Experiment-8

Defining Coding Standards and walk through.

Aim: Defining Coding Standards and walk through.

Objectives: The main goal of the coding phase is to code from the design document prepared after the design phase through a high-level language and then to unit test this code.

Theory/Concepts/Formulas (If Applicable)

- Good software development organizations want their programmers to maintain to some well-defined and standard style of coding called coding standards.

- They usually make their own coding standards and guidelines depending on what suits their organization best and based on the types of software they develop.

- It is very important for the programmers to maintain the coding standards otherwise the code will be rejected during code review.

Theory/Concepts/Formulas (If Applicable)

- A coding standard gives a uniform appearance to the codes written by different engineers.

- It improves readability, and maintainability of the code and it reduces complexity also.

- It helps in code reuse and helps to detect error easily.

- It promotes sound programming practices and increases efficiency of the programmers.

Coding Standards

1. Limited use of globals:

- These rules tell about which types of data that can be declared global and the data that can't be.

2. Standard headers 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

Coding Standards

2. Standard headers for different modules:

- 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

Coding Standards

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

Meaningful and understandable variables name helps anyone to understand the reason of using it.

Local variables should be named using camel case lettering starting with small letter (e.g. localData) whereas Global variables names should start with a capital letter (e.g. GlobalData). Constant names should be formed using capital letters only (e.g. CONSDATA).

It is better to avoid the use of digits in variable names.

The names of the function should be written in camel case starting with small

Coding Standards

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

The names of the function should be written in camel case starting with small letters.

The name of the function must describe the reason of using the function clearly and briefly.

Coding Standards

4. 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.

Coding Standards

4. Indentation:

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.

Coding Standards

5. Error return values and exception handling conventions:

All functions that encountering an error condition should either return a 0 or 1 for simplifying the debugging.

All braces should start from a new line and the code following the end of braces also start from a new line.

Coding Standards

6. Avoid using a coding style that is too difficult to understand:

Code should be easily understandable. The complex code makes maintenance and debugging difficult and expensive.

Coding Standards

7. Avoid using an identifier for multiple purposes:

- Each variable should be given a descriptive and meaningful name indicating the reason behind using it.

- This is not possible if an identifier is used for multiple purposes and thus it can lead to confusion to the reader.

- Moreover, it leads to more difficulty during future enhancements.

Coding Standards

8. Code should be well documented:

The code should be properly commented for understanding easily. Comments regarding the statements increase the understandability of the code.

Coding Standards

9. Length of functions should not be very large:

Lengthy functions are very difficult to understand. That's why functions should be small enough to carry out small work and lengthy functions should be broken into small ones for completing small tasks.

Experiment Demonstration