comment', a red-bordered box containing a person icon and the word 'Share', a gear icon for settings, and a red circle with a white 'H' icon. Below the menu, there are two buttons: '+ Code' and '+ Text'. To the right of these buttons are two progress indicators: 'RAM' with a green checkmark and a bar, and 'Disk' with a grey bar. Further right is an 'Editing' mode indicator with a pencil icon and an upward arrow. The main workspace contains a code cell with a play button icon, the code `print('hello world!')`, and its output `hello world!`. A toolbar above the code cell includes icons for up, down, link, comment, settings, copy, and delete. On the left side of the workspace, there are icons for a list, search, expand/collapse, and a folder.

Sharing a notebook

The screenshot shows the Jupyter Notebook sharing interface. The top panel, titled "Share with people and groups", includes a search bar "Add people and groups", a list of users (Hacker Thon, hthon780@gmail.com) with a "Done" button, and a "Send feedback to Google" link. The bottom panel, titled "Get link", shows the sharing permission "Anyone on the internet with this link can view" (highlighted with a red box) and a "Copy link" button (also highlighted with a red box). Red arrows point from the text annotations to these elements.

Share with people and groups

Add people and groups

Hacker Thon (you)
hthon780@gmail.com

Send feedback to Google

Done

Get link

Anyone on the internet with this link can view

Change

Copy link

(1) Check if it says "Anyone on the Internet with this link can view"

(2) Click on "Copy link". You can share it with other people

Opening an existing notebook

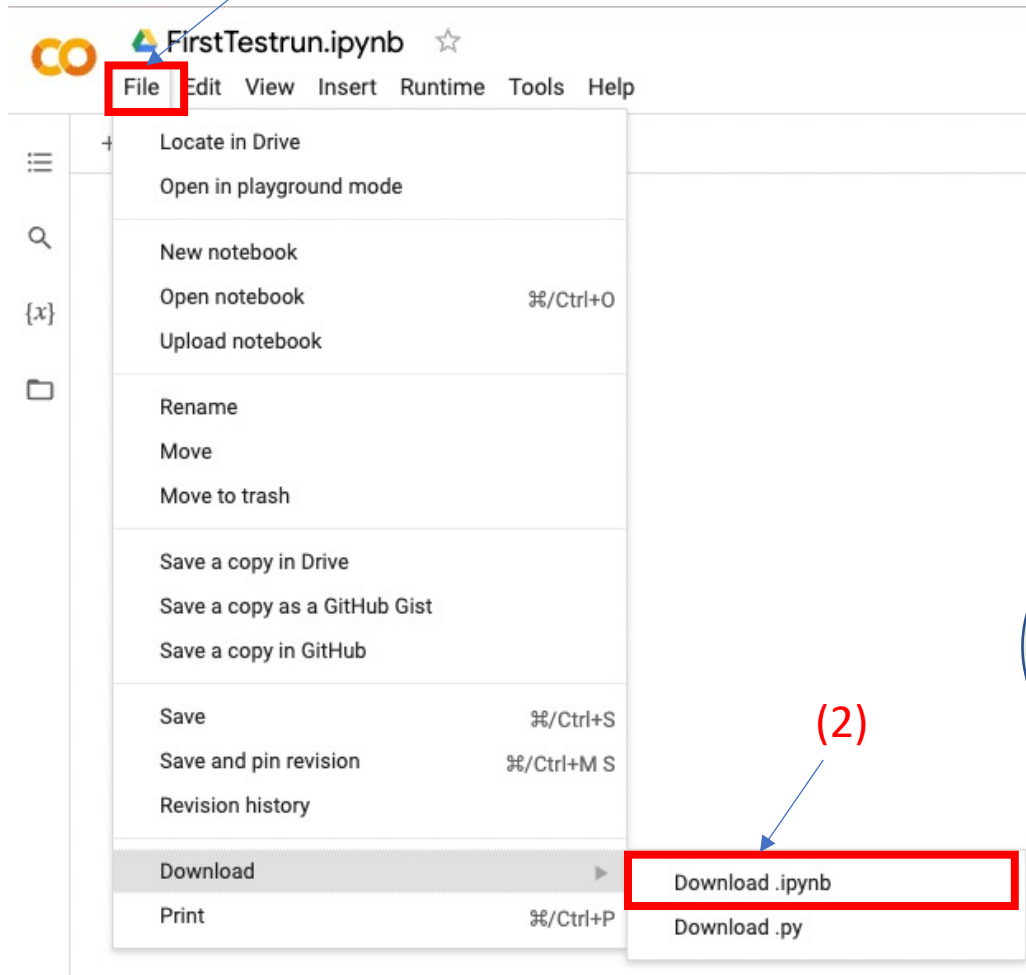
The screenshot shows the Google Colab interface. The 'File' menu is open, and the 'Open notebook' option is highlighted with a red box. A red arrow labeled '1' points to the 'File' menu, and another red arrow labeled '2' points to the 'Open notebook' option. The background shows a notebook with a table of data.

	0_4M	0_4F	5_9M	5_9F	10_14M	10_14F	15_19M	15_19F	20_24M	20_24F	25_29M
	32.0	21.0	38.0	33.0	56.0	39.0	42.0	34.0	4.0	21.0	4.0
	75.0	54.0	58.0	63.0	46.0	45.0	42.0	4.0	59.0	28.0	58.0
	33.0	3.0	52.0	45.0	63.0	55.0	5.0	51.0	53.0	46.0	32.0
	1.0	11.0	1.0	6.0	11.0	11.0	26.0	13.0	16.0	13.0	32.0
	1.0	1.0	2.0	4.0	8.0	4.0	1.0	8.0	43.0	12.0	1.0

	5.0	4.0	5.0	1.0	7.0	5.0	1.0	3.0	4.0	4.0	5.0
	1.0	1.0	6.0	12.0	14.0	12.0	11.0	4.0	4.0	1.0	4.0
	4.0	1.0	13.0	8.0	9.0	11.0	7.0	8.0	12.0	12.0	15 1.0

How to download your Colab notebook (.ipynb file)

(1)



For example, you can upload the downloaded .ipynb file to Moodle

