The Magic of Prompting: Getting Started with AI

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1. The Birthday Surprise: More Common Than You Think!

Imagine a classroom full of students, just like you. Now, if I asked you, "Do you think two people in this room share the same birthday?" you might instinctively say "Nah, that's pretty unlikely!" But here's a mind-bender: if there are just 23 people in a room, there's a surprisingly high chance that two of them will have the same birthday!

It's called the "Birthday Paradox," but it's not really a paradox. It's a quirky way of seeing how probabilities work. The chances of one person sharing your birthday are low. But the chances of any two people in a group sharing any birthday are much higher than you'd think.

Now, this is not just a fun fact; it's our starting point for understanding how to talk to computers. It might seem weird that something like the birthday paradox could be related to computers. However, this simple idea will help introduce you to the main point of this lesson: the power of asking effectively! We'll show you how to ask a computer to do amazing things using something called "prompting".

Figure 1: A common birthday!

2. Your First Tool: *Google Sheets*

Before we start asking computers to do complex things, let's get familiar with a simple tool: Google Sheets. Think of it like a super-powered notebook that lives on the internet. It's a great way to store data, play around with it, and see it in action.

Think of Google Sheets like this:

Online Notebook: Access it from any device.

Data Organizer: Store and manage numbers, text, and more.

Visual Helper: See your data with charts and graphs.

Smart Formulas: Use built-in functions to make calculations and more.

We can do something basic: sort some numbers. It's like arranging books on a shelf. Just type some numbers in a column. Google Sheets can also make random numbers for you using =RANDBETWEEN(1,100) which means a random number between 1 and 100 will appear in the cell. Copy this formula to other cells, and each will give you a new random number!

To sort the numbers, we can use the SORT() formula: =SORT(A1:A10). This will take the numbers from cell A1 to A10 and show you the sorted values in the next column. If you add more numbers to column A, the sorted numbers will also update automatically!

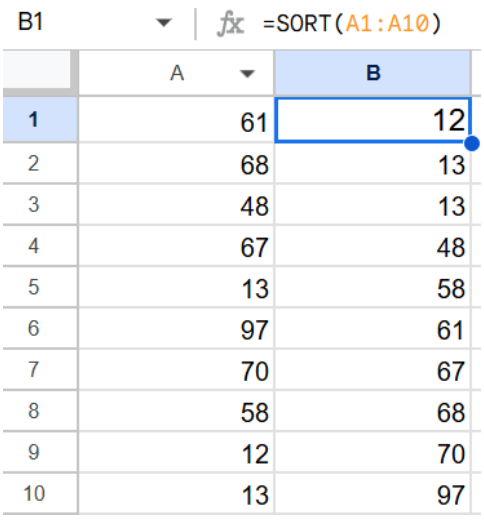

Figure 2: Sorted values, using Google Sheets

3. The Art of Asking: Prompting with Google Sheets

Now, let’s try something a little more challenging. Let’s say, we want to highlight numbers that appear more than once in our sheet. This is where "prompting" comes in. "Can you highlight the duplicate numbers in my sheet" might sound simple enough for a human, but a computer needs more specific instructions.

This is where we use the power of effective prompting. Instead of searching through the cells manually, we can simply ask the google sheets to do it for us by creating small programs for it.

There are two ways to do it:

1. Using Google Apps Script (A Bit of Programming):

Google Sheets lets us add programs, or "scripts", using something called Google Apps Script. We can use it to automate tasks and ask the computer to do what we want. It might sound like rocket science, but with AI assistance, anyone can do it!

We can ask an AI like ChatGPT or Gemini for help. For example, we can prompt: "I have some numbers in column B of a Google Sheet. If any two consecutive cells have the same number, please highlight it. Give me a Google script for it." The AI will then give you a piece of code that does what you asked for.

Then, copy the script, go to 'Extensions' then 'Apps Script' in Google Sheets. Paste your code into the editor, save it, and click 'Run'. Now, your Google Sheet will automatically highlight duplicate entries.

2. Using Conditional Formatting (No Programming Needed!):

Alternatively, you can use a built-in feature called Conditional Formatting. No need to write code here. Again, we can ask an AI something like "Is there any way I can do this without using Google script?" and it will find a solution!

The AI might give a response like "Yes, you can do it using conditional formatting. Here's how." It will probably suggest something like this formula: =AND(B1=B2, B1<>"") . We can copy this formula, go to 'Format', 'Conditional Formatting' and paste it in the custom formula section. Now your sheet will highlight the duplicates automatically!

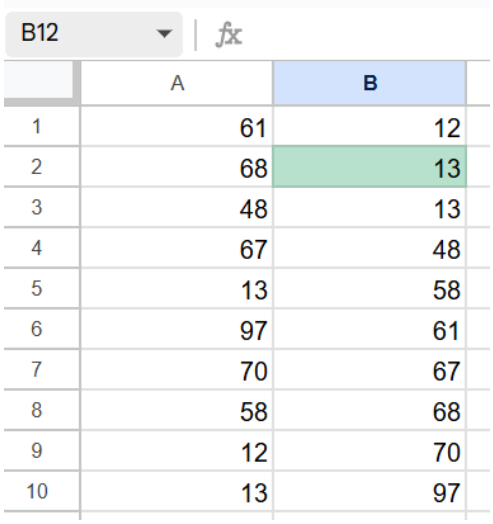

Figure 3: Repeated value highlighted!

4. Google Colab: Your Python Playground

Now, it’s time to take it to the next level and venture into the world of Python. It is one of the most popular programming languages for AI. Think of Python like a language that a computer can easily understand. You can give it instructions to perform tasks, and it can do it very quickly and efficiently.

To get started with Python, we can use Google Colab. Think of it as an online notebook where you can write and run Python code, all in your browser. It's free and easy to use.

To get started, just go to colab.research.google.com.

The code that we wrote in google sheets can be easily replicated using Python as well. This time, let's revisit our birthday paradox using Python.

We can ask our AI assistants again! For example: "Create a list with 365 numbers. Pick numbers randomly from this list, add them to a new list until a duplicate number appears, and then show the number of elements in the new list".

The AI might give you a piece of code similar to this:

```
import random
def birthday_paradox():
    all_birthdays = list(range(1, 366))  # List of all possible birthdays
    room = [] # A list to represent our group
    while True:
        pick_number = random.choice(all_birthdays) # Pick a random birthday
        if pick_number in room:
            print("We have a match! This happened after", len(room) + 1, "people")
            return  # Stop the simulation if a match is found
        else:
            room.append(pick_number) # Add the new person to the group
birthday_paradox()
```

You can copy-paste this code into Google Colab and run it. This code will keep adding random "birthdays" to a list until it finds a duplicate, showing you how many people it took to find a match. Most of the time, it will be close to 23.

```python
import random

def birthday_paradox():
    all_birthdays = list(range(1, 366))  # List of all possible birthdays
    room = [] # A list to represent our group
    while True:
        pick_number = random.choice(all_birthdays) # Pick a random birthday
        if pick_number in room:
            print("We have a match! This happened after", len(room) + 1, "people")
            return  # Stop the simulation if a match is found
        else:
            room.append(pick_number) # Add the new person to the group
birthday_paradox()
```

```
We have a match! This happened after 10 people
```

Figure 4: Execution of the code in Google Colab. Oh, just 10 people this time!

The Key: Asking Questions Effectively

Through the above examples, you have learned about the skill of Prompting. It's the art of communicating with AI effectively, where the key is to learn how to ask the right questions.

Be Clear: Make your needs specific.

Be Flexible: Adjust your requests based on AI responses.

Experiment: Try out different questions and methods.

This lesson was not just about learning Google Sheets or Python. It was more about learning the key skill of 'Prompting' which will be very useful for understanding and working with the ever-growing world of AI.

You don't need to be a computer expert or a coder. You just need to know how to ask. And the best way to learn is to start asking, playing around and experimenting with your prompts!

So, go ahead and start exploring the amazing world of AI, one question at a time.