

PEARSON BTEC International Standards Verifier

ICT Program

Java Programming I (ICT221)

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Lec. 1 Basic principles and structure of java programming 13 February 2024



Aim

- The aim of this course is that student should learn platform independent object oriented programming and java as base language for advanced technology like three tier architecture applications, cloud computing and web development.
- Many commercial applications as well as developing mission critical applications are using Java Technologies. This necessitates the corporate sectors to hire highly skilled Java developers. So, after learning this course, student can float themselves as Java developer in the software industry.



Introduction

This course provides the beginning programmer with a guide to developing applications using the Java programming language. Java is popular among professional programmers because it can be used to build visually interesting graphical user interface (GUI) and Web-based applications. Java also provides an excellent environment for the beginning programmer - a student can quickly build useful programs while learning the basics of structured and object-oriented programming techniques. This course will motivate students to learn programming skills. The course covers all topics of fundamental programming. Concretely, it covers the following learning outcomes:



Learning Outcomes

By the end of this unit students will be able to:

- LO1 Explore the basic principles and structure of java programming.
- LO2 Apply the Elementary Programming, Selections, and loops.
- LO3 Apply the Methods and Arrays.
- LO4 Explore the basics of Objects and Classes.



Lo1 Explore the basic principles and structure of java programming.

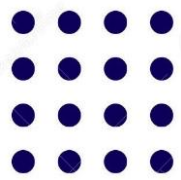
- Explore programming fundamentals, variables and assignments.
- Recognize key syntactical elements in Java
- Write, compile, and execute a simple Java program.
- Evaluate the programming style for the written java programs.



Outline

In this Lecture, you'll learn

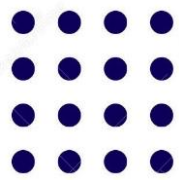
- P1 Describe the evolution of modern programming languages.
- P2 Define API, JDK, IDE, and other key terms related to Java programming.
- P3 Identify common uses for the Java programming language.
- P4 Define key syntactical elements in Java.
- P5 Write, compile, and execute a simple Java program.
- M1 Create a programming environment using an IDE and the Java Development Kit.
- M2 Illustrate the difference among syntax, runtime, and logic errors.



Programming Languages

Assembly Language,
Autocode,
FORTRAN,
ALGOL,
COBOL,
BASIC,
C,
C#,
D,
Go,
Java,
JavaScript,

Limbo,
LPC,
Perl,
PHP,
Python,
SQL,
MATLAB,
Objective-C,
C++, Haskell,
Python,
PHP,
Kotlin,
Swift



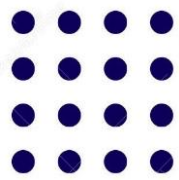
What is Java?

Java is a popular programming language, created in 1995.

It is owned by Oracle, and more than **3 billion** devices run Java.

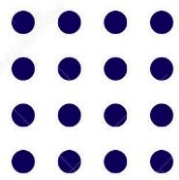
It is used for:

- Mobile applications (specially Android apps)
- Desktop applications
- Web applications
- Web servers and application servers
- Games
- Database connection
- And much, much more!



Why Use Java?

- Java works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.)
- It is one of the most popular programming languages in the world
- It has a large demand in the current job market
- It is easy to learn and simple to use
- It is open-source and free
- It is secure, fast and powerful
- It has huge community support (tens of millions of developers)
- Java is an object oriented language which gives a clear structure to programs and allows code to be reused, lowering development costs
- As Java is close to C++ and C#, it makes it easy for programmers to switch to Java or vice versa



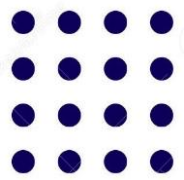
The Java Language Specification, API, JDK, And IDE

- Java **syntax** is defined in the Java language specification,
- the Java library is defined in the Java application program interface (**API**).
- The **JDK** is the software for compiling and running Java programs.
- An **IDE** is an integrated development environment for rapidly developing programs.



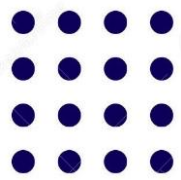
a simple Java program

```
public class Main
{
    public static void main(String[] args)
    {
        System.out.println("Hello World");
    }
}
```



In this week's lab, you'll learn

- Write, compile, and execute a simple Java programs that include inputs, outputs, comments, variables, data types, type casting, operators, string, java Math methods, java Booleans.
- Create a programming environment using an IDE and the Java Development Kit.



Online C Compiler

<https://www.programiz.com/java-programming/online-compiler/>

[Online Java Compiler - online editor \(onlinegdb.com\)](#)

[Java Online Compiler \(Editor / Interpreter\) \(w3schools.com\)](#)



Thank you