PRACTICAL-7

AIM:

Prepare the details Case Study on Design coding standards and guidelines for your respective SGP project definition and justify which Software Quality Standards & Testing Tool will be suitable for your SGP project.

IMPLEMENTATION:

In the Coding phase, different modules specified in the design document are coded according to the module specification. The major purpose of the coding phase is to use a high-level language to code from the design document created during the design phase, and then to unit test this code.

Code standards are a well-defined and standard style of coding that good software development companies expect their programmers to follow. They frequently create their own coding standards and rules based on what works best for their company and the types of software they create. Maintaining coding standards is critical for programmers; else, code will be rejected during code review.

PURPOSE:

A coding standard offers the programmes created by different engineers a consistent appearance.

It increases the code's readability and maintainability while simultaneously reducing its complexity.

It aids in the reuse of code and the detection of errors.

It encourages good programming habits and boosts programmers' productivity.

Coding Guidelines Have the Following Benefits:

Coding rules improve the software's efficiency while also reducing development time.

Coding rules aid in the early detection of problems, lowering the extra costs spent by the software project.

When coding rules are followed correctly, the software code becomes more readable and understandable, reducing the code's complexity.

It lowers the software development's hidden costs.

CODING STANDARD FOR OUR SOFTWARE GROUP PROJECT:

Limited use of Global Variable

Avoid the use of globals as much as possible during the development of the project.

If required to use, please discuss with the team and find an alternate solution.

Standard header for different modules

For better understanding and maintenance of the code, the header of different modules should follow some standard format and information. The header format must contain below things that is being used in various companies:

* Name of the module
* Date of module creation
* Author of the module
* Modification history
* Synopsis of the module about what the module does
* Different functions supported in the module along with their input output parameters
* Global variables accessed or modified by the module

Naming conventions for local variables, global variables, constants and functions:

Local variables should be named in snake case.

Global Variables should contain the word “global” and upper case should be used.

Constant names should be in upper case with “const” word as its suffix

Function name should follow camel case with underscore(\_) for separating two words.

Indentation:

Proper indentation is very important to increase the readability of the code. For making the code readable, programmers should use White spaces properly. Some of the spacing conventions are given below:

* There must be a space after giving a comma between two function arguments.
* Each nested block should be properly indented and spaced.
* Proper Indentation should be there at the beginning and at the end of each block in the program.
* All braces should start from a new line and the code following the end of braces also start from a new line.

Use a coding style that isn't too difficult to comprehend.

The code should be simple to comprehend. Maintenance and debugging are difficult and expensive due to the sophisticated code.

Avoid using the same identifier for different purposes.

Each variable should have a descriptive and meaningful name that explains why it is being used. When one identifier is used for multiple purposes, this is not conceivable, and the reader may become confused. Furthermore, it makes future enhancements more difficult.

Try not to use GOTO statement

GOTO statement makes the program unstructured, thus it reduces the understandability of the program and also debugging becomes difficult.

**Quality Standard:**

Functionality - We have tried to make it as user friendly as possible. We have added the functionalities such that user has to do the minimum work.

Reliability - We have tried to make it as reliable as possible. We have also used the best formulae to predict the probability and implemented heatmap for better understanding of the output.

Usability - It is very easy to use so any user can easily access and use it.

**SOFTWARE TESTING:**

Selenium:

Selenium is a portable framework for testing web applications. Selenium provides a playback tool for authoring functional tests without the need to learn a test scripting language (Selenium IDE). It also provides a test domain-specific language (Selenese) to write tests in a number of popular programming languages, including C#, Groovy, Java, Perl, PHP, Python, Ruby and Scala. The tests can then run against most modern web browsers. Selenium runs on Windows, Linux, and macOS. It is open-source software released under the Apache License 2.0.

**CONCLUSION:**

**By performing the above practical, I learnt how to design the coding standard for the project.**