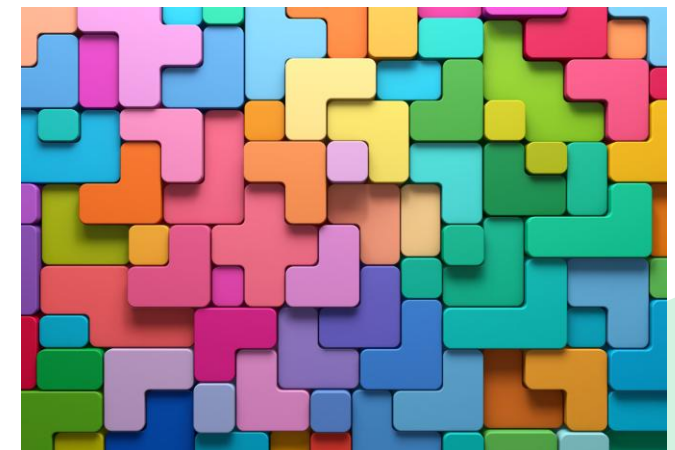
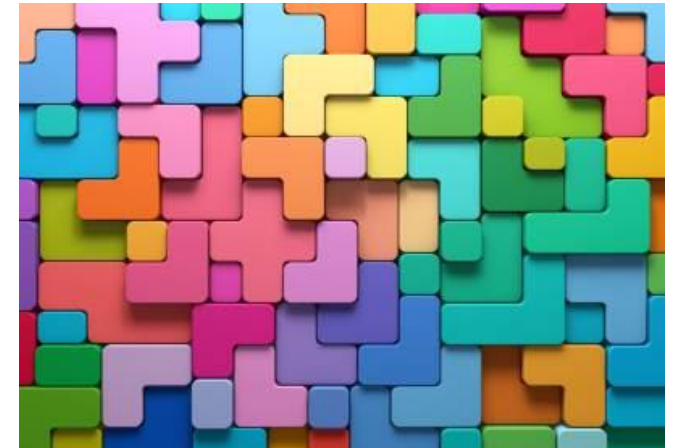


BLANDET PROGRAMMERING

FORELESNING 23

MANDAG 10/11



(bilder generert av bing image creator)



L I V E K O D I N G :
P R O F I L E R I N G
A V
M I N N E B R U K

○ cProfile

- **ncalls**: The number of times the function is called
- **tottime**: Time spent inside the function without sub-functions it calls
- **cumtime**: Time spent inside the function *and* inside functions it calls
- **per call**: **cumtime** divided by the number of calls



Modifying — Visual Studio Build Tools 2022 — 17.11.5

Workloads Individual components Language packs Installation locations

Desktop & Mobile (4)



Desktop development with C++



Build modern C++ apps for Windows using tools of your choice, including MSVC, Clang, CMake, or MSBuild.



.NET Multi-platform App UI development



Build Android, iOS, Windows, and Mac apps from a single codebase using C# with .NET MAUI.



.NET desktop build tools



Tools for building WPF, Windows Forms, and console applications using C#, Visual Basic, and F#.



Windows application development build tools



Build applications for the Windows platform using WinUI with C# or optionally C++.

Web & Cloud (4)



Web development build tools



MSBuild tasks and targets for building web applications.



Azure development build tools



MSBuild tasks and targets for building Azure applications.



Office/SharePoint build tools



Build Office and SharePoint add-ins, and VSTO add-ins.



Data storage and processing build tools



Build SQL Server Database Projects

Installation details

Desktop development with C++

Included

- ✓ C++ Build Tools core features
- ✓ C++ 2022 Redistributable Update
- ✓ C++ core desktop features

Optional

- ☒ MSVC v143 - VS 2022 C++ x64/x86 build t...
- ☒ Windows 11 SDK (10.0.22621.0)
- ☒ C++ CMake tools for Windows
- ☒ Testing tools core features - Build Tools
- ☒ C++ AddressSanitizer
- ☐ C++ ATL for latest v143 build tools (x86 &...
- ☐ C++ MFC for latest v143 build tools (x86...
- ☐ C++/CLI support for v143 build tools (Late...
- ☐ C++ Modules for v143 build tools (x64/x8...
- ☐ C++ Clang tools for Windows (17.0.3 - x64...
- ☐ Windows 11 SDK (10.0.26100.0)
- ☐ Windows 11 SDK (10.0.22000.0)
- ☐ Windows 10 SDK (10.0.20348.0)

Location

C:\Program Files (x86)\Microsoft Visual Studio\2022\BuildTools

Remove out-of-support components

By continuing, you agree to the [license](#) for the Visual Studio edition you selected. We also offer the ability to download other software with Visual Studio. This software is licensed separately, as set out in the [3rd Party Notices](#) or in its accompanying license. By continuing, you also agree to those licenses.

Total space required 4.04 GB

Install while downloading

Modify



SDKs, libraries, and frameworks

- ☐ Windows 10 SDK (10.0.18362.0)
- ☐ Windows 10 SDK (10.0.19041.0)
- ☐ Windows 10 SDK (10.0.20348.0)
- ☐ Windows 11 SDK (10.0.22000.0)
- ☒ Windows 11 SDK (10.0.22621.0)
- ☐ Windows 11 SDK (10.0.26100.0)

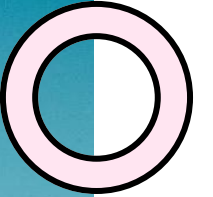
Compilers, build tools, and runtimes

- ☐ C++ Modules for v143 build tools (x64/x86 – experimental)
- ☐ MSVC v141 - VS 2017 C++ x64/x86 build tools (v14.16)
- ☐ MSVC v141 - VS 2017 C++ x64/x86 Spectre-mitigated libs (v14.16)
- ☐ MSVC v142 - VS 2019 C++ x64/x86 build tools (v14.29-16.11)
- ☐ MSVC v142 - VS 2019 C++ x64/x86 Spectre-mitigated libs (v14.29-16.11)
- ☒ MSVC v143 - VS 2022 C++ x64/x86 build tools (Latest)
- ☐ MSVC v143 - VS 2022 C++ x64/x86 build tools (v14.30-17.0) (Out of support)
- ☐ MSVC v143 - VS 2022 C++ x64/x86 build tools (v14.31-17.1) (Out of support)

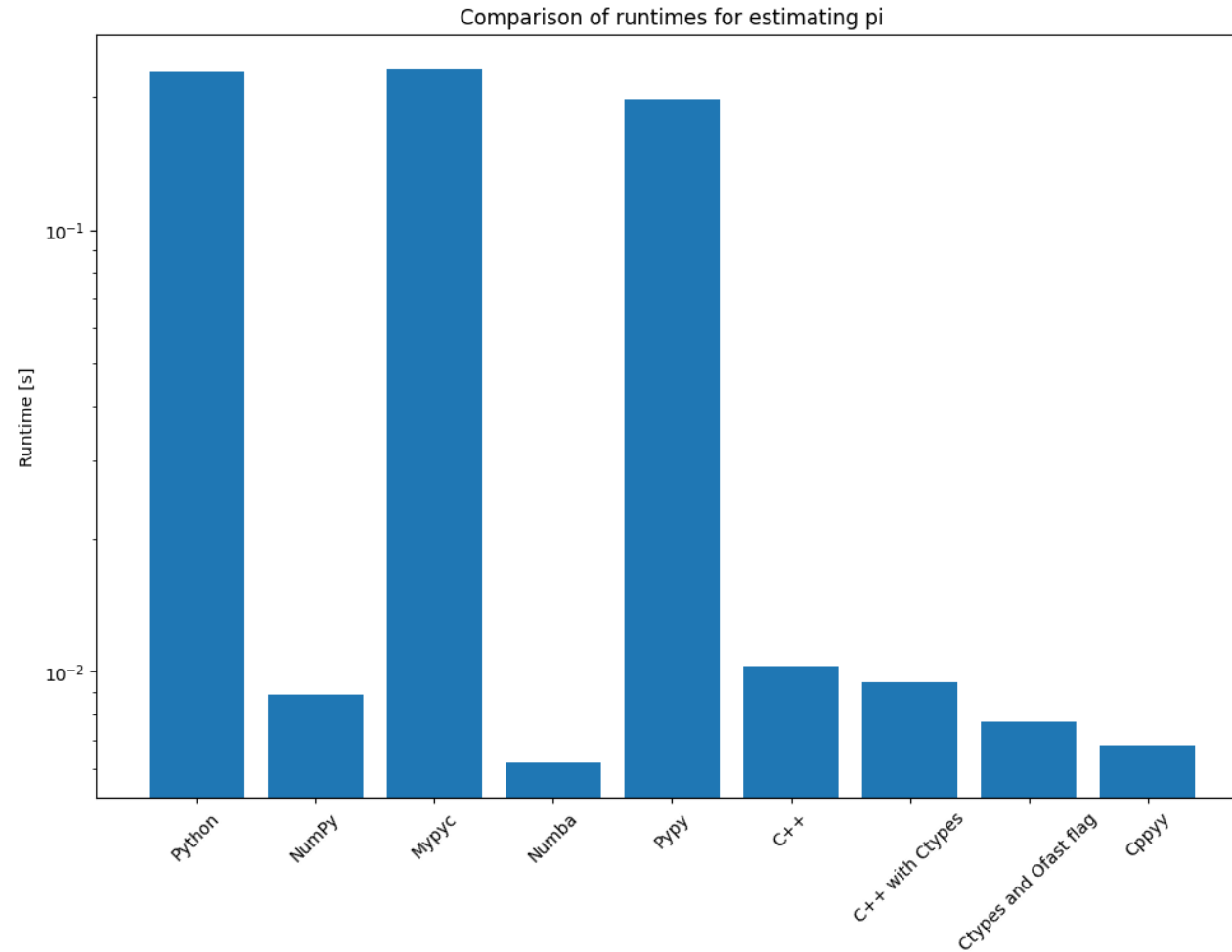


LIVEKODING:

BLANDET
PROGRAM-
MERING



- OBS: Kan variere med OS og maskin



Etter forelesningen

- Forelesningsopptak fra de tre siste forelesningene (og denne) kommer så fort vi får publisert dem

