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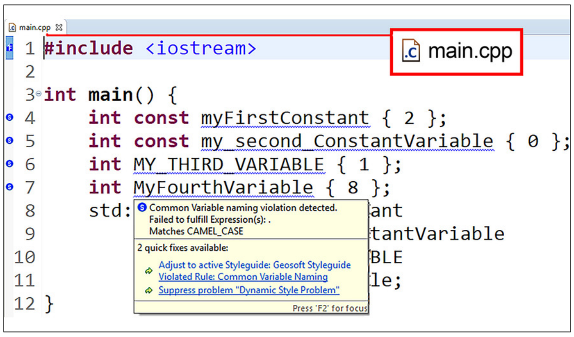
Subject Area	Software

Stylechecker Plug-in for Cevelop



main.cpp

main.cpp

```
#include <iostream>

int main() {
    int const myFirstConstant { 2 };
    int const my_second_ConstantVariable { 0 };
    int MY_THIRD_VARIABLE { 1 };
    int MyFourthVariable { 8 };
    std:                    ant
                            tantVariable
                            BLE
                            le;
}
```

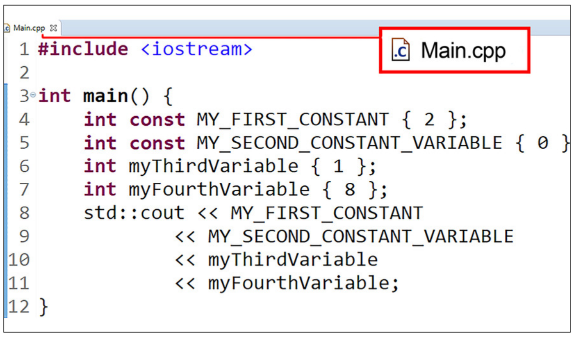
Common Variable naming violation detected.
Failed to fulfill Expression(s): .
Matches CAMEL_CASE

2 quick fixes available:

- Adjust to active Styleguide: Geosoft Styleguide Violated Rule: Common Variable Naming
- Suppress problem "Dynamic Style Problem"

Press 'F2' for focus

Eclipse editor with styleguide violation markers



Main.cpp

Main.cpp

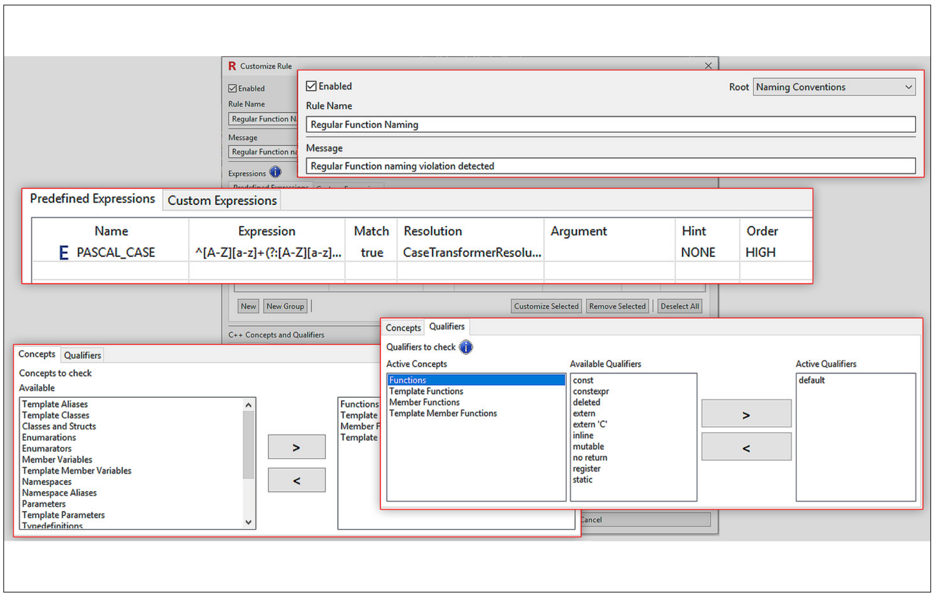
```
#include <iostream>

int main() {
    int const MY_FIRST_CONSTANT { 2 };
    int const MY_SECOND_CONSTANT_VARIABLE { 0 }
    int myThirdVariable { 1 };
    int myFourthVariable { 8 };
    std::cout << MY_FIRST_CONSTANT
            << MY_SECOND_CONSTANT_VARIABLE
            << myThirdVariable
            << myFourthVariable;
}
```

Eclipse editor with styleguide violation markers resolved

Introduction: In design work, a styleguide defines rules and guidelines to be adhered to for achieving a uniform visual look. Styleguides as such also exist for source code. Additionally, to contributing to a visually pleasing codebase, a styleguide increases understandability and readability of source code. In many projects, coding guidelines exist and are part of the development cycle ranging from a small set of rules to a broader compilation of guidelines to be followed. Cevelop is an integrated development environment (IDE) for C++. It is developed and maintained by the Institute for Software (IFS) at HSR. Cevelop itself is based on the Eclipse C/C++ Development Tooling (CDT) project. Currently, Cevelop is lacking the feature of styleguide checking.

Objective: The primary goal of the Stylechecker plug-in for Cevelop is providing the capabilities to perform styleguide checking and rule violation reporting. Furthermore, the plug-in is to offer automated resolutions wherever possible. In the scope of this project, the focus lies on covering naming conventions for three predefined styleguides: Google styleguide, Canonical styleguide and Geosoft styleguide. Additionally, users need to be able to create custom styleguides, define rules for it, change existing ones and import/export styleguides for sharing with team members.

Result: The implemented Stylechecker plug-in realizes styleguide checking as well as automated resolutions. To achieve this, the plug-in uses the abstract syntax tree provided by Eclipse CDT. Furthermore, the Stylechecker plug-in uses CDT's code analysis (Codan) framework, an integrated Eclipse CDT plug-in, providing facilities to create markers and resolutions for C++ development. In combination, checking, reporting and initiating resolutions become available. The Stylechecker plug-in allows users to compose custom styleguide rules by joining one or more expressions, defining the language elements to check the rules for and providing custom messages on reporting.



Customize Rule

☑ Enabled

Root: Naming Conventions

Rule Name: Regular Function Naming

Message: Regular Function naming violation detected

Expressions

Predefined Expressions | Custom Expressions

Name	Expression	Match	Resolution	Argument	Hint	Order
E PASCAL_CASE	^[A-Z][a-z]+(?:[A-Z][a-z]...	true	CaseTransformerResolu...		NONE	HIGH

Concepts to check

Available: Template Aliases, Template Classes, Classes and Structs, Enumarations, Enumarators, Member Variables, Template Member Variables, Namespaces, Namespace Aliases, Parameters, Template Parameters, Typedefinitions

Selected: Functions, Template, Member F, Template

Qualifiers to check

Active Concepts: Functions, Template Functions, Member Functions, Template Member Functions

Available Qualifiers: const, constexpr, deleted, extern, extern 'C', inline, mutable, no return, register, static

Active Qualifiers: default

Customize rule dialog

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