

Identifying Technical Debt with Sonar

Software Engineering 2 – Workshop #8

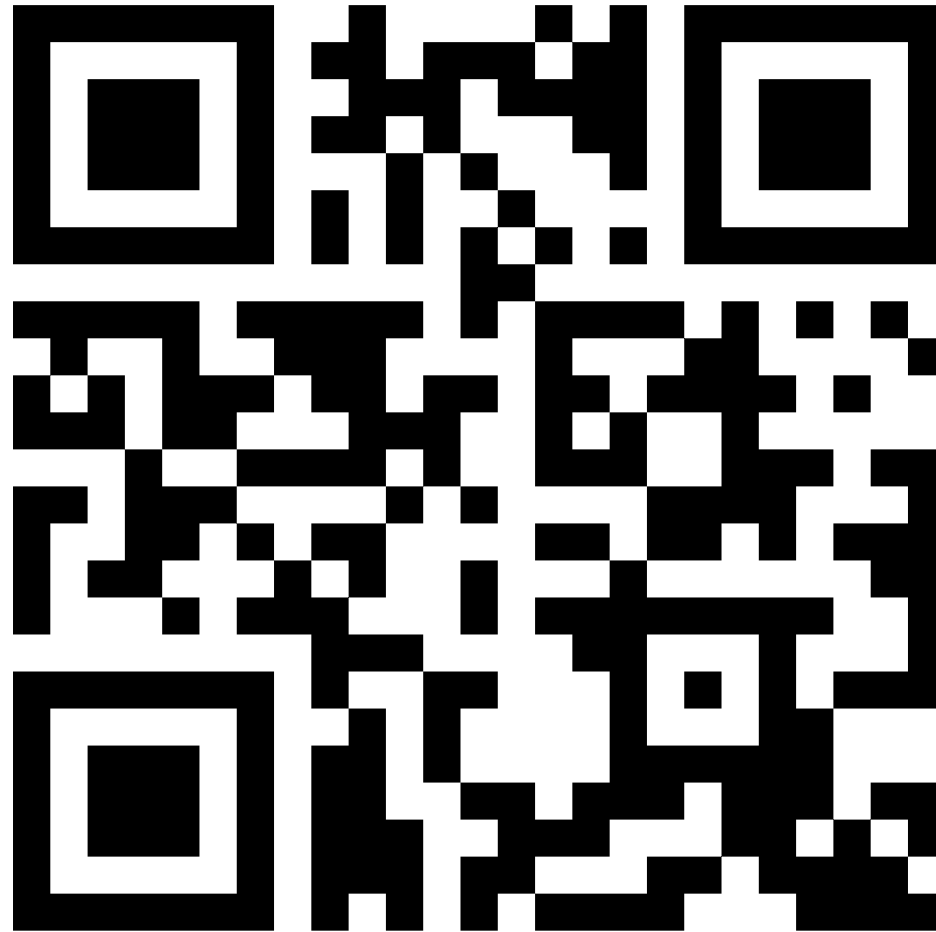
Version 1.9 – November 2024



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CHECK-IN



<http://tiny.cc/W8-TD>

Sonar

AI-ASSISTED CODING, IMPROVED BY SONAR

Better code for better software

AI-generated or written by humans, Sonar's Clean Code Solutions cover your code quality needs, improving code reliability, maintainability, and security

[Request a demo](#)

[What is Sonar? ↻](#)



Formerly SonarCloud

Cloud-based static analysis tool for your CI/CD workflows



Formerly SonarQube

Self-managed static analysis tool for continuous codebase inspection

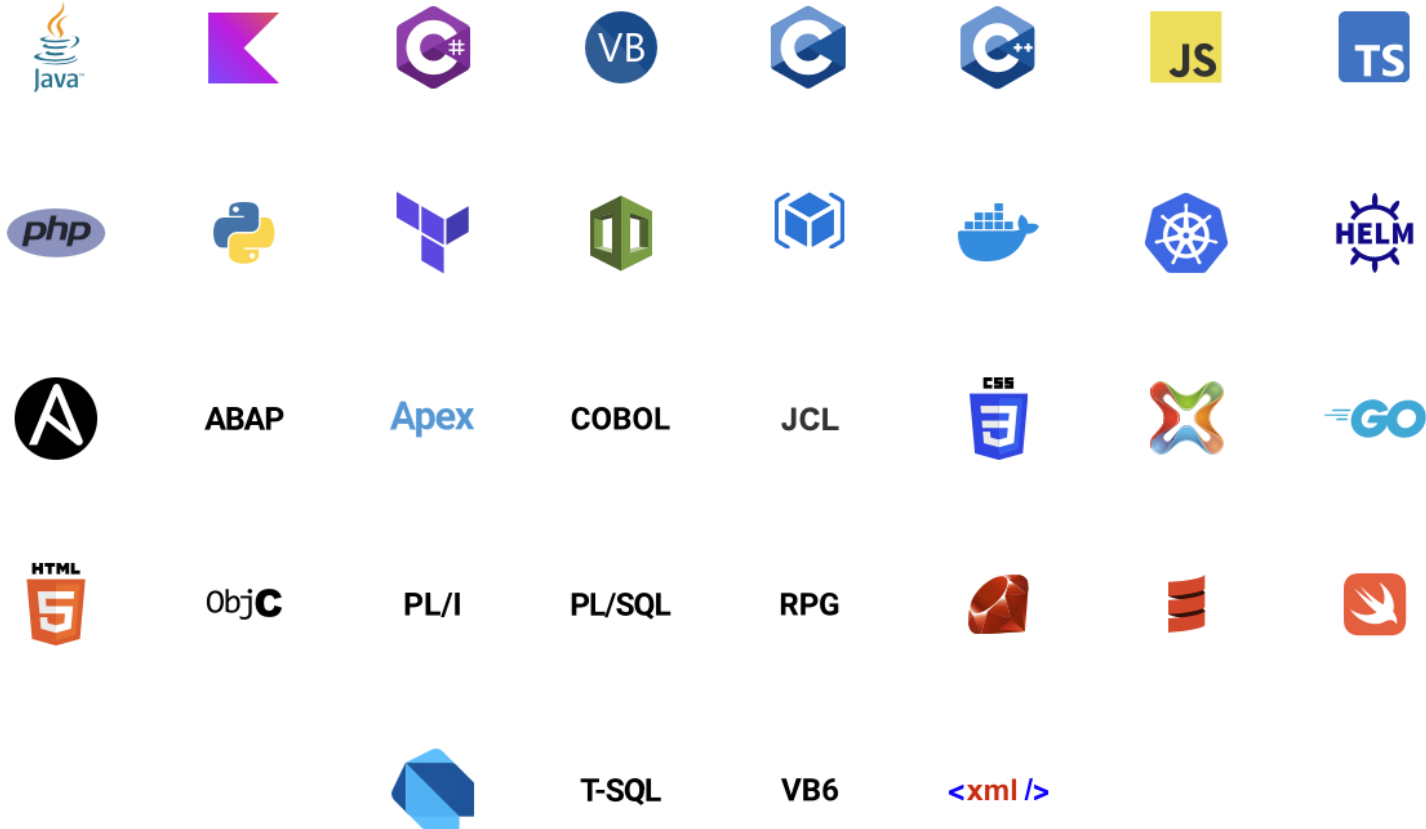


Formerly SonarLint

Free IDE extension that provides on-the-fly analysis and coding guidance

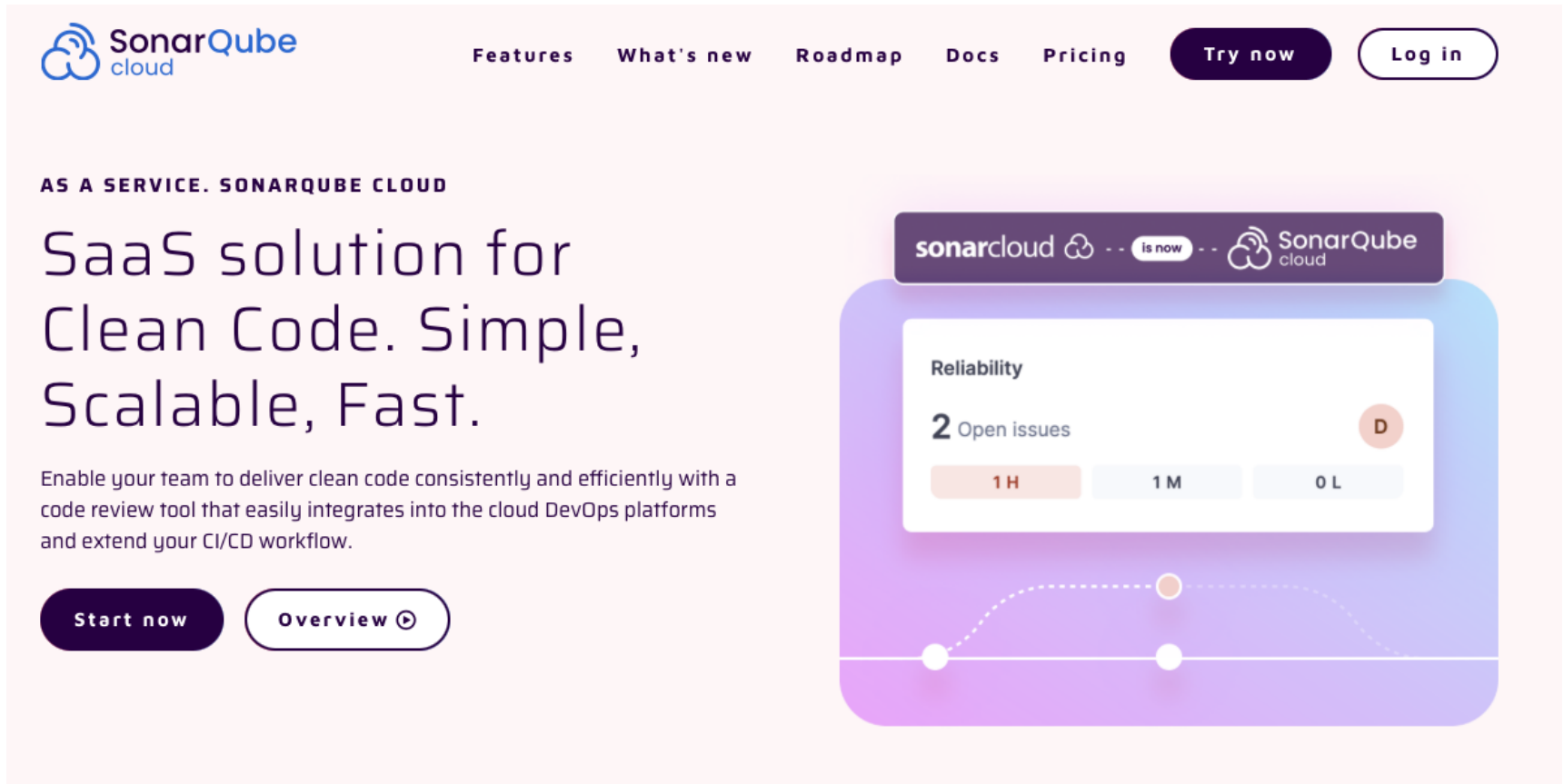
<https://www.sonarsource.com/>

Supported languages



<https://www.sonarsource.com/knowledge/languages/>

SonarQube cloud



The screenshot shows the SonarQube Cloud website. At the top, there is a navigation bar with links for Features, What's new, Roadmap, Docs, Pricing, Try now, and Log in. The main heading reads 'SaaS solution for Clean Code. Simple, Scalable, Fast.' Below this, a subheading states 'AS A SERVICE. SONARQUBE CLOUD'. A paragraph describes the service: 'Enable your team to deliver clean code consistently and efficiently with a code review tool that easily integrates into the cloud DevOps platforms and extend your CI/CD workflow.' There are two buttons: 'Start now' and 'Overview'. On the right, a mockup of the SonarQube interface is shown, featuring a 'Reliability' section with '2 Open issues' and a 'D' grade, and a progress bar with '1 H', '1 M', and '0 L' segments.

SonarQube cloud

Features What's new Roadmap Docs Pricing **Try now** Log in

AS A SERVICE. SONARQUBE CLOUD

SaaS solution for Clean Code. Simple, Scalable, Fast.

Enable your team to deliver clean code consistently and efficiently with a code review tool that easily integrates into the cloud DevOps platforms and extend your CI/CD workflow.

Start now Overview

sonarcloud is now **SonarQube cloud**

Reliability

2 Open issues **D**

1 H **1 M** **0 L**

<https://www.sonarsource.com/products/sonarcloud/>

You can explore existing open analyses

The screenshot displays the SonarQube cloud 'Explore' interface. At the top, the 'Explore' tab is selected. The main section, titled 'Featured Projects', shows three project cards:

- Amazon Web Services (AWS) Java SDK**: 206k Lines of Code - Java, XML. Status: Passed. Metrics: Bugs (93), Vulnerabilities (7), Code Smells (6.3k), Security Hotspots (5), Coverage (73.5%), Duplications (3.8%).
- Sourcegraph**: 804k Lines of Code - Unknown, CSS, ... Status: Passed. Metrics: Bugs (114), Vulnerabilities (9), Code Smells (5.5k), Security Hotspots (5), Coverage (0%), Duplications (2.4%).
- Microsoft vscode-python**: 40k Lines of Code - TypeScript. Status: Failed. Metrics: Bugs (13), Vulnerabilities (0), Code Smells (267), Security Hotspots (1), Coverage (—), Duplications (0.5%).

Below the featured projects, there are filters and a search bar. The 'Filters' section includes 'Size' (ranging from < 1k to > 500k) and 'Languages' (with a search bar). The search bar contains the text 'Search for projects' and shows '10000 projects'.

The main content area below the filters shows a list of projects. The first project is **appframework / tasker-web**, which is 'Passed'. Its last analysis was on 14/11/2024 at 14:48, with 4.4k Lines of Code - Java, XML. Metrics: Security (0), Reliability (14), Maintainability (217), Hotspots Reviewed (100%), Coverage (0.0%), Duplications (0.7%).

The second project is **Charles7c / continew-admin**, which is 'Passed'. Its last analysis was on 14/11/2024 at 14:46, with 10k Lines of Code - Java.

https://sonarcloud.io/explore/projects?sort=-analysis_date

Sonar cloud documentation

sonarcloud 

Search...

Homepage

Core concepts

Discovering SonarCloud

Getting started with SonarCloud

Signing up for SonarCloud

Analyzing GitHub projects

Analyzing Bitbucket Cloud projects

Analyzing GitLab projects

Analyzing Azure DevOps projects

Viewing your first analysis' results

Retrieving your organizations

Getting started with Enterprise

Improving your code

Enriching your analysis

Setting your standards

Managing your account

Managing your projects

Managing portfolios

AI features

Administering your SonarCloud

Advanced setup

Digging deeper

Appendices

Deprecations and removals

Sonar Home

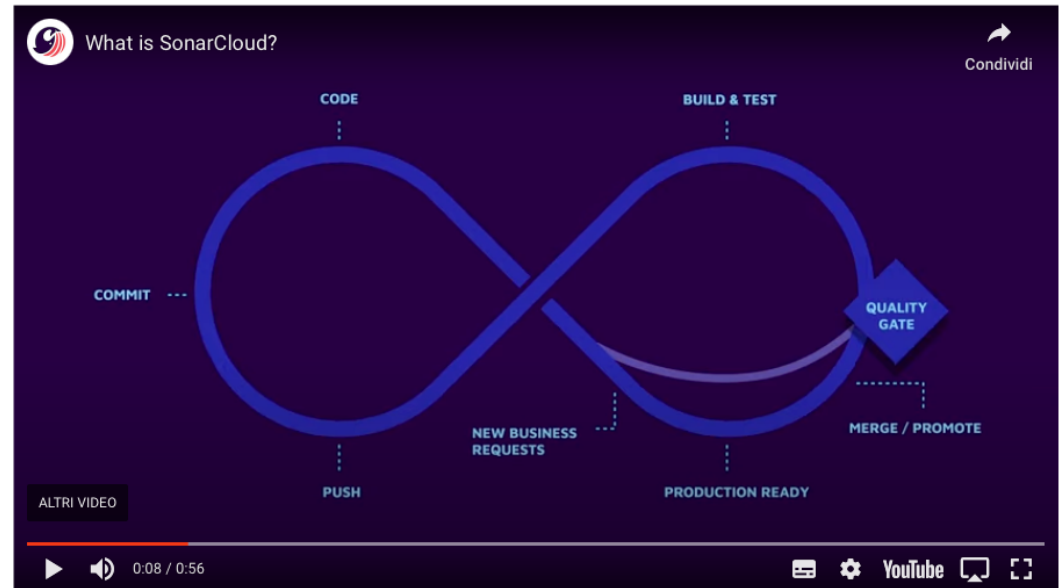
SonarCloud | Homepage

SonarCloud Documentation

What is SonarCloud?

SonarCloud is a Software-as-a-Service (SaaS) code analysis tool designed to detect coding issues in **30+ languages, frameworks, and IaC platforms**. By integrating directly with your **CI pipeline** or one of the supported **DevOps platforms**, your code is checked against an extensive set of rules that cover many attributes of code, such as maintainability, reliability, and security issues, on each merge/pull request.

SonarCloud extends your DevOps experience by performing automated code checks within minutes. Here's how to get started using SonarCloud:



Please have a look at the Discovering SonarCloud section to learn more about **What SonarCloud can do**. For on-premise code repositories, see **SonarQube**.

Analyze GitHub projects with SonarQube Cloud

SonarQube cloud – free

Free

For individual developers, and open-source projects.

Always free:

\$0 annually

Get Started

- ✓ Scan your open source projects
- ✓ 30 languages, frameworks and IaC platforms supported ⓘ
- ✓ Advanced issue detection & deeper SAST
- ✓ Analyze the main branch & pull requests
- ✓ DevOps platform integration

<https://www.sonarsource.com/products/sonarcloud/>

Free for public projects

Free plan

If you want to analyze only **public projects** in your organization, you can use the free, open-source plan. This plan allows you to import and analyze an unlimited number of public projects in your organization. When using the free plan, your code and analysis results will be publicly accessible.

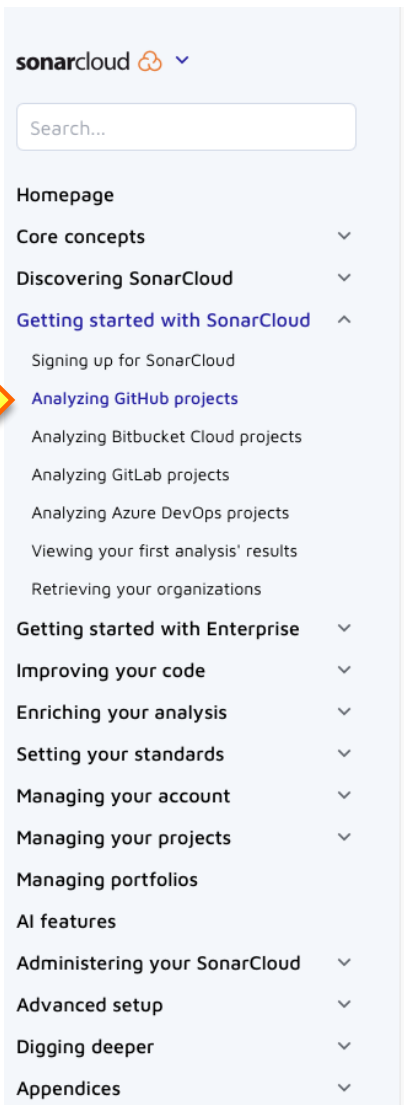


Any private repository in that organization will not be importable.

Anyone, including anonymous users, can view a free plan organization record. Non-members cannot see the organization's list of members.

<https://docs.sonarsource.com/sonarcloud/administering-sonarcloud/managing-subscription/subscription-plans/>

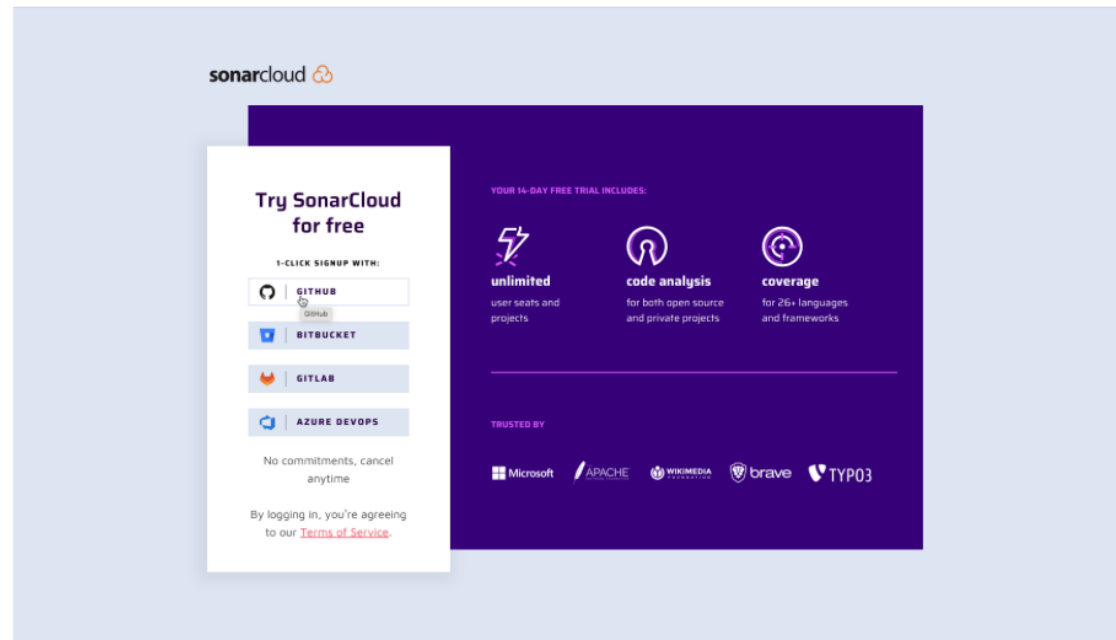
Getting started with GitHub



SonarCloud | Getting started with SonarCloud | Analyzing GitHub projects

Getting started with GitHub

If your code is on GitHub, go to the [SonarCloud](#) product page and choose **Sign up** for new users, or **Login** for existing users, then select **GitHub** from the list of DevOps cloud platforms.



Welcome to SonarCloud

Once you have successfully logged in, you will see the SonarCloud welcome screen. Select **Analyze your first projects** > **Import an organization from GitHub**.

Instructions for Sonar+GitHub

- Follow the instructions at the dedicated page on the SonarQube Cloud documentation:
 - <https://docs.sonarsource.com/sonarcloud/getting-started/github/>

Tests and code coverage

SonarCloud | Enriching your analysis | Test coverage | Overview

Test coverage

Test coverage reports and test execution reports are important metrics in assessing the quality of your code. Test coverage reports tell you what percentage of your code is covered by your test cases. Test execution reports tell you which tests have been run and their results.



SonarCloud itself does not calculate coverage. To include coverage results in your analysis, you must set up a third-party coverage tool and configure SonarCloud to import the results produced by that tool (see below). This feature is only available for **CI-based analysis**. It is not available for automatic analysis.

<https://docs.sonarcloud.io/enriching/test-coverage/overview/>

Overview – live

https://sonarcloud.io/explore/projects?sort=-analysis_date

Hands on

Premise: SE1 projects

Each group has at least a member who did a project in the SE1 course

Previous years SE1 projects

<https://git-softeng.polito.it/se-2023-24/group-ita-XX/ezelectronics>

<https://git-softeng.polito.it/se-2023-24/group-eng-XX/ezelectronics>

<https://git-softeng.polito.it/se-2022/group-XX/EzWh>

<https://git-softeng.polito.it/se-2021/group-XX/ezshop>

TASKS

1. Two SonarCloud analysis (automatic OR ci-based)
 - a. on one project from SE1:
 - download it and re-upload it on Github as **open** project
 - b. on the Office Queue Management code
2. Planning TD management: discuss and decide
 - a) how to include code quality checks within your sprint activities
 - b) how to pay back TD (e.g. priorities, workflow, internal organization, etc.)
 - c) Document your decisions on GitHub on a file named TD_strategy.md (on the root of the MAIN branch), by Sprint 3
3. Update <http://tiny.cc/SE2-2024-teams-repo>