CPI Governance Automation

PI – Projeto de Informática 23/24

Universidade do Minho / Engenharia Informática

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1 About Accenture

Accenture is a global professional services company with leading capabilities in digital, cloud and security. Combining unmatched experience and specialized skills across more than 40 industries, we offer Strategy and Consulting, Technology and Operations services and Accenture Song—all powered by the world's largest network of Advanced Technology and Intelligent Operations centers. Our 735,000 people deliver on the promise of technology and human ingenuity every day, serving clients in more than 120 countries. We embrace the power of change to create value and shared success for our clients, people, shareholders, partners, and communities.

Clients

We operate at the heart of our clients' businesses, helping address their most complex, mission-critical issues. Accenture's clients span the full range of industries around the world and include 89 of the Fortune Global 100 and more than three-quarters of the Fortune Global 500.

Industry Expertise

Accenture provides services and solutions across more than 40 industries in five industry groups. This industry focus gives Accenture's professionals a thorough understanding of industry evolution, business issues and applicable technologies, enabling us to deliver innovative solutions tailored to each client.

Technology Leadership

As the largest independent technology services provider, we have a privileged position in the ecosystem and are a leading partner of many key players, including Adobe, Alibaba, Amazon Web Services, Blue Yonder, Cisco, Dell, Google, HPE, IBM RedHat, Microsoft, Oracle, Pegasystems, Salesforce, SAP, ServiceNow, VMWare and Workday. The scale and scope of our global delivery capabilities are unmatched, with skilled professionals working from more than 50 delivery centers and at client sites around the world.

Services (Technology)

Technology provides innovative and comprehensive services and solutions that span cloud; systems integration and application management; security; intelligent platform services; infrastructure services; software engineering services; data and artificial intelligence; and global delivery through our Advanced Technology Centers. We continuously innovate our services, capabilities, and platforms through early adoption of new technologies such as blockchain, robotics, 5G, quantum computing and Edge computing. Technology also leads the innovation and R&D activities in our Labs, our investments in

emerging technologies through Accenture Ventures, and the management of our ecosystem alliance relationships across a broad range of technology providers.

Other Services
We also have our services in Strategy and Consulting, Song (Interactive/Digital) and Operations.

2 Background

We are looking for dynamic students willing to learn to walk the path of innovation with us.

We offer the opportunity to do an internship at our NanoLab, a space for incubating and developing ideas, framed within the Advanced Technology Center in Portugal, and a privileged place to carry out innovative R&D projects.

Awaiting you is equipment and people ready to help you develop and carry out these projects. More than 14 prototypes have been developed at this unit since 2020, using state-of-the-art technologies (IoT, XR, AI).

3 Project proposal

3.1 Project Title

CPI Governance Automation

3.2 Project Description

The purpose of this project is to create an application to automatically review the integration interfaces developed on the SAP CPI platform. This application will form part of an Integration Process Management platform for SAP CPI, which will be offered to our customers.

SAP Cloud Platform Integration (CPI) is SAP's cloud-based middleware that connects users' SAP ERP systems with third-party products. These products can be cloud-based, on-premises, SAP, or non-SAP. The service allows real-time data exchange between these systems.

To improve the performance, security, and reliability of the integrations developed in this technology, a set of rules of best practices are recommended by SAP. Currently, the verification of artifacts created in CPI is manually verified, which increases the cost and time in the review process.

CPILint is a command-line tool for SAP Cloud Integration, that allows to automate the governance of the integration flows. With CPILint, it’s possible to create executable development guidelines, by setting up a set of rules that you want your integration flows to comply with.

The tool ships with a set of built-in rules, that enable, for instance, to disallow the use of certain adapters, check that only specific organization’s sanctioned mapping tools and scripting languages are being used, and ensure that security best practices are being followed.

With the chosen rules in place, CPILint does the heavy lifting of checking that your integration flows are compliant and presents a report of those that are not.

However, most of the rules in the best practice guides are not covered by CPILint. Another problem is that the programming languages used (Groovy and Javascript) are not included in the code review process.

This project aims to include new rules, increasing the coverage of the CPILint review process. Also, a module for Groovy code review needs to be created.

3.3 Project objectives

The solution should be able to do the following:

- Catalog and document best practices for developing SAP CPI integration interfaces.
- Catalog and document best practices for coding in the Groovy language.
- Check which of the cataloged rules CPILint covers.
- Define and describe the set of new rules that will be coded for CPILint.
- Code in Java language using CPILint source code, which is in version 1.0.4 and Open-Source MIT license.

3.4 Second Component Description

CPILint's interface is modest and does not have a web version. It is expected that a web interface will be built. The interface must be able to replace CPILint text commands with actions on form elements. It should also be able to issue reports with different levels and types of error, using colors.

A future need is to integrate this application with other governance and monitoring systems. For this reason, it is expected that the application can be hosted in the cloud and provide an API for this purpose.

3.5 Second Component Objectives

The solution should be able to do the following:

- Create a Rest API in JAVA to use CPILint. This API should be able to:
    - Trigger CPILint to remotely access the CPI Tenant and perform the review process.
    - Expose the error report generated by CPILint in JSON format.

- Create a Web Interface. This Interface should be able to:
    - Enter the artifact files and rule files using form fields.
    - Display the error report generated by CPILint in table format, applying colors to the cells to differentiate the types and levels of error.
    - Replace text commands with buttons.

3.6 Company, Coordinators and contacts

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