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Oracle Academy Java for AP Computer Science A

1-3

Setting Up Java

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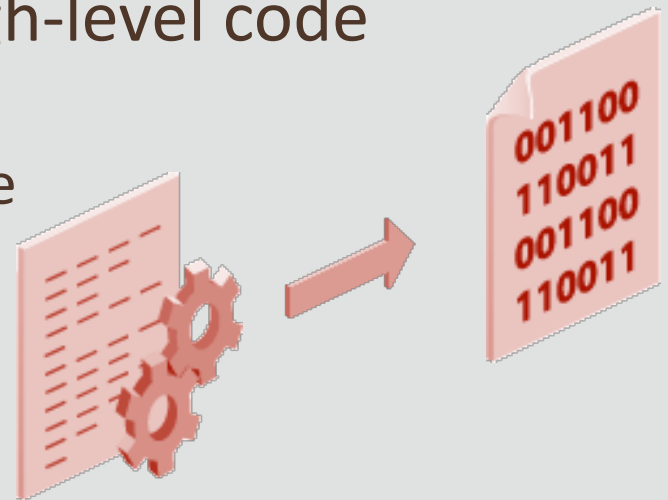
Objectives

- This lesson covers the following objectives:
 - Understand the difference between the JDK and JRE
 - Understand the difference between .java and .class files
 - Describe the purpose of an integrated development environment (IDE)
 - Add existing .java file into a Java project

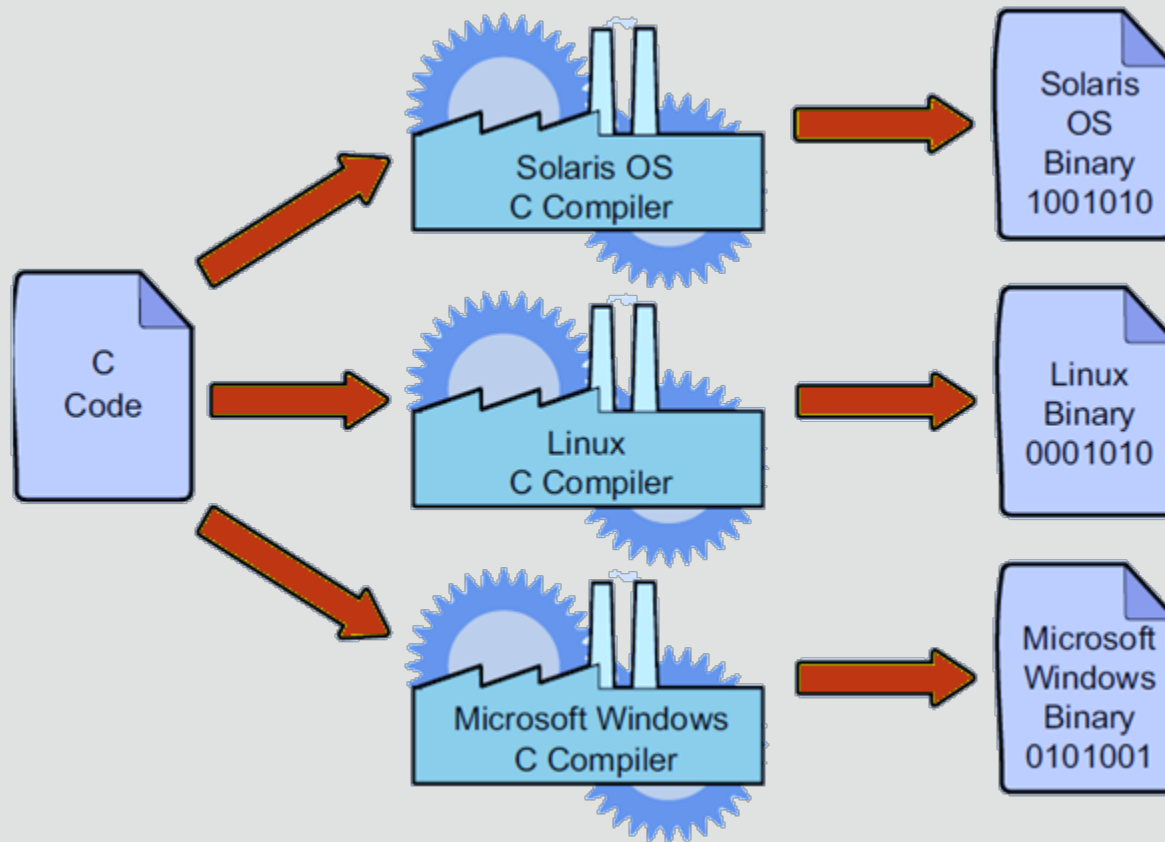


Purpose of a Computer Program

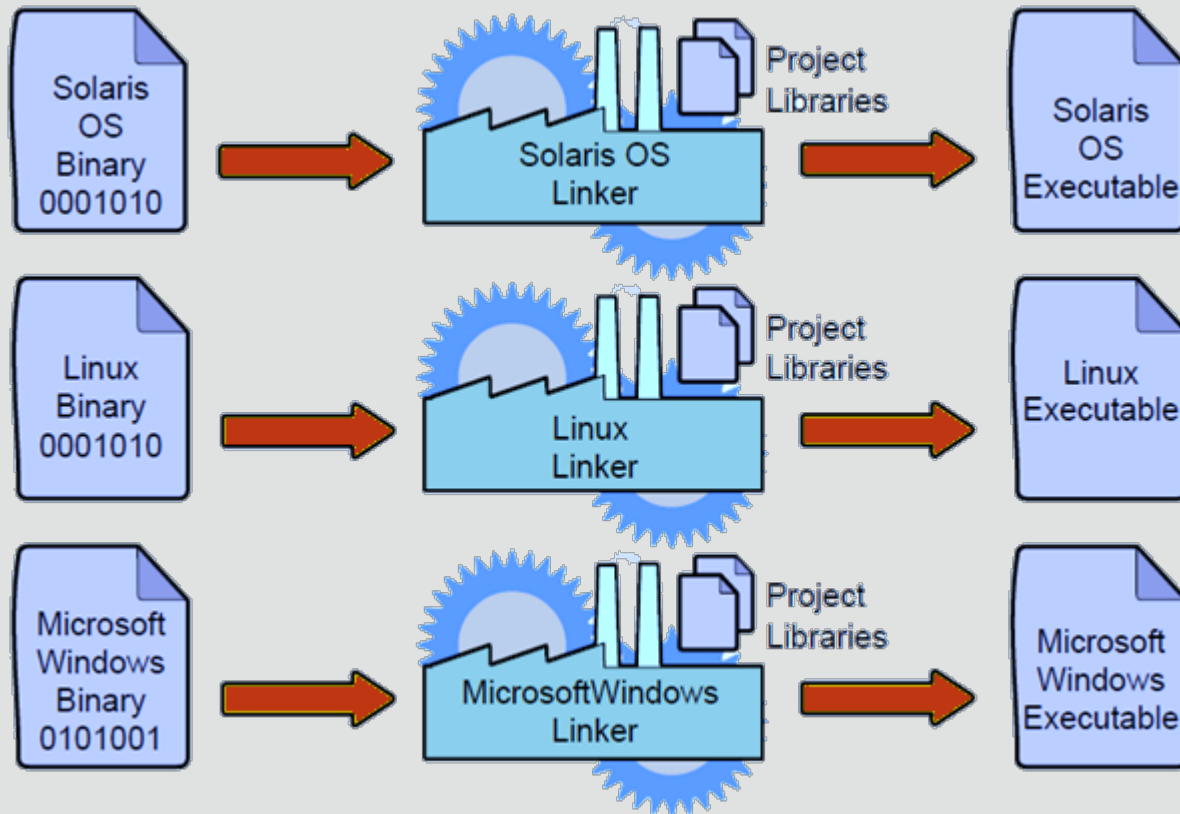
- A computer program is a set of instructions that run on a computer or other digital device
- At the machine level, the program consists of binary instructions (1s and 0s)
 - Machine code
- Most programs are written in high-level code (readable)
 - Must be translated to machine code



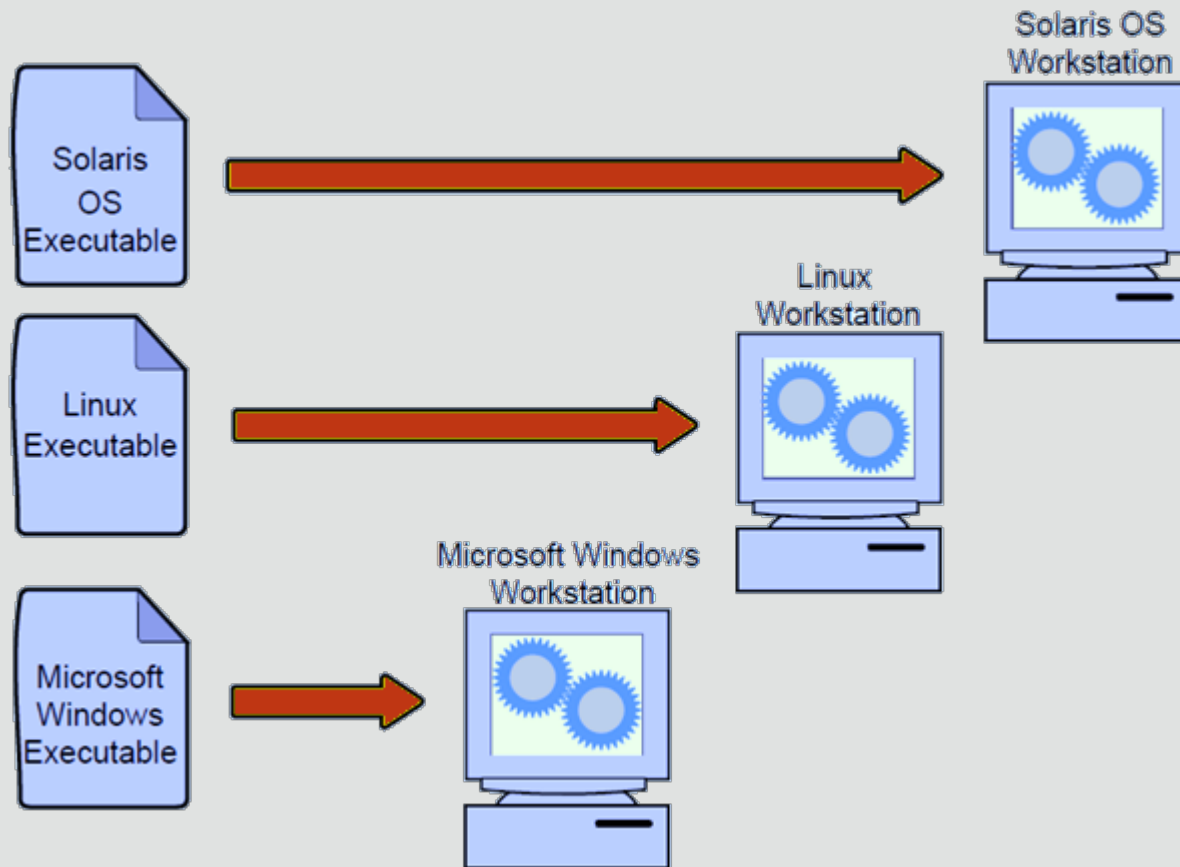
Translating High-Level Code to Machine Code



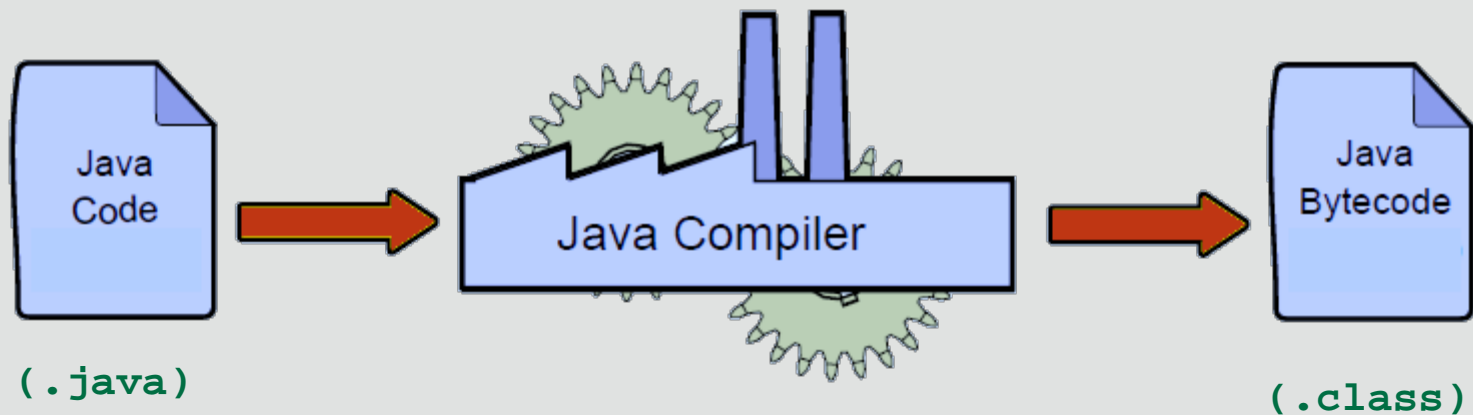
Linked to Platform-Specific Libraries



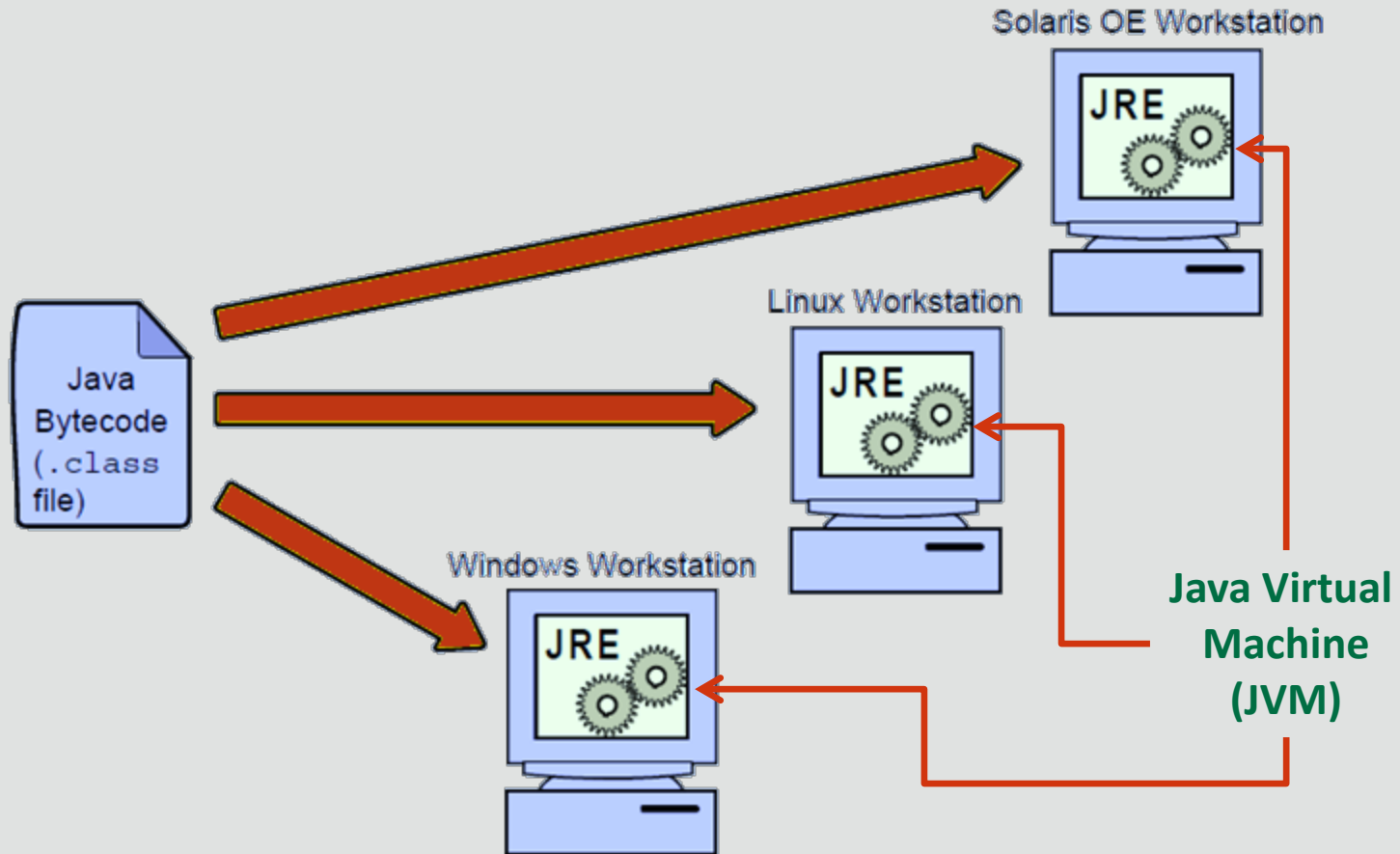
Platform-Dependent Programs



Java Is Platform-Independent



Java Programs Run in a JVM



Java Runtime Environment (JRE)

- Includes:
 - The Java Virtual Machine (JVM)
 - Java class libraries
- Purpose:
 - Read bytecode (.class)
 - Run the same bytecode anywhere with a JVM



JRE

Java Development Kit (JDK)

- Includes:

- JRE
- Java Compiler
- Additional tools



JRE



JDK

- Purpose:

- Compile bytecode (.java → .class)

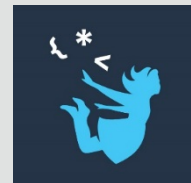
Integrated Development Environment (IDE)

- Purpose:

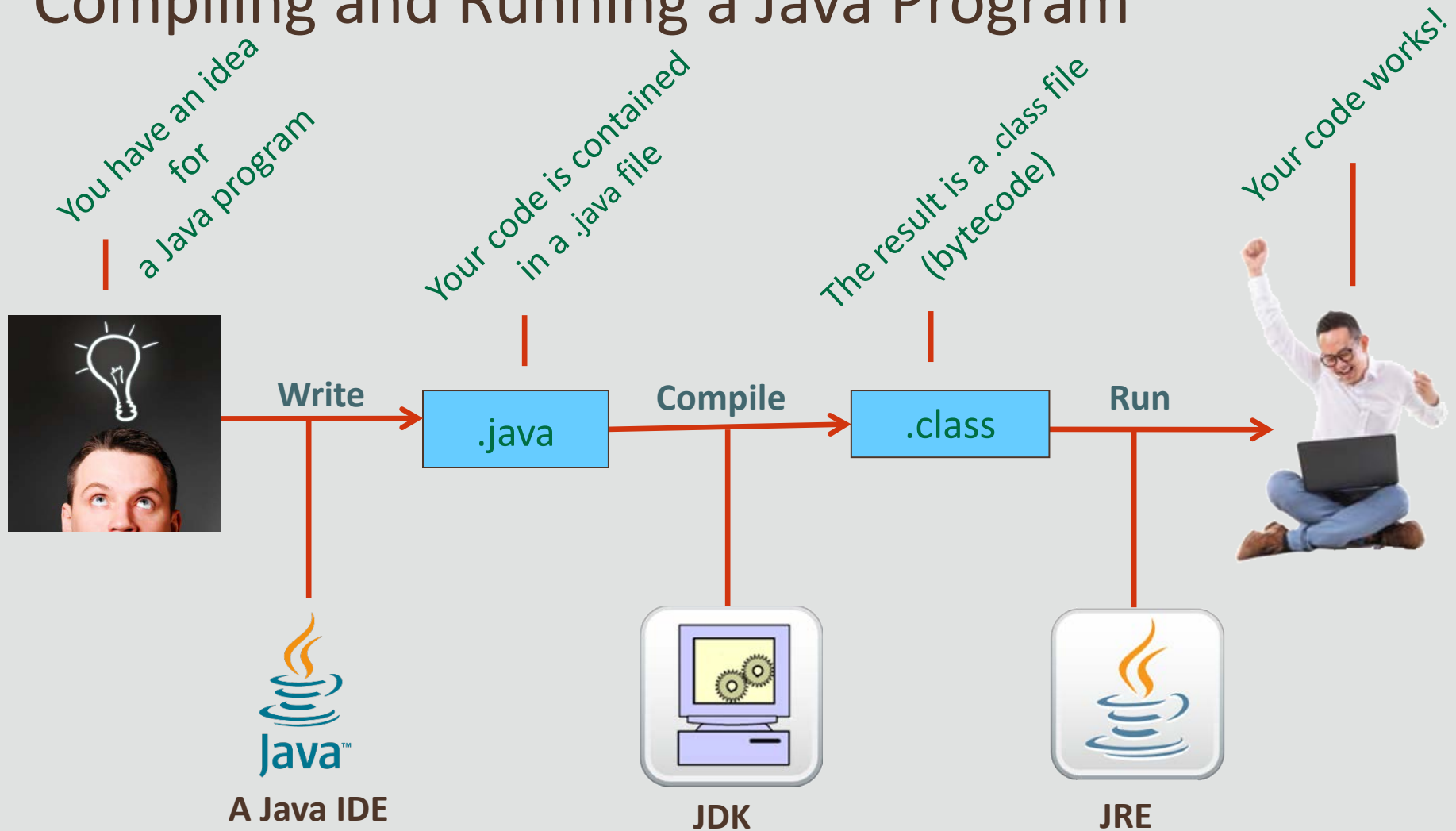
- Provide a sophisticated text editor
- Offer assistance debugging code
- Manage projects
- Write source code (.java)

- Examples:

- NetBeans
- Greenfoot and BlueJ
- Alice
- Eclipse



Compiling and Running a Java Program



Working with existing code files

- Throughout this course, sample code and project starter code are supplied as .java files
- Complete the practice for this lesson as it demonstrates how to add existing .java files to a project in commonly used Java IDEs. (If you are using a different Java IDE refer to the IDE's documentation for instructions on how to do this)



Summary

- A computer program is written in a high-level language, but must be compiled into machine code
- Most programming languages compile a separate executable for each platform
- Java is platform-independent



A Java IDE is used to **write** source code (`.java`)



The JDK **compiles** bytecode (`.java` → `.class`)



Bytecode **runs** in a JVM, which is part of the JRE

Summary

- In this lesson, you should have learned how to:
 - Understand the difference between the JDK and JRE
 - Understand the difference between .java and .class files
 - Describe the purpose of an integrated development environment (IDE)
 - Add existing .java file into a Java project





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