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Introduction to java programming pdf 2017

Want to be a better problem solver? This Java course will provide you with a strong understanding of the basic Java programming elements and data abstraction using problem representation and the object-oriented framework. As the saying goes: A picture is worth a thousand words. This course uses sample objects such as photos or images to illustrate some important concepts to improve understanding and retention. You will learn to write procedural programs using variables, arrays, control instructions, loops, recursion, data abstraction and objects in an integrated development environment. This course consists of two 5 week parts. Part 1 introduces programming fundamentals. Part 2 deals with additional advanced topics. Take a real-life problem and abstract the relevant aspects needed to solve it in an algorithmic way. Formulate formal solutions using the logic of a programming language. Implement formal solutions in Java using an integrated development environment. Understand the basics of data abstraction using the object-oriented framework. Module 06: Multidimensional Arrays, Simple Sorting Module 07: String, File I/O Module 08: Simple Event Driven Programming Module 09: Recursion Module 10: Abstract Data Type A2 certificate signed by an instructor with the institution's logo to verify your performance and increase your job prospects. The certificate to your CV or resume, or post it directly on LinkedIn. Give yourself an additional incentive to complete the course. EdX, a non-profit, depends on verified certificates to help fund free education for everyone worldwide. Want to become a better problem solver? This Java course will provide you with a strong understanding of the basic Java programming elements and data abstraction using problem representation and the object-oriented framework. As the saying goes: A picture is worth a thousand words. This course uses sample objects such as photos or images to illustrate some important concepts to improve understanding and retention. You will learn to write procedural programs using variables, arrays, control instructions, loops, recursion, data abstraction and objects in an integrated development environment. This course consists of two 5 week parts. Part 1 introduces programming fundamentals: Problem-solving primitive data types and arithmetic expressions Object-oriented programming basics Branching and Loops Arrays Part 2 covers the following topics: String manipulation File I/O Simple event-driven programming Recursion Abstract data types Take a real-life problem and abstract out the relevant aspects to solve it in an algorithmic manner. Formulate formal solutions to well-defined problems using the logic of a programming language. Implement formal solutions in Java using an integrated development environment. development environment. the basics of data abstraction using the object-oriented framework. Receive an instructor-signed certificate with the institution's logo to verify your performance and increase your job prospects. Add the certificate to your CV or resume, or post it directly on LinkedIn. Give yourself an additional incentive to complete the course. EdX, a non-profit, relies on verified certificates to help fund free education for everyone worldwide. In this introductory Java programming course, you are introduced to powerful concepts such as functional abstraction, the object-oriented programming (OOP) paradigm and Application Programming Interfaces (APIs). Examples and case studies are provided so you can implement simple programs yourself or collaborate with colleagues. The emphasis is on instant feedback and on having a fun experience. Programming knowledge is not only useful for programming today's devices such as computers and smartphones. It also opens the door to computational thinking, i.e. the application of computer techniques to daily processes. This edition is an improved version of the course released in April 2015. Basic knowledge about algorithms and Java programming. Develop programs with conditionals and loops. Design and implement recursive algorithms. Understand basic mechanisms of the OOP paradigm. Use and interpret the API of some of the most common Java classes. Develop simple programs in Java 1. From the calculator to the computer. The first part introduces basic programming concepts, such as values and expressions, but also when making decisions when implementing algorithms and developing programs. 2. State transformation The second part introduces state transformation, including representation of data and programs and conditional repetition. 3. Functional abstraction The third part focuses on the organization of code in a program through methods, which are called to perform a task and return a result as a response. Recursion, as a powerful mechanism in the invocation of methods, is also being treated this week. 4. Object Encapsulation The fourth part introduces the object-oriented programming (OOP) paradigm, which makes it possible to model complex programs in Java through objects and classes. The concept of inheritance as a basis for reusing code and simplifying programs in Java is being studied in this week. 5. Packaging The last part is intended to study the reuse of code through third-party classes that have already been developed and which we can include in our programs to implement specific actions and reduce the number of rules we need to receive a certificate signed by the course with the institution's logo to verify your performance and increase your job prospects. The certificate is signed on your CV or resume, or post it directly on LinkedIn. Give yourself an additional incentive to complete the course. EdX, a non-profit, relies on certificates to help fund free education for everyone worldwide. If you mean there is a JVM or JRE that runs on MSDOS – Not that I know, but you can search as easily as I can. This Java Introduction Video Tutorial explains what is Java Programming Language, the features and different application types that we can develop using Java Language. Java is a popular programming language developed by Sun Microsystems (later merged with Oracle) in 1991. Java was developed by James Gosling and Patrick Naughton. In our daily lives from morning to evening, we use many Java-programmed applications and devices, including the smartphone in your hand to secure banking transactions from ATMs. An explicit sequence of Java tutorials has been put together in this series to give you a better understanding of the concept of Java. Introduction to Java Programming Check out the below video tutorial on: Basic Concepts of Java Introduction to Java Initially, it was named as Oak but was renamed later in 1995 as Java since Oak was already a registered trademark. The first edition of Java was known as Java 1.0. Over the years, Java language has evolved significantly and many features have been added to Java. As a result, many new versions have been released. The latest edition of Java is JDK (Java Development Kit) 13 or Java 13, which was released on September 10, 2019. Click here for Java version source. So, what is Java? In simple terms, Java is an object-oriented programming language that originates from both C and C++. From C, Java takes its size while it takes the object-oriented programming of C++. So to learn Java from scratch, an individual with C/C++ knowledge would find it easy to understand. This allows us to define Java as a simple, very robust object-oriented secure programming language. Any hardware component or software environment in which a program runs is called a platform. Java has a Java Runtime Environment (JRE) running on it. Java is also a platform. We will learn more about Java as a platform in our next tutorials. As of today, Java programming language is the most popular programming language for developing client-server web applications for the Internet with an estimated 9 million developers working on and using Java. Java features Let's discuss some of the distinctive features of the Java programming language. #1) Simple: Java syntax is quite simple and easy to understand. Java is also easy to learn. Most of the features of C++ that were either difficult to understand or ambiguous are simplified in Java and some are omitted. For example, pointers are absent from Java. #2) Safe: A Java program runs in Java Runtime (JRE) that makes it safe. The JRE does not interact with system OS, so Java programs do not interfere with the system. In addition, the Java language has security enable us to develop virus-free, secure applications. This is why many banking applications are built on Java. #3) Robust: Java introduces automatic garbage collection and exception handling that helps to prevent any errors. Java also emphasizes compiling time and run-time error checking. All these features make programs/applications developed in Java more robust. #4) Portable: The Java program compiled in Byte code can be run on any platform. It is implementation-independent and all it takes to execute the code, such as storage, data types, etc. #5) Object-oriented: Java is a purely object-oriented programming language. Everything in Java is an object. The language functions are easily expandable because there is a solid object-based model for programming. Java language supports all the important features of Object-oriented programming. #6) Platform independent: Java is a write once, run anywhere code. Unlike other programming languages that compile into machine-specific code, Java is compiled into a byte code that can run independently of the operating system on any machine. Any machine running Java Runtime Environment (JRE) can perform this bytecode. #7) Multithreaded: Java's multithreading feature enables Java applications to perform multiple tasks at once. In addition, multiple threads use the same memory and other resources and perform tasks at the same time. #8) Distributed: Using Java, we can develop distributed applications using advanced Java concepts such as Remote Method Invocation (RMI) and Enterprise Java Beans (EJB). For example, we can distribute the Java program to various machines connected via the Internet, i.e. an object on one machine can remotely perform procedures on another external machine. These are the main features of Java that make it a popular and most sought-after programming language today. Let's discuss the different application types that we can develop using Java programming language. Java Application Types Java programming language can be used to create the following types of applications. #1) Standalone applications These are also known as Windows-based or desktop applications. These are basically independent software that can install on the desktop. Applications such as media player, antivirus software, desktop editors, etc. Java features such as AWT and Swing are usually used to develop these types of applications. #2) Enterprise Applications Enterprise applications are mostly distributed applications and have features such as high security, load balancing, and clustering. Java provides these features through enterprise Java Beans (EJB) and such EJB can be used to develop enterprise applications. Banking applications are business applications that are the most popular. #3) Web applications running on the server and Web page. These applications should be very dynamic and should be able to develop web pages on the road. Java features such as JSP, servlets, struts, feather, hibernation, etc. are used to develop web applications. #4) Mobile applications A mobile application is an application designed to run on mobile. Currently, Java ME and Android are used to develop mobile applications. From this we see that Java allows us to develop a range of applications using the different functions. This makes Java the most popular language that is still on top, even after so many years since its development. As a programmer, we don't have to switch technology to develop different types of applications. We can do almost anything with Java. Java versions Overview of Java Programming Java program can be written in a plain text file and can be called as myprogram.java This code will be compiled by the JDK (Java Development Kit) and this .java file will be converted to bytecode as myprogram.class file. Again, that will be converted into 0's and 1's by JVM (Java Virtual Machine). It can run on any platform if JVM is available for different operating systems. So, to make a Java project, you need JDK installed on your machine. If you download JDK, it contains Java Runtime Environment (JRE) and development tools. JRE is the Java Runtime environment needed to run the Java application and consists of JVM, package classes, and runtime libraries. Click here to download JDK. Java Program Compilation and Implementation Flow Java Integrated Development Environment (IDE) Java IDE is a software that helps users to write and debug the program easily. It can highlight syntax and errors. One of the famous IDE is Eclipse. Download Eclipse via this link. Important points to note: Java is platform-independent if Java program can run in an OS or a hardware. To put the Java program together, we need JDK. JRE offers a runtime environment. Many great applications have been developed by the Java platform. NASA World Wind, for example, is fully developed on Java. It is similar to Google Earth. And Blu-Ray BD J was developed in Java. Eclipse is a popular and open-source IDE to develop Java projects. Conclusion This tutorial outlined the very basic information about Java language from the history of development to the different features and types of applications that we can develop using this language. Java language is easy to learn and has a very simple syntax. Any novice programmer can learn the Java basics, but learning becomes easier if a programmer has prior knowledge of C/C++ languages. This is because Java derives its size from C and derives its OOP functions from C++. Hence, programmers learning Java will find most concepts equal to these two languages although Java is the complex concepts/features of C++, a remarkable outstanding C++ pointers are absent from Java. After discussing the introductory information about Java language, in our next tutorials, we will start learning the Java programming language in a step-by-step way. PREV tutorial | Next tutorial tutorial tutorial