



Metode de dezvoltare software



Software Architecture and Design Patterns

04.04.2023 Rareș Cristea









What is Software Architecture?

Software Architecture is an ensemble of artefacts and decisions that describe the way a software system works.











Software Architecture



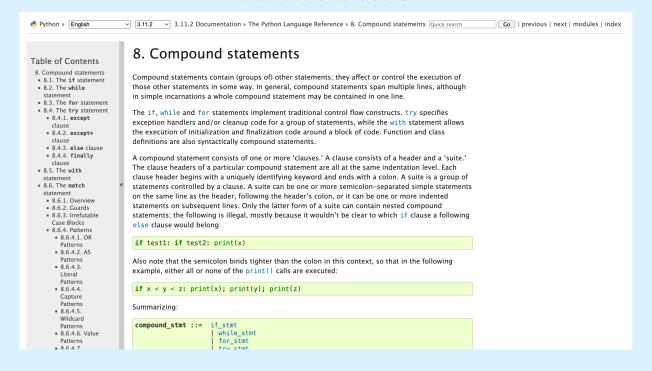
Usage Documentation







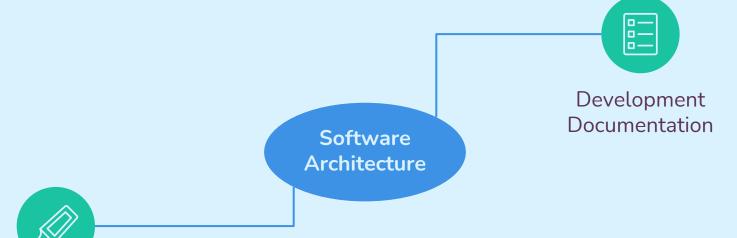
For the end users













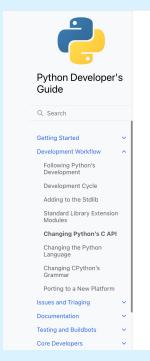
Usage Documentation





Development Documentation

For architects and developers



Changing Python's C API

The C API is divided into three sections:

- The internal, private API, available with Py_BUILD_CORE defined. Ideally declared in Include/internal/. Any API named with a leading underscore is also considered private.
- The public C API, available when Python.h is included normally. Ideally declared in Include/cpython/.
- 3. The Limited API, available with Py_LIMITED_API defined. Ideally declared directly under Include/.

Each section has higher stability & maintenance requirements, and you will need to think about more issues when you add or change definitions in it.

The compatibility guarantees for public C API are explained in the user documentation, <code>Doc/c-api/stable.rst</code> (C API Stability).

The internal API

Internal API is defined in Include/internal/ and is only available for building CPython itself, as indicated by a macro like Py_BUILD_CORE.

While internal API can be changed at any time, it's still good to keep it stable: other API or other CPython developers may depend on it.

With PyAPI_FUNC or PyAPI_DATA

Functions or structures in Include/internal/ defined with PyAPI_FUNC or PyAPI_DATA are internal functions which are exposed only for specific use cases like debuggers and profilers.

With the extern keyword

Functions in Include/internal/ defined with the extern keyword must not and can not be used outside the CPython code base. Only built-in stdlib extensions (built with the Py_BUILD_CORE_BUILTIN macro defined) can use such functions.

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The internal API
With PyAPI_FUNC or
PyAPI_DATA

With the extern keyword

Private names Internal API Tests

Public C API

C API Tests

Guidelines for changing the Limited API, and removing

items from it
Guidelines for adding to the

Limited API
Adding a new definition to the

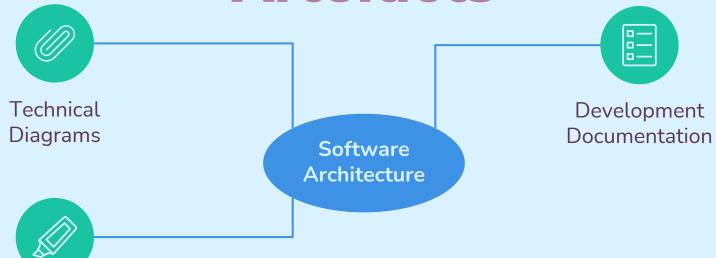
Limited API

Limited API Tests









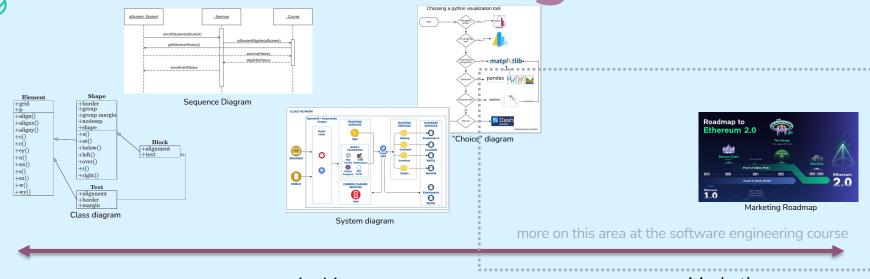


Usage Documentation









Architect Marketing

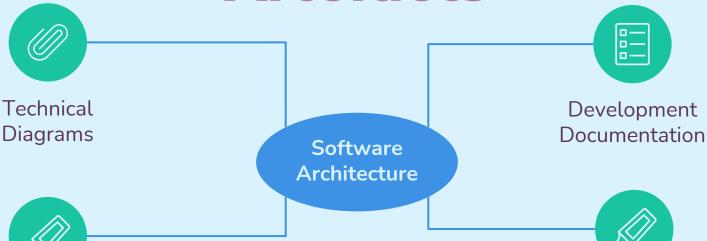
Developer

Analyst









Usage Documentation

Software Development Plan (Roadmap)

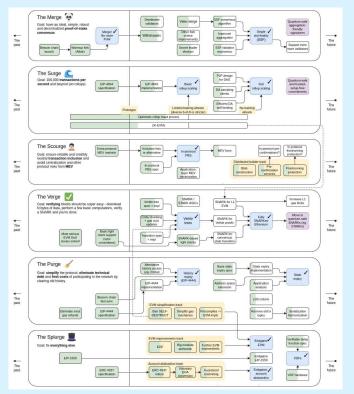




Roadmap









Marketing oriented







A stakeholder is a person or organization that has rights, shares, claims, or interests concerning the system or its properties meeting their needs and expectations.

Stakeholders should be identified as early as possible in order to prepare an architecture that caters to the needs of most of the stakeholders.

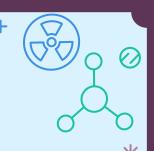
Some examples of stakeholders ->



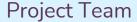




Those who are involved in the project and work on it









Management Team



Third-party companies







Those who are affected by the project and will use the artefacts





Customers



Members of functional units



End users







Those who are not involved in the project but can influence it





Executive management of the company



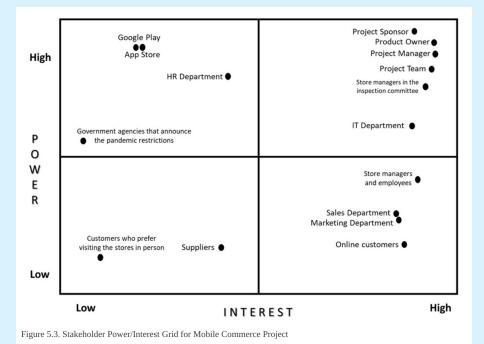
Regulatory Structures







Stakeholder Analysis









Up next ...

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A more in depth look at design patterns and architectures



