CHAPTER VII

SOFTWARE METRICS

Software metrics are numerical data related to software development. Metrics support software project management activities. Software metrics involves the measurement of function points that includes the number of inputs, outputs, files, and external interfaces on the system. These metrics are used as indicators about the software so that the organization have a better decision making and intelligent choices. Also, these metrics properly keep track of the efficiency and productivity of the software by measuring and evaluating software attributes in a systematic manner.

7.1 Size Oriented Metrics

Size-oriented metrics is the critical factor to determine the cost, schedule, and effort of the program. Size estimation is an important activity; the results are constantly updated with the actual along the life cycle of the system. The size measures the lines of code (LOC), function points, and feature points. Complexity is a function of size, which greatly impacts design errors and uncovered defects. These problems could result to quality issues, cost, and schedule delays.

Table 23 shows the normalized quality and productivity measures of IPSMCIS. Size-oriented metrics focus on the direct measures such as the thousand lines of code (KLOC), effort, cost, and page per document, errors, defects, and the people behind the development of the system.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| System | KLOC | Effort | Cost | Page per document | Errors | Defects | People |
| Inter-Pacific Study and Migration Consultancy Information System | 8.961 | 70 | Php 77,730.00 | 107 | 108 | 29 | 3 |

Table 23. Size Oriented Metrics Table.

The size-oriented project measurement table as shown in Appendix I displays the measurement subject of the system that contains different elements of the size-oriented metrics. In measuring these events, it assists and identifies the insufficiency of the system and later prevents errors on its early stage.

The subjects have been identified and its value has been derived in terms of its KLOC and daily effort values. Errors, defects, cost, and the page per document is the subject related per KLOC while errors, LOC, and cost are the subjects for daily effort values.

* 1. Function Oriented Metrics

The function-oriented metrics table that measures the size of the system and projects that was built. The size is measured from a functional or user point of view in the software. It used to measure the functionality delivered through LOC by the system. In getting the function-oriented metrics, the factors used in solving the function point; input, output, logic, inquiries, files, and interface is utilized.

As shown in Appendix H, function-oriented metrics has been tallied to identify the modules in the system that fall under the category of input, output, logic, inquiries, files, and interface. Along with it, the time has been recorded of how long these functions are created. In total, the number of days had been summed up to view that the team had meet the number of days that the project should be completed.

* 1. Function Points Computation

After computing the function point total, 14 questions should be answered by the developers with the scale of 0-5; zero is the lowest and 5 for the most essential or high importance. Based on the function point result, IPSMCIS has the total count of 41 and an average of 47.33 for the response score summary (RSS). The value adjusted factor (VAF) is the product of multiplying 0.01 to the RSS value. The answer is added by 0.65 which comes up with the 1.12 VAF.

The hardware and software utilization for the development of the system had costs Php 77,730.00. The development of the project is 32 weeks. As computed in Appendix H, the total development of the project costs is Php 80,454.00. Therefore, the project cost that was calculated previously increase by Php 2,724.00.

In conclusion, this chapter covers the software metrics of the system. The value presented helps the team to know whether the system is reliable and is ready for deployment. These metrics were used by the team to monitor the progress of the system development and to check if the functions had met the set standards.