New Software Development Methodology for Student of Java Programming Language

Tejinder Singh and Jhunjhunu Rajasthan

***Abstract*—In this paper I have designed the new Development Structure of Java for Students. And talking about the future of the Java programming language. Java is an object-oriented programming language with syntax similar to C and C++, only simpler. Because Java is an interpreted language, the typical C or C++ compile-link-load-test-debug cycle is reduced. Java development environments actually let the entire software-development life cycle take place within a Web browser. The author discusses some basic and advanced features of Java, including garbage collection, multithreading and application programming interfaces. Java with its clean support for the object-oriented paradigm is now widely regarded as a suitable choice for introductory teaching. The choice of environment, however, remains an issue. The view of the development environment as a major difficulty in Java courses is further supported by numerous reports of educators relating their experiences with teaching introductory Java courses. While Java was consistently described as an excellent language for teaching the object-oriented paradigm, the environments available are regularly identified as a significant source of problems. These may be divided into two areas: The environments are designed for professional programmers. They are too complex and have a steep learning curve. Thus valuable teaching time is spent teaching the students how to use the environment and this detracts from the principles of programming. Most of the existing environments fail to fully adopt the object-oriented paradigm.**

***Index Terms*—Broad room discussion, logic, new technique's, practical knowledge.**

I. Introduction

A software development or system development in software engineering is a framework that is used to structure, plan, and control the process of developing an information system. The Java development method is dividing four parts first practical knowledge is base of the development area of Java programming Language or others. Second Robust logic it means you think new idea of any development area then implement through software. Third New Techniques it's your software use new trend components. Four constant practices / Broad Room discussion is increasing the knowledge, discussion now Techniques and facing problems in your development area. A number of IT professionals started to work individually on new approaches to developing software. The results of their researches were a set of new development methodologies that have many common features When they met in 2001 in conference in Utah [1], they created the so called: Agile Manifesto.

Manuscript received July 31, 2012; revised September 7, 2012.

Tejinder Singh is a Research Scholar of Computer Science, JJTU.

Jhunjhunu Rajasthan is with the Department of Computer Science, Lecturer of Baba Farid College, Bathinda (Punjab) (e-mail: tejinder31.singh@gmail.com).

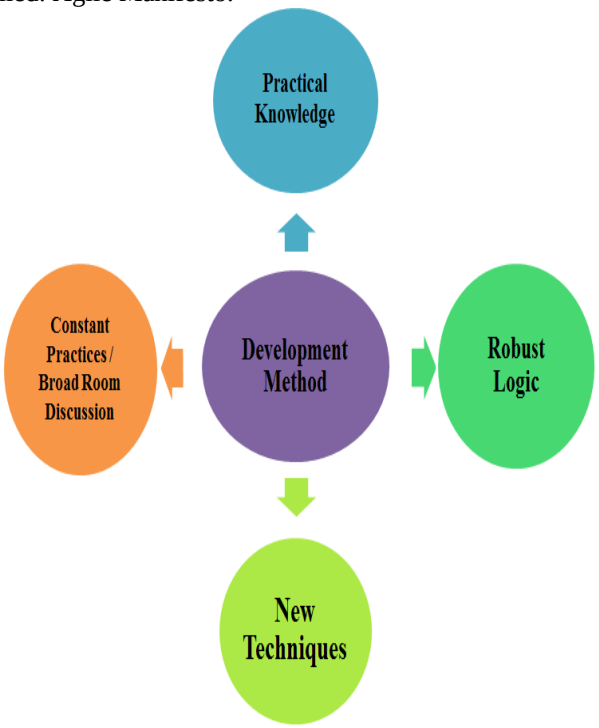

Fig. 1. Java development structure.

A. Practical Knowledge

Practical Knowledge is most important part of development. Java is a very wide area use for development. In opposite theories as resources for thinking and understanding. But practical way is increasing the knowledge and thinking of any User. The user can implement any idea do with practicality. Practical knowledge of how to get something done, as opposed to "know-what" (facts), "know-why" (science), or "know-who" (networking). Know-how is often understood knowledge, which means that it is difficult to transfer to another person by means of writing it down or verbalizing it. The opposite of tacit knowledge is explicit knowledge. Knowledge has been interpreted differently in various studies although they share some similarities. In Borg's (2003) study, teacher's practical knowledge is included in a general framework of teacher cognition and explained as "what teachers know, believe, and think". Elbaz (1983) argues that teacher's practical knowledge "encompasses first hand experience of students' learning styles, interests, needs, strengths and difficulties, and a repertoire of instructional techniques and classroom management skills". [2]

B. Robust Logic

A Robust Logic, also called functional definition, defines

something (e.g. A variable, term, or object) in terms of the specific process or set of validation tests used to determine its been there and quantity. There is a growing interest in techniques for detecting whether a logic specification is satisfied too easily, or vacantly. Robust programming, also called bomb-proof programming, is a style of programming that prevents abnormal termination or unexpected actions. Basically, it requires code to handle bad (invalid or absurd) inputs in a reasonable way. If an internal error occurs, the program or library terminates gracefully, and provides enough information so the programmer can debug the program or routine. In the usual study of mathematical logic, an assignment of truth values to atomic propositions is used to give an interpretation to a formula; in the interpretation, the formula will be either true or false. But within the context of the execution of a program, the assignment may change from state to state.

C. New Techniques

As a programmer, it's very important to keep up with what's latest in the programming world. By trying new techniques and by solving the same problems in new ways, you'll improve your skills and become a better programmer. For Example

1) New technique safely combines programming languages

Science Daily (Jan. 24, 2008) Dutch computer scientist Martin Bravenboer has developed new techniques that make it easier to combine programming languages. Software is no longer sensitive to the most common method of misuse by hackers: so-called injection attacks [3]. So it is not just specific to the SQL database query language: the method can be applied to illogical combinations of embedded languages, without any additional effort being required from the programmer. Object-oriented technology is built on a sound engineering foundation, whose elements we collectively call the object model of development or simply the object model .[4] It was difficult to combine programming languages. Martin Bravenboer presents techniques that make it possible to combine programming languages in a safer and more reliable manner. Software that makes use of these methods is no longer sensitive to the most common method of misuse by hackers: so-called injection attacks. Unlike previously proposed solutions for dealing with such attacks, Bravenboer's method provides absolute security, is simpler for the programmer to apply and can be used in all environments where injection attacks occur. The classification of a system as 'hybrid' concerns the nature of the variables used when building system models. In this sense, for modelling purposes, systems could be classified as Discrete Event Dynamic Systems (DEDS), when state variables can be represented by integer numbers or logic variables, or as Continuous Variables Dynamic Systems (CVDS), when state variables can be represented by real numbers. Hybrid systems mix the characteristics of DEDS and CVDS including both discrete and continuous variables. They can be the result, for example, of the integration of a continuous industrial process, such as those of chemical and food industries, with a discrete supervisory system. [5]

2) New features in JDBC 3.0

Core new features available in JDBC 3.0. More specifically, the features 'supporting save points', 'using parameter metadata', 'updating large objects' and 'auto generated keys' are discussed. Wherever possible, to get a hang of it, relevant code samples have been provided in the respective sections. It is possible to programmatically control the creation and releasing of *save* points through JDBC 3.0**.** But before doing it, one must check whether the underlying database supports the concepts of savepoints**.** Save points provide multiple-level-control of database commit or rollback operations within a single transaction. Sun'sJdbc is an application programmer's interface (API) that provides access to relational databases through existing or new drivers in Java programs. The latest Jdbc specification (version 3.0) has adopted those features found in the SQL99 standard that are already widely supported, but they're not covered here, and therefore, we'll restrict ourselves to discuss 2.0 version features [6].

D. Constant practices / Broad Room Discussion

Java is an open source language; it's very famous programming language. A constant practice means that user practices the basic constraints of Java. It is applied for every Java application for example core Java some topics are used overall Java programming Language. And Broad Room discussion means that any user explorer own view with other user. In the other words user expresses the new idea discussed in the conferences, seminars, interviews others. Because it is provided some comment on your ideas. So Constant practices / broad room discussion is very important part of Java. This method is the procedure for implementation of a part of the life cycle Programming system. A concept of the method directly refers to the concept of methods and methodology. The methods define a set of methods and procedures of technical and organizational character, allowing for the life cycle of the system to be implemented by an executive team. Methodology is understood as a science on methods. [7]

E. Survey of Development Model

In this model provides essential information for the development for student. Which is fruitful in developing area for the student. So I have surveyed for this model or structure in Punjab state in India. I am going to various colleges and universities in Punjab state. I have discussed the model inside the colleges and universities. So many students and professors ageing of this model. This model divided into four parts, many students agree with the first part of the model (Practical Knowledge). I have calculated the response of this model inside the student, and provide information into a graph:

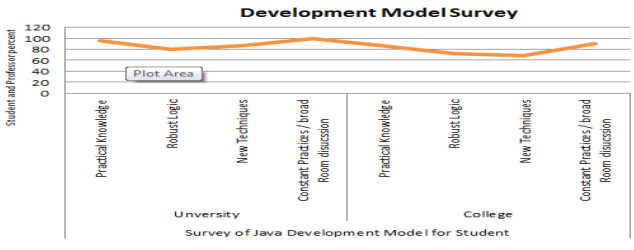

Fig. 2. Development model survey.

II. Java Future Trends

There are several problems that we have to deal with in the process of teaching programming. The most important one is a huge disproportion in the students' foreknowledge. On the other hand, there are quite a few students with moderate, or even good programming experience. This problem can be traced back to the organization of programming courses in primary and secondary school.[8] Java is evolving into a full-scale system development technology by the addition of functions such as Applets, object-oriented programming, cross-platform support, Internationalization, JavaBeans, Remote Method Invocation (RMI), Java Database Connectivity (JDBC), Enterprise JavaBeans (EJB), Java Plug-in, HotSpot Client Virtual Machine (VM), Java Naming and Directory Interface (JNDI), RMI/Internet Inter-ORB Protocol (IIOP), extensible Mark-up Language (XML) support, and Java Secure Socket Extension (JSSE).

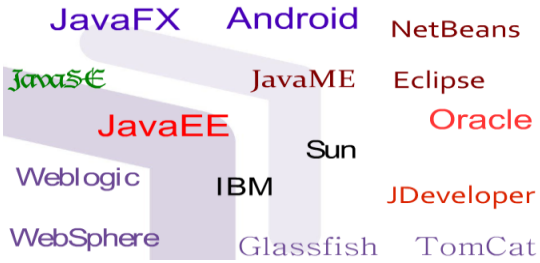

Fig. 3. Java future trends.

Java Tools (Oracle):

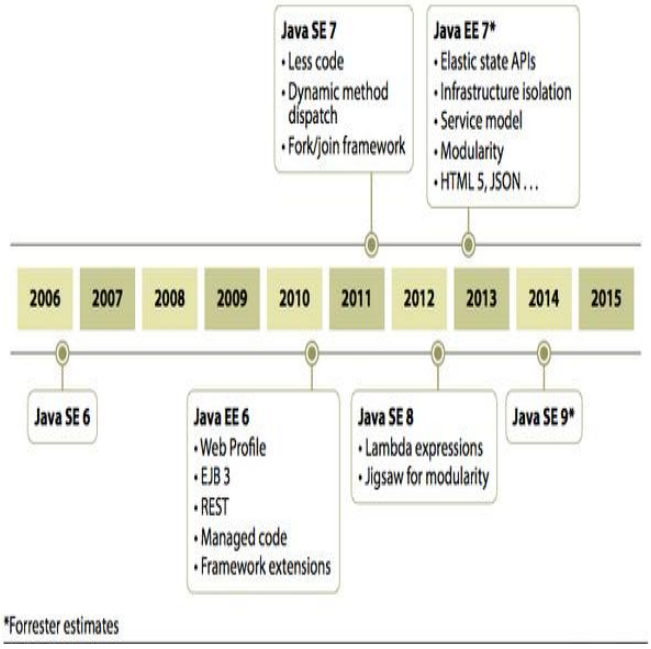

Fig. 4. Java future tools.

These functions have been added in three specifications: Java 2 Platform, Enterprise Edition (J2EE); Java 2 Platform, Standard Edition (J2SE); and Java 2 Platform, Micro Edition (J2ME). Also, the manner in which these specifications are decided has shifted from decisions made by Sun Microsystems to decisions made by an open community through a process called the Java Community Process (JCP). The main key-phrase of the latest trend in Java/EJB is "Ease of Development," and J2SE 1.7 (code name "Dolphin") will play a central role in this trend. Prospective enhancements in the Java programming language specifications such as Generics, Enhanced for Loop, Autoboxing /Unboxing, Typesafe Enums, Varargs, Static Import, and Metadata are expected to simplify system development, learning, and mastering. With these new technologies, Java will be used by a wider range of developers and EJB-based development of enterprise systems will become more popular. Java is a general purpose programming language with a number of features that make the language well suited for use on the World Wide Web. Small Java applications are called Java applets and can be downloaded from a Web server and run on your computer by a Java-compatible Web browser, such as Netscape Navigator or Microsoft Internet Explorer. [9]

III. Conclusion

This paper emphasizes on development Structure for developing in Java programing language and provide a small survey of students under this structure point or model part. Java provides new API information and etc. A future we can say that enhance the techniques of developing for developer in Java.

Reference

[1] M. Hneif and S. H. OW, "Review of agile methodologies in software development," vol. 1, no. 1, pp. 2, October 2009.
[2] S. Arıoğul, "Understanding foreign language teachers' practical knowledge: What's the role of prior language learning experience," vol. 3, no. 1, pp. 169, April 2007.
[3] S. Postovi. New techniques to combine programming languages. [Online]. Available: http:// http://newvisionmagazine.blogger.ba/
[4] E. Yourdon and C. Argila, "Object-oriented analysis and designing – examples of applications," *WNT, Warsaw*, pp. 120-135, 2000.
[5] E. M. Villani, J. E. Claude, and P. Ascal, *A petri-net based object-oriented approach for the modelling of hybrid productive systems*, pp. 2.
[6] M.-A. S. Urban and E. G. Barriocanal. Extending relational data access programming libraries for fuzziness: The FJDBC framework. [Online]. Available: http://www.dei.inf.uc3m.es
[7] T. Singh, D. R. Sharma, "Object-oriented programming as a method for developing software," *IJRIM* vol. 2, no. 3, pp. 43, March 2012.
[8] D. Radoševic, "Verificator: Educational tool for learning programming," *Informatics in Education*, vol. 8, no. 2, pp. 255, 2009.

Tejinder Singh is from Shri Muktsar Sahib of Punjab State in India. I have done PGDCA, MSc(IT), MCA, M-Tech(IT) and Pursing the Ph.D(CS) from JJTU. All drugs are done with Information Technology and Computer Science area. I have completed PGDCA (2005-06), Literal Entery Msc(IT) (2006-07), Literal Entery MCA(2007-08), M-Tech(IT) 2009-11) and Pursing Ph.D(CS) (2010). My Birthplace in Shri Muktsar Sahib and Birthdate is 24-12-1984. Mr. Tejinder Singh, it's work experience is 3 years as Assistant Professor at Baba Farid Group of Institutions, Bathinda (Punjab) in India and 1 year 6 months is worked in Software Company Alpha IT World as a Developer in Chandigarh (Punjab) in India. The current job location in Punjab BFGI (Bathinda). I have already published 10 papers and the research topic relate to the Java Programming Language and Learning Process of the Student. Today Research works going on Security of Java Programming Language.