

Comparative Analysis of PHP and Java Programming Languages for a Semantic Filtering System

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ABSTRACT

In rapidly emerging world of technological advancement and innovations, computer has become a way of life and a driving force of modern industry and businesses. This becomes one of the most significant tools for more productive operations and accurate results. Semantic filtering is used to filter valid information from a given database. Choosing the application with the best performance level and shortest execution time in semantic filtering system. Many people have been engaged in using different Object Oriented Programming (OOP) Languages without knowing the level of performance and shortest execution time of each. This leads us to setting comparative analysis tools to determine the best performance level and shortest execution time between PHP and Java to test the functionality of semantic filtering database analysis. With the evaluation performed on both programming languages, it was clearly seen that Hypertext Preprocessor (PHP) is better than Java in the aspect of semantic filtering database analysis.

Keyword: Semantic filtering, Programming Language, Database analysis, Performance level, Execution time.

1. INTRODUCTION

Semantics is concerned with the interpretation or understanding of programs and how to predict the outcome of program execution. The semantics of a programming language describe the relation between the syntax and the model of computation. Semantic filtering (SF) is anything that has to do with the meaning process of asking around when looking for information on the Internet (Goldberg et al., 1992). SF is used to filter valid expressions from a given abstract syntax elements. The SF technique will work on object oriented programming languages to give result to be analyzed to achieve the aim of this paper. The primitive data types provided in programming languages are abstract types. The representations of integer, real, Boolean and character types are hidden from the programmer. The programmer is provided with a set of operations and a high-level representation. The programmer only becomes aware of the lower level when an error occurs. An abstract data type consists of a type name and operations for creating and manipulating objects of the type. There are two advantages to defining an abstract type as a set of operations.

First, the separation of operations from the representation results in data independence. Second, the operations can be defined in a rigorous mathematical manner. Semantics, algebraic definitions provide appropriate method for defining an abstract type. Issues of compares occur when choosing the application with the best performance level and shortest execution time in semantic filtering system. Many people engaged in using different OOP Languages without knowing the level of performance and shortest execution time of each. This leads us to setting comparative analysis tools to determine the best performance level and shortest execution time between PHP and Java to test the functionality of semantic filtering system of database analysis. With the aim of choosing the best performance level and shortest execution time programming language in semantic filtering system of social network environment. Performance level of CPU carried out through the use of different OOP languages. (Ahsan et al, 2014).

2. METHODOLOGY

We formulated our comparative analysis tools (CATs) to determine the best performance level and shortest execution time between PHP and Java. CATs work around the following procedures as iterative waterfall model shown in Figure 1: PHP and Java codes, generated database and tables. This comparative analysis aims at choosing the best performance level and shortest execution time in the OOP languages. Graphical representation method was used as a data analysis technique to define and analyze data requirements needed to support the compares in OOP languages.

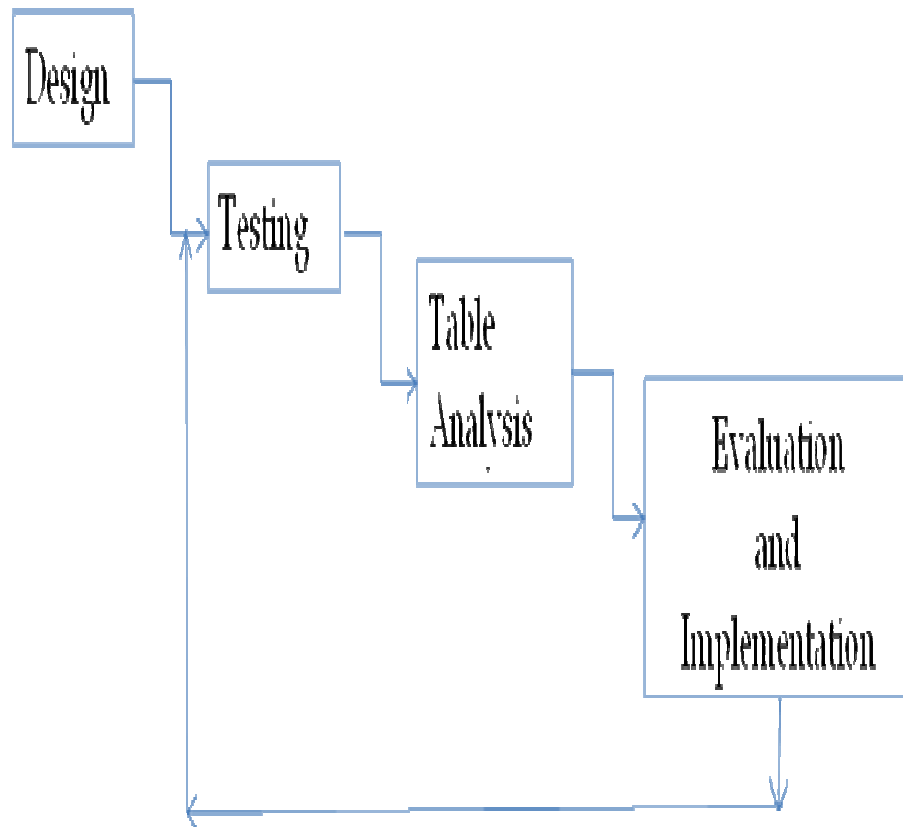


Fig. 1: Iterative Waterfall Model

Design stage is to develop database, PHP and Java codes. Testing stage generates error free codes. Table Analysis stage executes two languages concurrently to derive variation tables. Evaluation and Implementation stage shows the comparison between PHP and Java through graphical representation. To test the performance of each Language application, a large number of participants were engaged for six months (March and August, 2014) at each Course level (100, 200, 300, 400) of the Computer Science Department of Osun State University, Osogbo, Nigeria. Each Course-Level averages about 60 participants. The tests aim at filtering valid information from a given database.

3. RESULTS

The total number of iterations performed per day per language used for six months was 4, number of student database was 4 (100, 200, 300, 400) levels, and total number of OOP languages runs per day was 2. The total number of tables generated and stored in the database was 8. However, the performances of both applications are evaluated based on the quantitative element. The quantitative measured data is execution time program. This element value is measured, as well as the total averaged report for the execution time generated between March and August 2014. With active semantic filtering analysis, the evaluated values of the total average report were used in determining the best performance level between PHP and Java as, shown in Tables 1 and 2, and Figure 2.

Table 1: Total average of the execution time from March – August, 2014

Course Level	PHP Time (Microseconds, μ s)	JAVA Time (Microseconds, μ s)
100	50.5	67.1
200	51.0	68.4
300	51.2	68.5
400	52.3	67.8

TABLE 2: EVALUATED TABLE from Table 1.

OOP	PHP Time (Microseconds, μ s)	JAVA Time (Microseconds, μ s)
Total Average Execution Time	51.3	68.0

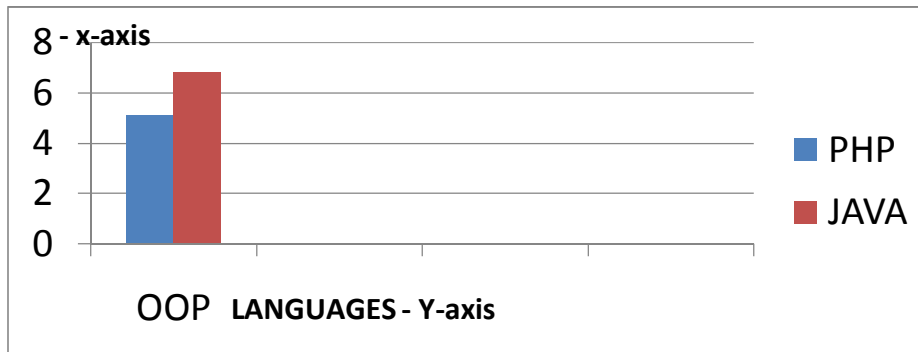


Figure 2: OOP Performance Level.

Having tested the functionality of two the Object Oriented Programming (OOP) Languages (Java and PHP) via database analysis with semantic filtering system, a comparison between the two languages was made. The PHP offers better performance level and shorter execution time than Java, as shown in Figure 2.

4. CONCLUSION

This study has provided the best OOP language with the greater levels of performance and shortest execution time with semantic filtering system. The study demonstrated that PHP is better than Java in the aspect of semantic filtering database analysis.

REFERENCES

- [1] Md. Ahsan Arif, Mohammad Shahazzat Hossain, Nazmun Nahar and Mst. Dilruba Khatun (2014), Empirical Analysis of C#, PHP, JAVA, JSP and ASP.Net regarding performance analysis based on CPU utilization, Vol. 14, No. 1, June 2014
- [2] Goldberg, D., Nichols, D., Oki, B.M., Terry, D. (1992): Using collaborative filtering to weave an information tapestry. *Communications of the ACM*, 35:12, 61-70
- [3] J. Gosling, W. N. Joy, G. L. Steele Jr. The Java Language Specification, Addison-Wesley, 1996
- [4] K.B.Bruce, A (1994). paradigmatic object oriented programming language: design, static typing and semantics, *J.Funct.Program.*4(2)(1994)127-206.
- [5] P.Hudak, S.PeytonJones, P.Wadler, B.Boutel, J.Fairbairn, J.Fasel, K.Hammond, J.Hughes, T.Johnsson, D.Kieburtz, R.Nikhil, W.Partain, J.Peterson, Report on the programming language Haskell, *ACMSIGPLAN Not.*27(5) (1992)1-64.
- [6] Richard Stronkman, Fabian Abel, Claudia Hauff, Geert-Jan Houben, Ke Tao (2012), Semantics + Filtering + Search = Twitcident, Exploring Information in Social Web Streams, HT'12, June 25-28, 2012
- [7] W.R.Cook, J.Palsberg, A denotational semantics of inheritance and its correctness, in: G.Bosworth (Ed.), *Object-Oriented Programming: Systems, Languages, and Applications (OOPSLA'89)*, New Orleans, Louisiana, USA, ACM, 1989, pp.433-443.