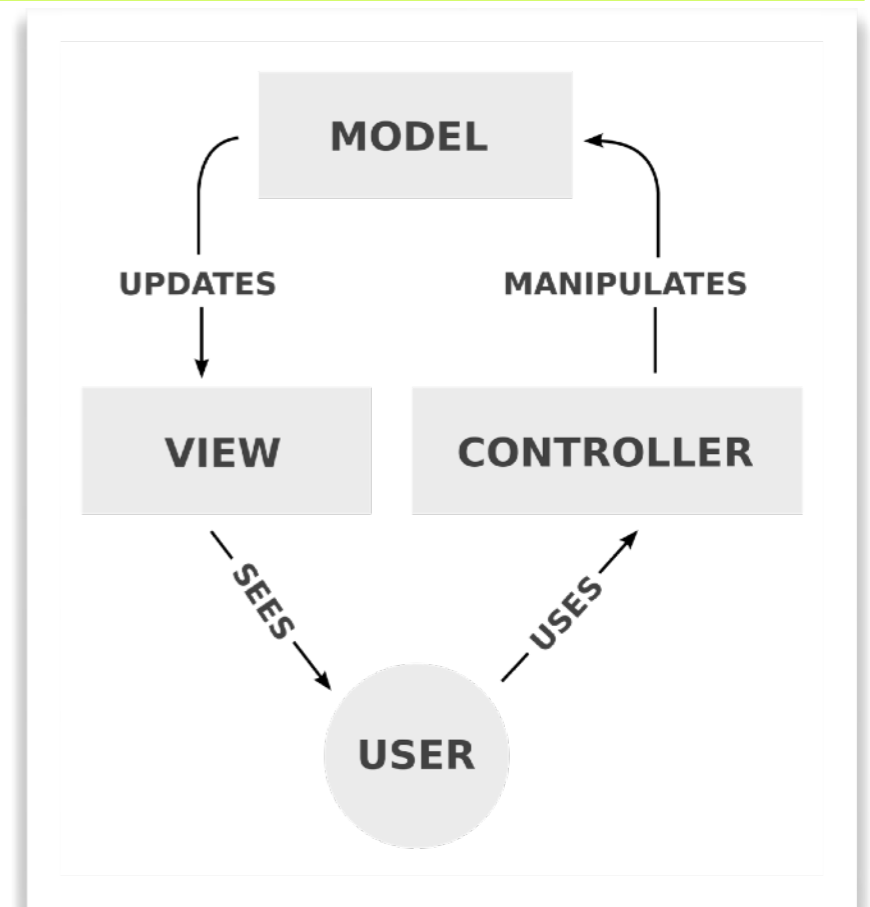
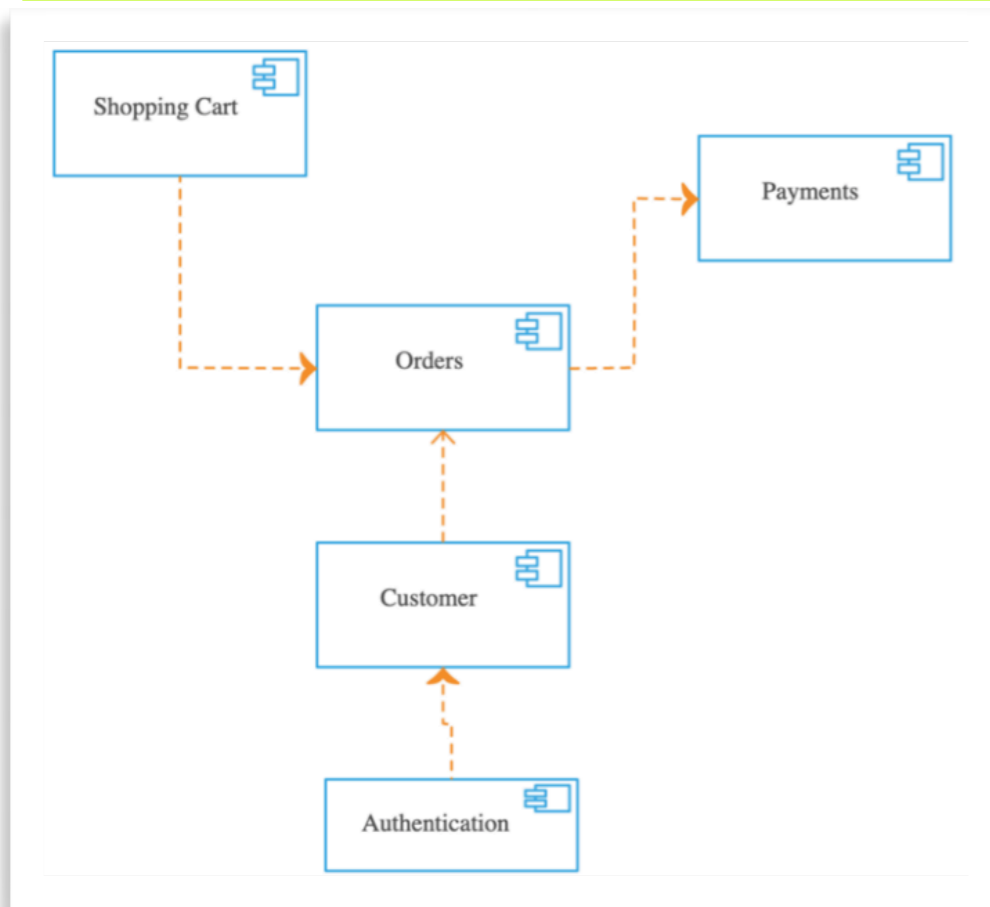


Lies, damned lies, and statistics

Python og Excel

KRISTIAN BOTNEN, 2025

Separation of concerns



Business and data layer

Amount	Currency	in USD
100	EUR	111.51

Presentation layer

Exchange rate vs USD	
EUR	1.1151
GBP	1.2454
AUD	0.6161
CAD	0.7140
SGD	0.7004
CHF	1.0512
JPY	0.0092
CNY	0.1409

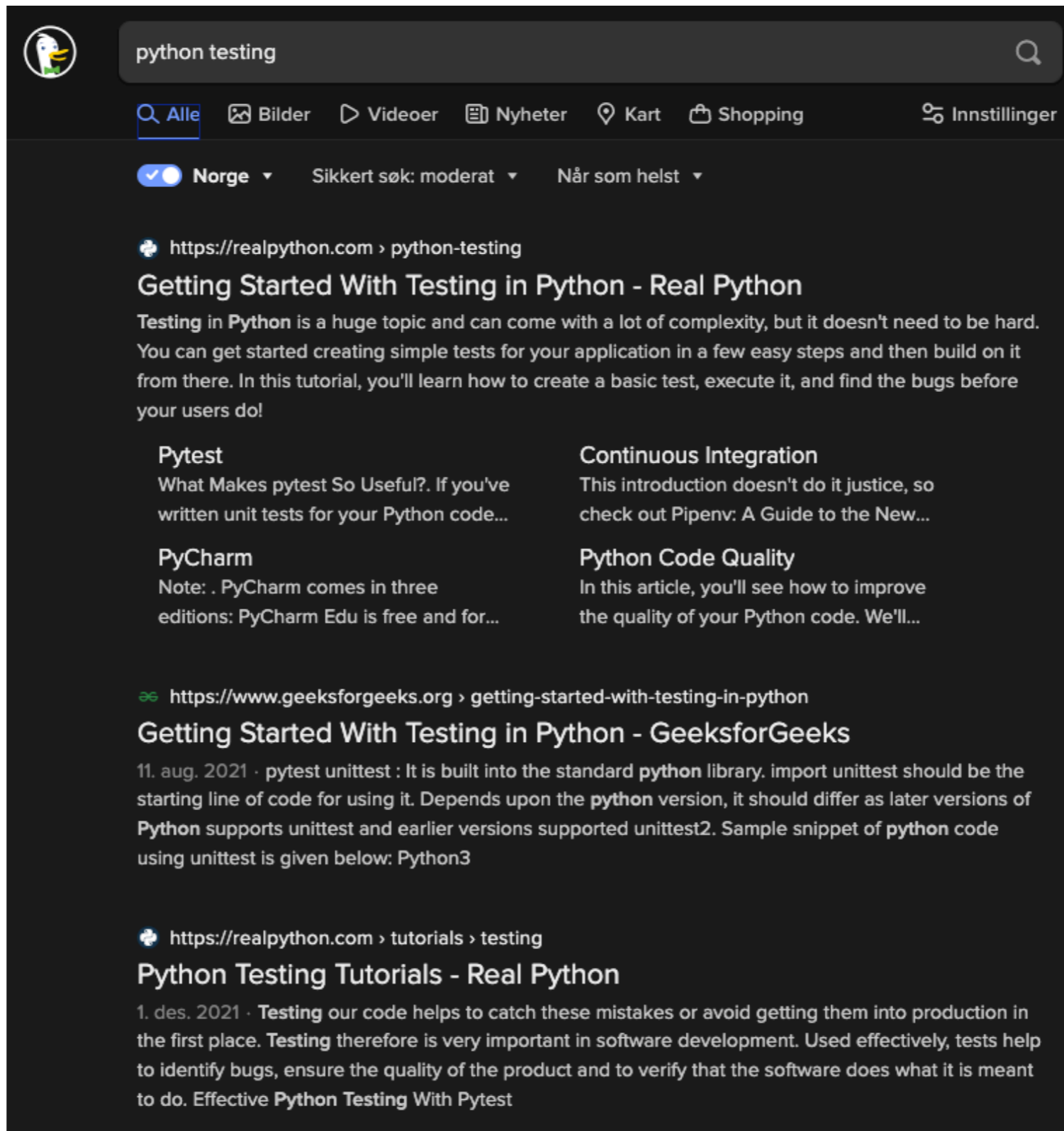
"Database"

The diagram shows a spreadsheet application for a currency converter. The formula bar displays the formula `=A4 * VLOOKUP(B4,F4:G11,2,FALSE)`. The spreadsheet is divided into three layers: the Business and data layer (the main calculation area), the Presentation layer (the user interface area), and the "Database" (the exchange rate table).

Don't repeat yourself

```
1 file_list = [path0, path1, path2, ..., pathN]
2 with open(file_list[0]) as file:
3     # do something with the file
4
5 with open(file_list[1]) as file:
6     # do something with the file
7
8 #...
9 #...
10
11 with open(file_list[-1]) as file:
12     # do something with the file
```

```
1 file_list = [path0, path1, path2, ..., pathN]
2
3 for file_path in file_list:
4     with open(file_path) as file:
5         # do something with the file
6
```



The screenshot shows a search engine interface with a dark theme. At the top, there's a search bar with the text 'python testing' and a magnifying glass icon. Below the search bar, there are navigation links: 'Alle', 'Bilder', 'Videoer', 'Nyheter', 'Kart', 'Shopping', and 'Innstillinger'. A status bar below these links shows 'Norge', 'Sikkert søk: moderat', and 'Når som helst'. The search results are listed below, starting with a link to 'https://realpython.com > python-testing'. The first result is titled 'Getting Started With Testing in Python - Real Python' and includes a brief description: 'Testing in Python is a huge topic and can come with a lot of complexity, but it doesn't need to be hard. You can get started creating simple tests for your application in a few easy steps and then build on it from there. In this tutorial, you'll learn how to create a basic test, execute it, and find the bugs before your users do!'. Below this result, there are four smaller links: 'Pytest' (What Makes pytest So Useful?), 'Continuous Integration' (This introduction doesn't do it justice, so check out Pipenv: A Guide to the New...), 'PyCharm' (Note: . PyCharm comes in three editions: PyCharm Edu is free and for...), and 'Python Code Quality' (In this article, you'll see how to improve the quality of your Python code. We'll...). The second search result is from 'https://www.geeksforgeeks.org > getting-started-with-testing-in-python', titled 'Getting Started With Testing in Python - GeeksforGeeks'. It includes a date '11. aug. 2021' and a description: 'pytest unittest : It is built into the standard python library. import unittest should be the starting line of code for using it. Depends upon the python version, it should differ as later versions of Python supports unittest and earlier versions supported unittest2. Sample snippet of python code using unittest is given below: Python3'. The third result is from 'https://realpython.com > tutorials > testing', titled 'Python Testing Tutorials - Real Python', with a date '1. des. 2021' and a description: 'Testing our code helps to catch these mistakes or avoid getting them into production in the first place. Testing therefore is very important in software development. Used effectively, tests help to identify bugs, ensure the quality of the product and to verify that the software does what it is meant to do. Effective Python Testing With Pytest'.

python testing

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Norge Sikkert søk: moderat Når som helst

<https://realpython.com > python-testing>

Getting Started With Testing in Python - Real Python

Testing in Python is a huge topic and can come with a lot of complexity, but it doesn't need to be hard. You can get started creating simple tests for your application in a few easy steps and then build on it from there. In this tutorial, you'll learn how to create a basic test, execute it, and find the bugs before your users do!

Pytest

What Makes pytest So Useful?. If you've written unit tests for your Python code...

Continuous Integration

This introduction doesn't do it justice, so check out Pipenv: A Guide to the New...

PyCharm

Note: . PyCharm comes in three editions: PyCharm Edu is free and for...

Python Code Quality

In this article, you'll see how to improve the quality of your Python code. We'll...

<https://www.geeksforgeeks.org > getting-started-with-testing-in-python>


Getting Started With Testing in Python - GeeksforGeeks

11. aug. 2021 · **pytest unittest** : It is built into the standard **python** library. **import unittest** should be the starting line of code for using it. Depends upon the **python** version, it should differ as later versions of **Python** supports **unittest** and earlier versions supported **unittest2**. Sample snippet of **python** code using **unittest** is given below: Python3

<https://realpython.com > tutorials > testing>


Python Testing Tutorials - Real Python


1. des. 2021 · **Testing** our code helps to catch these mistakes or avoid getting them into production in the first place. **Testing** therefore is very important in software development. Used effectively, tests help to identify bugs, ensure the quality of the product and to verify that the software does what it is meant to do. **Effective Python Testing With Pytest**

 **git** --distributed-is-the-new-centralized

Git is a **free and open source** distributed version control system designed to handle everything from small to very large projects with speed and efficiency.


Git is **easy to learn** and has a **tiny footprint with lightning fast performance**. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like **cheap local branching**, convenient **staging areas**, and **multiple workflows**.






About

The advantages of Git compared to other source control systems.




Documentation

Command reference pages, Pro Git book content, videos and other material.




Downloads

GUI clients and binary releases for all major platforms.




Community


Get involved! Bug reporting, mailing list, chat, development and more.





Pro Git by Scott Chacon and Ben Straub is available to [read online for free](#). Dead tree versions are available on [Amazon.com](#).




Latest source Release
2.38.1
[Release Notes \(2022-10-07\)](#)
[Download for Mac](#)

 **Mac GUIs**

 **Tarballs**

 **Windows Build**

 **Source Code**

`pip install xlwings / pip install "xlwings[all]" / conda install -c conda-forge xlwings`

`xlwings addin install`

`xlwings quickstart`