

JAVA

Prof. Youngchul Jung

2012 – Winter class



주문식교육의 신실
영진전문대학

What is JAVA?



부드러운 맛과 은은한 향이 기분좋은 자바커피

제품명 : 자바원두커피

식품의 유형 : 볶은커피

원두 생산지/품종 : 인도네시아 자바

원료명 및 함량 : 커피원두 100%

중량 : 2kg

포장재질(내면) : 폴리에틸렌 (PE) , 질소충전

사용방법 : 로즈버드 원두커피를 분쇄후 1잔당 약5-6g을 130cc정도의 끓인물로

추출하여 음용하십시오.

보존방법 : 개봉후 신선한 맛과 향을 유지하기 위해 건냉한 장소에 보관하십시오.

JAVA란?

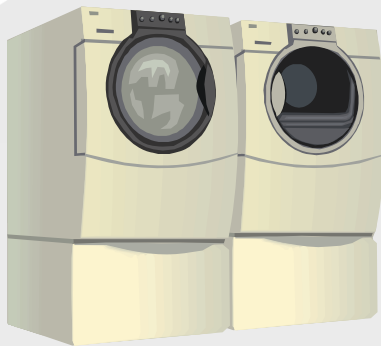
- 객체지향 프로그래밍 언어
- 썬 마이크로시스템즈에 의해 개발
 - 1996년 1월
 - 현 Oracle 시스템
- 플랫폼 독립적 (OS) 프로그램 기법 제공
- 풍부한 클래스 라이브러리 제공 (API)
 - 다양한 영역의 기술들을 API로 제공
 - J2SE, J2ME, J2EE

JAVA의 역사

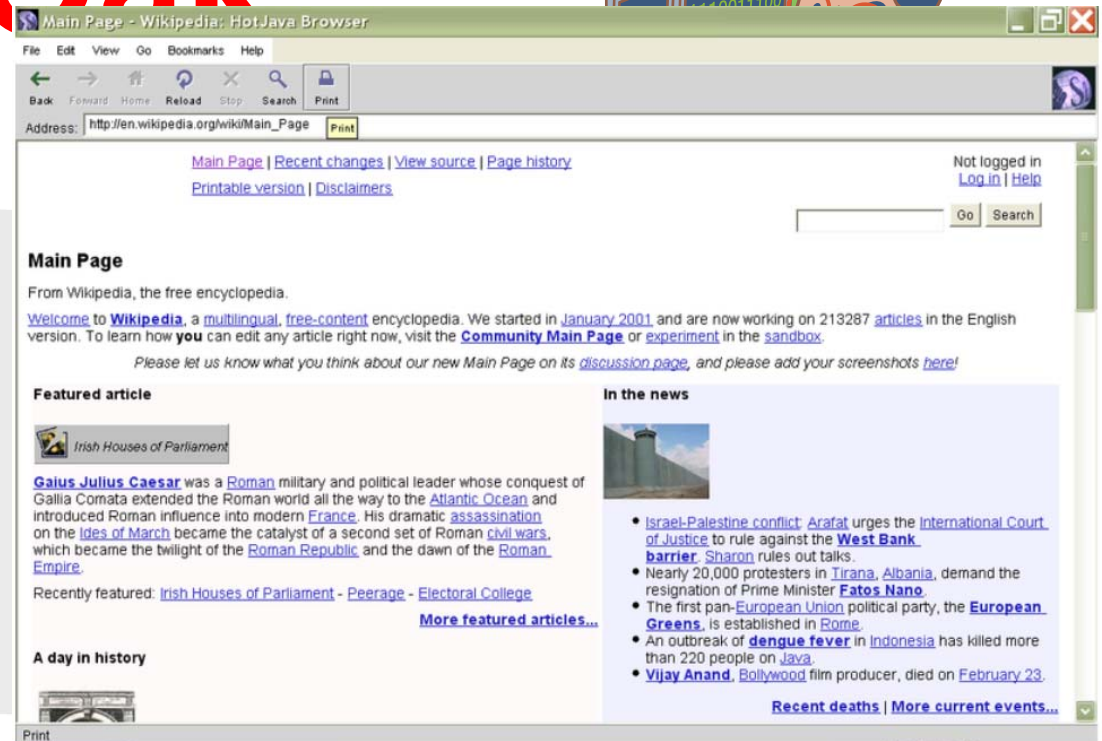
http://www

슬링, 아서 밴 호프

JAVA



Hot JAK



자바언어의 특징 (1)

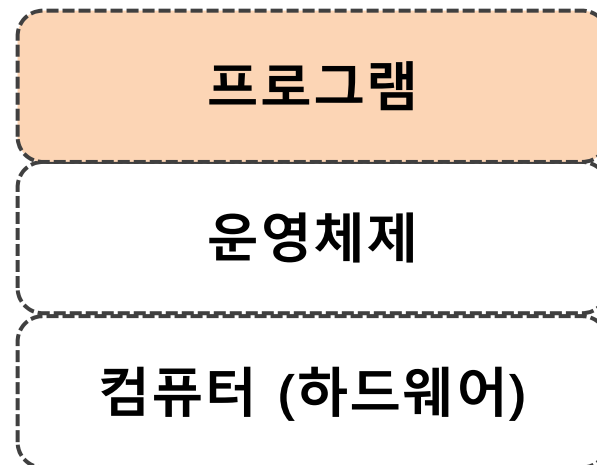
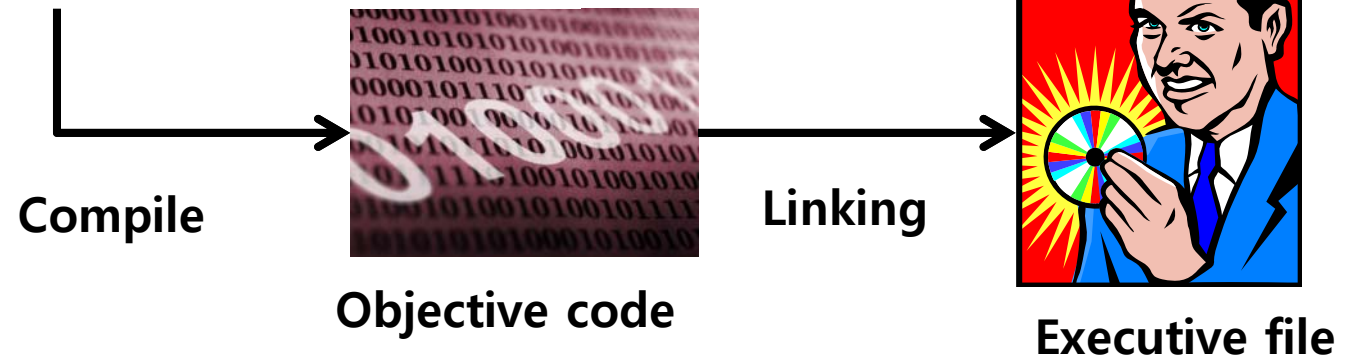
- 운영체제에 독립적이다
 - Write once, run anywhere
- 객체지향언어이다
- 배우기 쉽다
- 자동 메모리 관리(Garbage collection)
- 네트워크와 분산처리 지원

자바언어의 특징 (2)

- 멀티쓰레드 지원
- 동적 로딩(Dynamic loading) 지원

JVM (Java Virtual Machine) (1)

```
static ATCODEC_RET  
valist_ATcodec_Queue_Message_valist_Tree(ATcodec_Tree_t *tree, AT_CODEC_MSG_ID id, va_list *va)  
{  
    int32_t len;  
    ATCODEC_RET res;  
    ATcodec_Tree_Node_t *node = ATcodec_Tree_Node_get(tree, (int)id);  
    ATcodec_Message_Data_t *data = (ATcodec_Message_Data_t *)ATcodec_Buffer_getElement(&tree->leaves, node->data  
    char *total_str = (char *)ATcodec_Buffer_getElement(&tree->strs, data->total_str);  
    ATcodec_Memory_t msg, fmt;  
    char buffer[INTERNAL_BUFFER_SIZE];  
  
    if(! atcodec_lib_init_ok)  
        return ATCODEC_FALSE;  
}
```



JVM (Java Virtual Machine) (2)

```
class Hello
```

```
{
```

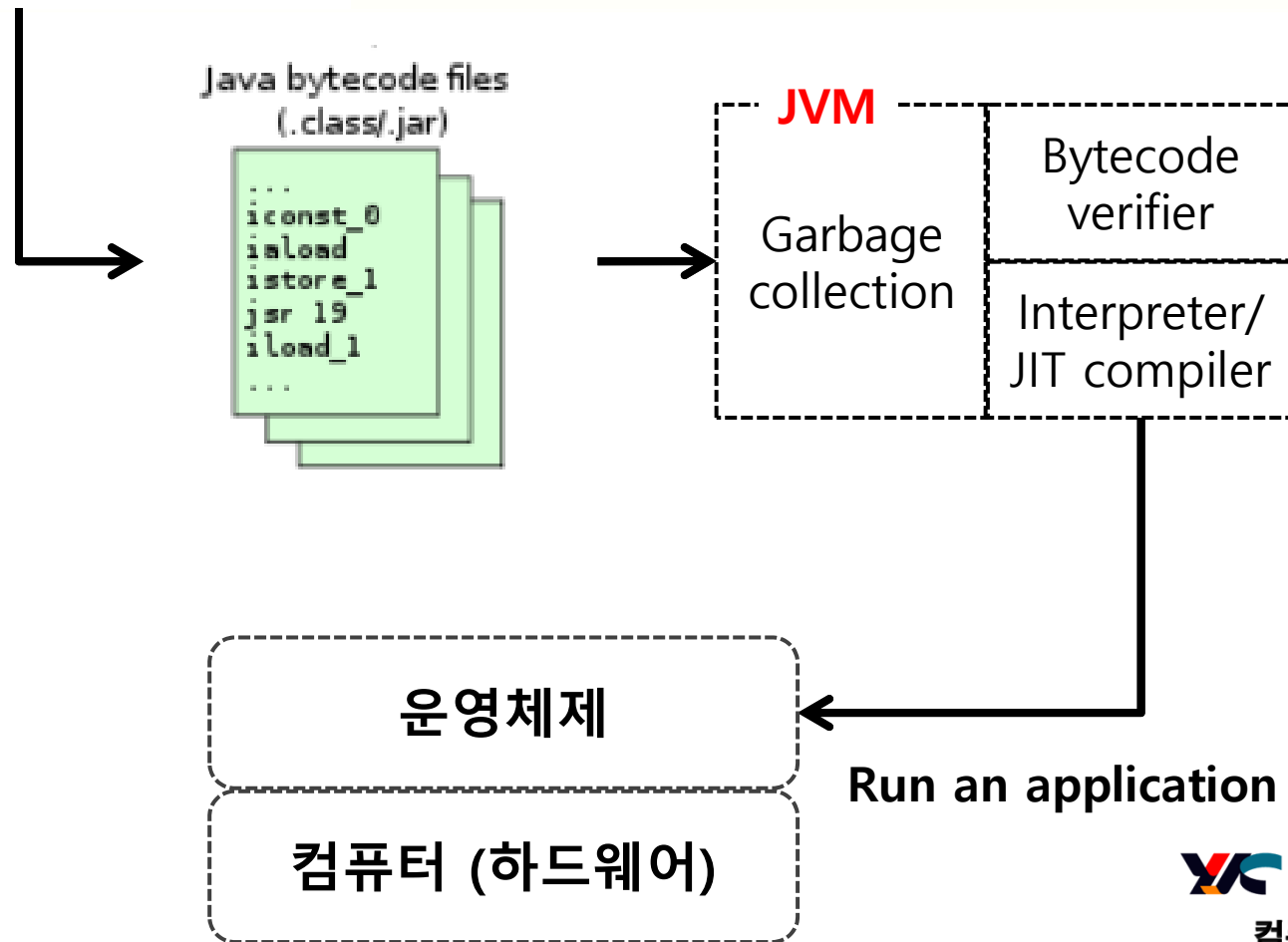
```
    public static void main(String[] args)
```

```
    {
```

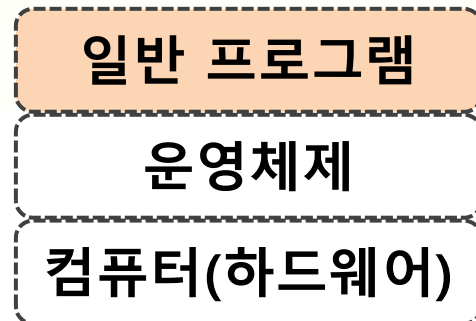
```
        System.out.println("Hello, world");
```

```
    }
```

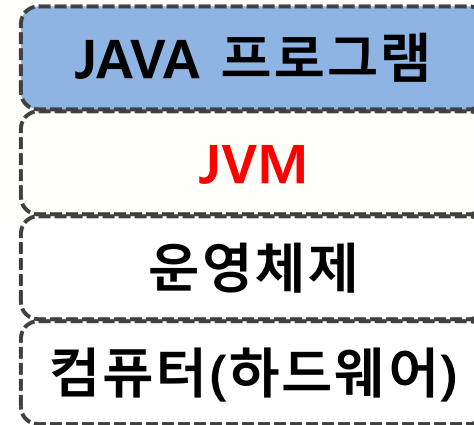
```
}
```



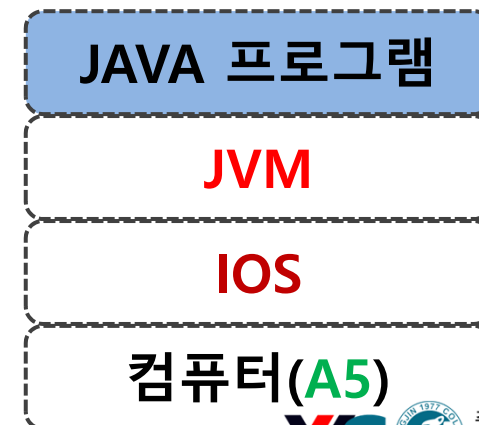
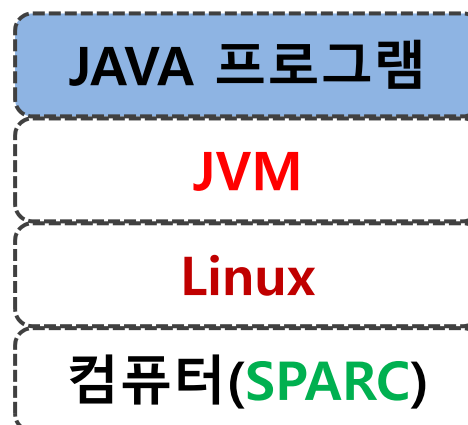
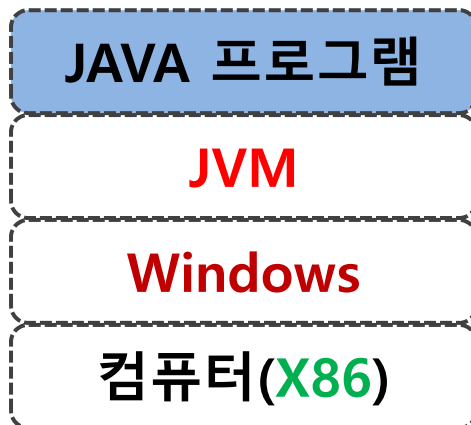
JVM (Java Virtual Machine) (3)



일반 어플리케이션

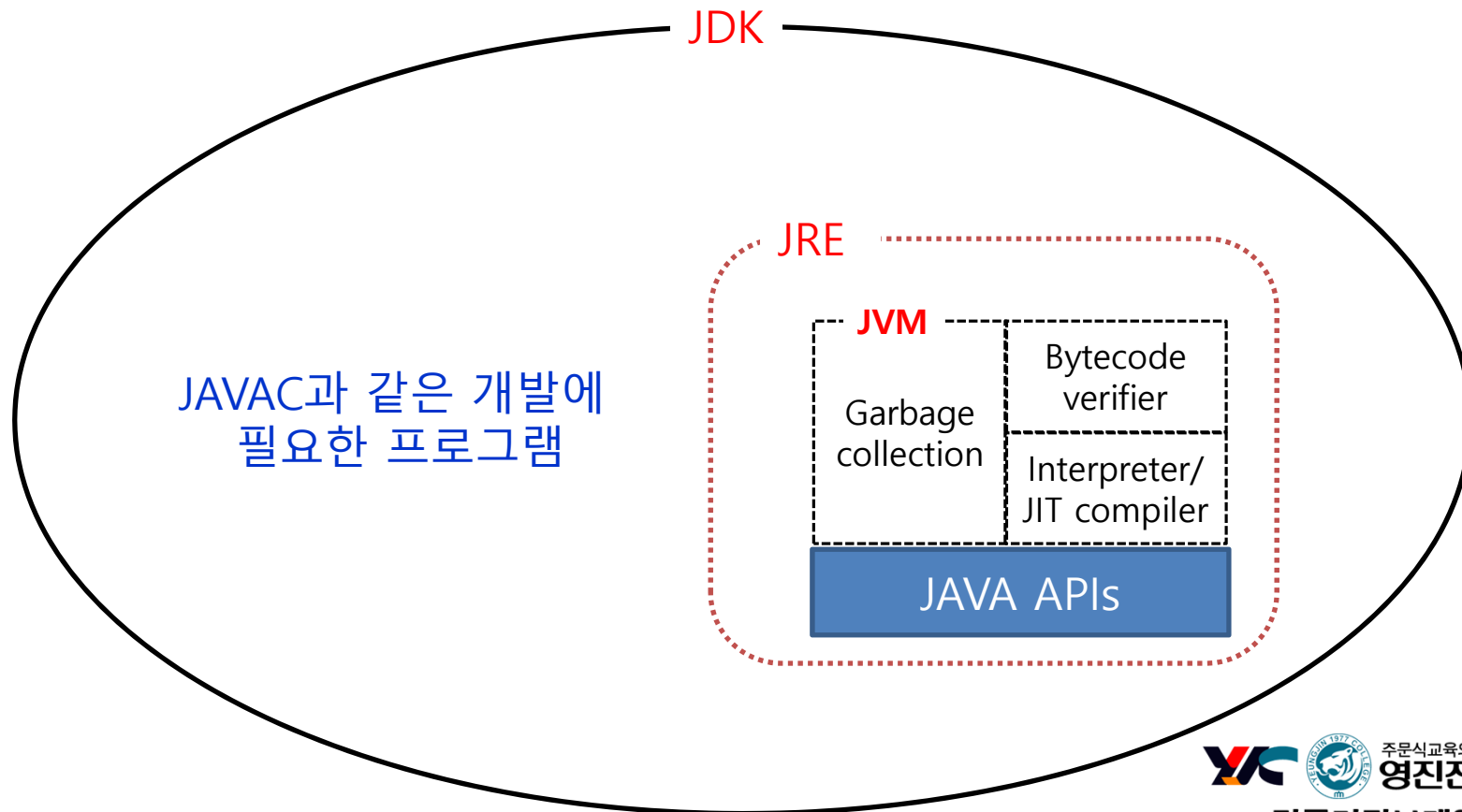


자바 어플리케이션



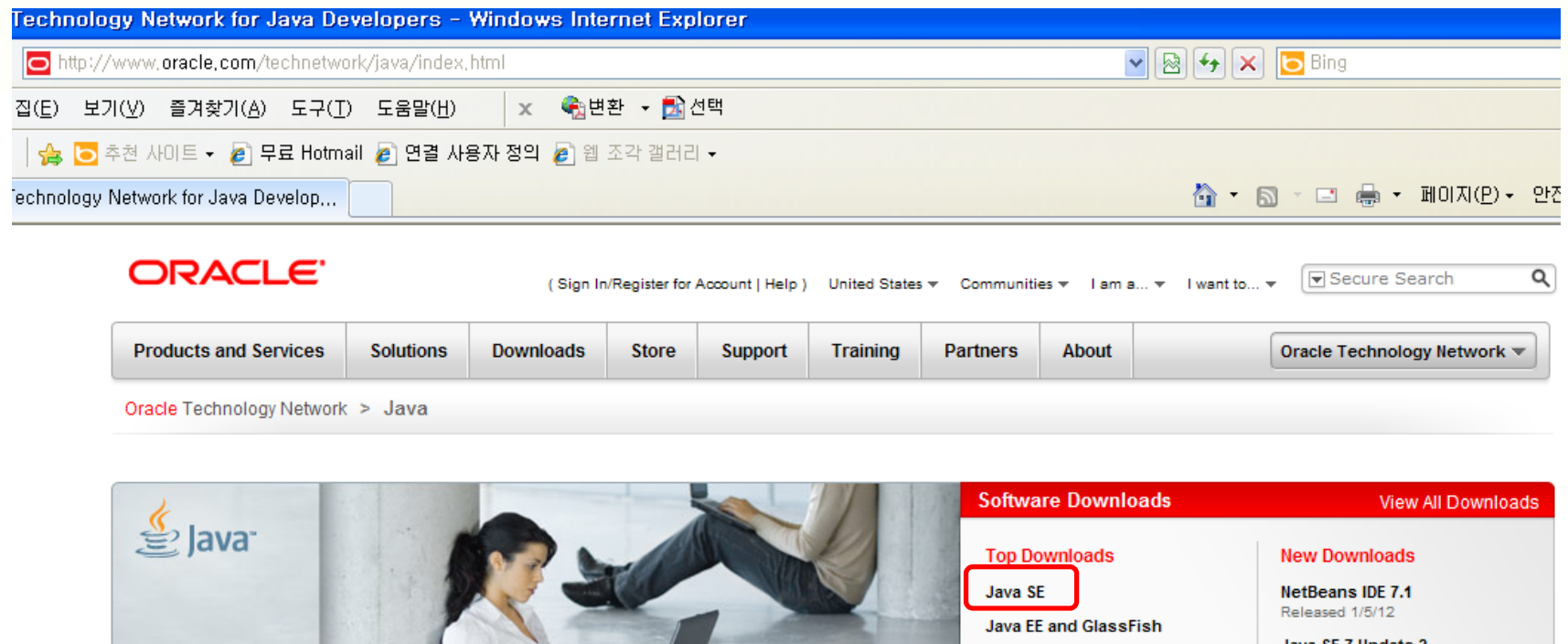
자바개발환경 구축하기

- JDK란?
 - Java Development Kit (JDK)



JDK 다운로드 및 설치하기 (1)

- <http://java.sun.com> 사이트에서 다운로드!!



JDK 다운로드 및 설치하기 (2)

ORACLE®

([Sign In/Register for Account](#) | [Help](#)) United States ▾ Communities ▾ I am a... ▾ I want to... ▾

Products and Services

Solutions

Downloads

Store

Support

Training

Partners

About

Oracle Technology Network > Java > Java SE > Downloads

Java SE

Java EE

Java ME

Java SE Support

Java SE Advanced & Suite

Java Embedded

JavaFX

Java DB

Web Tier

Java Card

Java TV

New to Java

Community

Overview

Downloads

Documentation

Community

Technologies

Training

Java SE Downloads

[Latest Release](#)

[Next Release \(Early Access\)](#)

[Embedded Use](#)

[Previous Releases](#)



Java Platform (JDK) 7u2



JavaFX 2.0.2



JDK 7u2 + NetBeans Bundle JDK 7u1 + Java EE Bundle



JDK 다운로드 및 설치하기 (3)

Java SE Development Kit 7u2

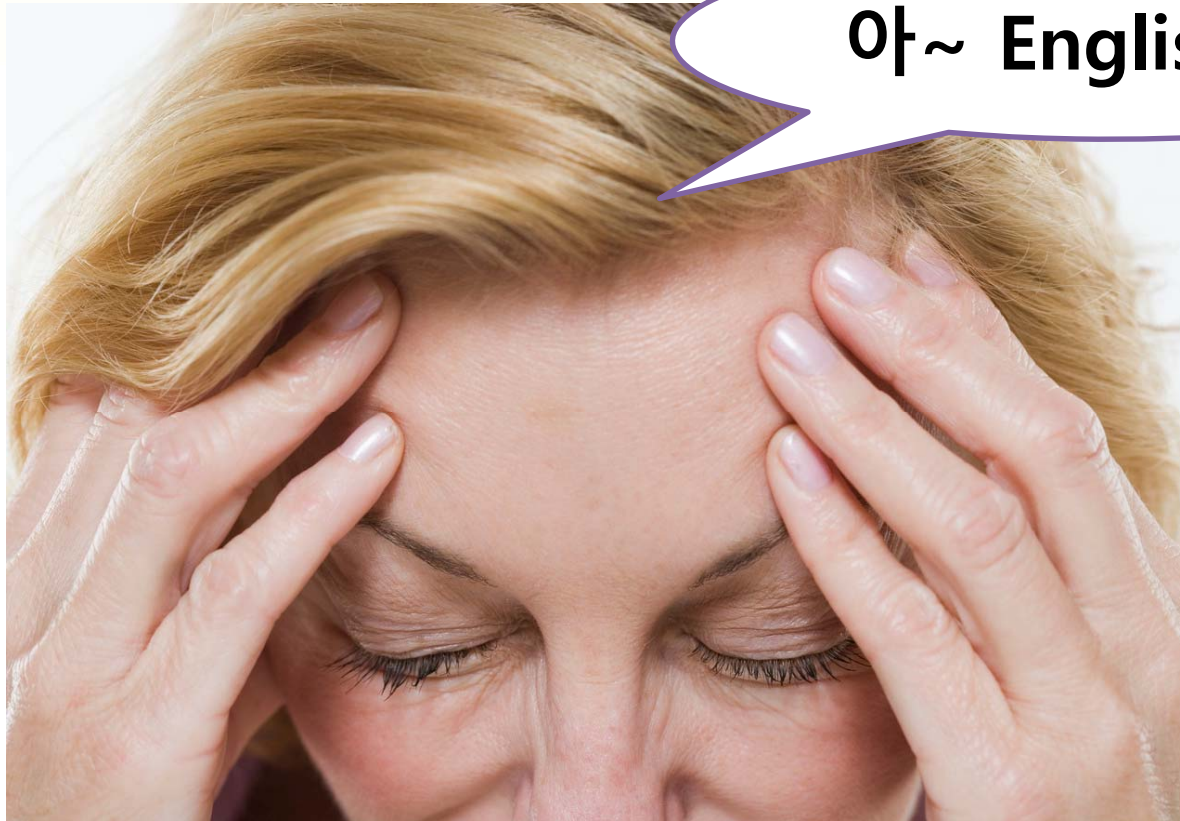
You must accept the [Oracle Binary Code License Agreement for Java SE](#) to download this software.

Thank you for accepting the Oracle Binary Code License Agreement for Java SE;
you may now download this software.

Product / File Description	File Size	Download
Linux x86	63.62 MB	jdk-7u2-linux-i586.rpm
Linux x86	78.62 MB	jdk-7u2-linux-i586.tar.gz
Linux x64	64.51 MB	jdk-7u2-linux-x64.rpm
Linux x64	77.46 MB	jdk-7u2-linux-x64.tar.gz
Solaris x86	135.87 MB	jdk-7u2-solaris-i586.tar.Z
Solaris x86	81.37 MB	jdk-7u2-solaris-i586.tar.gz
Solaris SPARC	138.94 MB	jdk-7u2-solaris-sparc.tar.Z
Solaris SPARC	86.05 MB	jdk-7u2-solaris-sparc.tar.gz
Solaris SPARC 64-bit	16.13 MB	jdk-7u2-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	12.31 MB	jdk-7u2-solaris-sparcv9.tar.gz
Solaris x64	14.45 MB	jdk-7u2-solaris-x64.tar.Z
Solaris x64	9.25 MB	jdk-7u2-solaris-x64.tar.gz
Windows x86	84.04 MB	jdk-7u2-windows-i586.exe
Windows x64	87.35 MB	jdk-7u2-windows-x64.exe

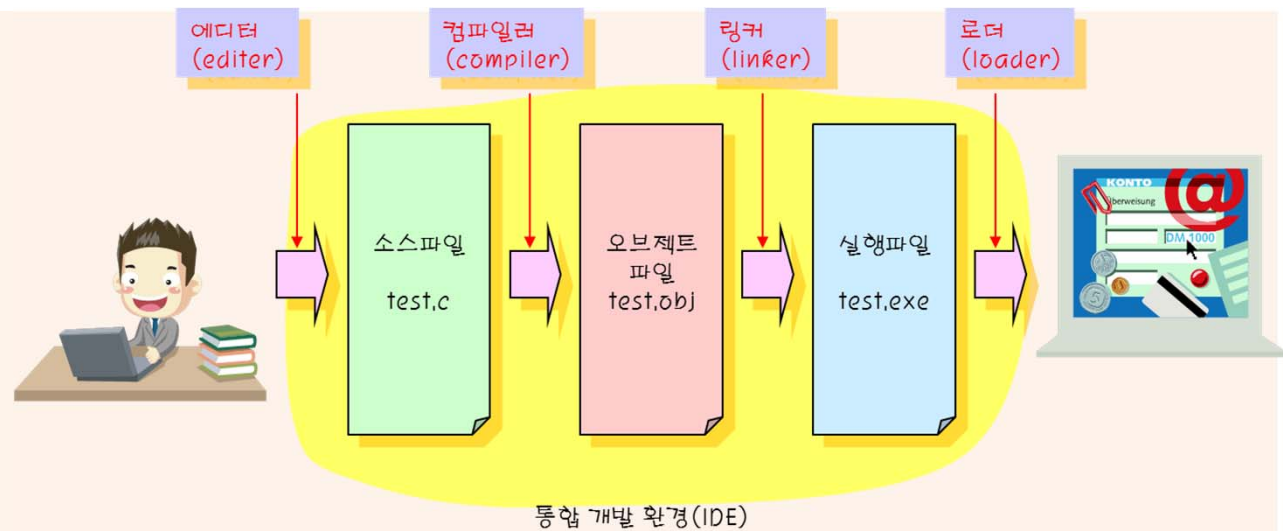
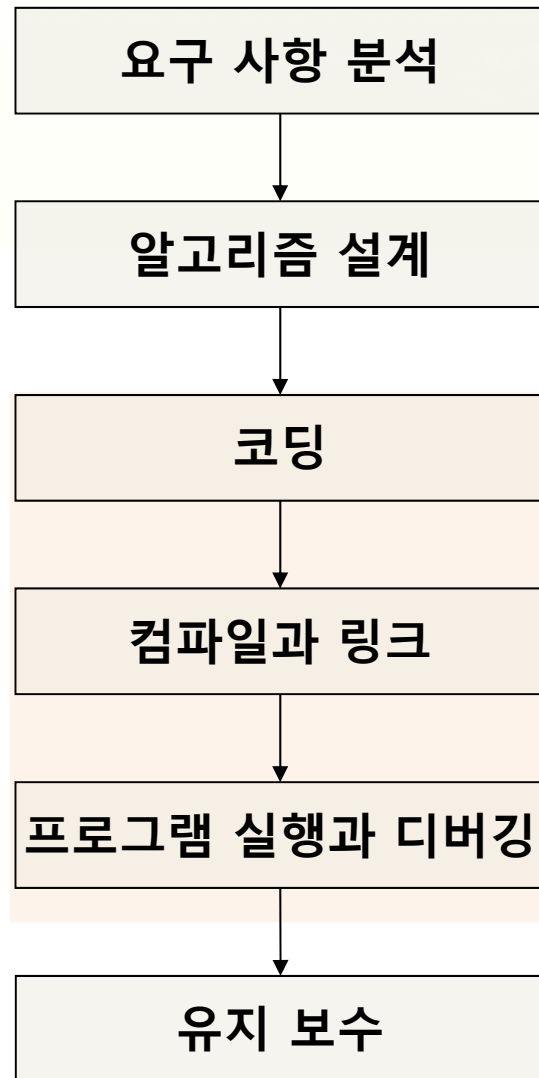
JAVA API Document

- <http://docs.oracle.com/javase/7/docs/api/>

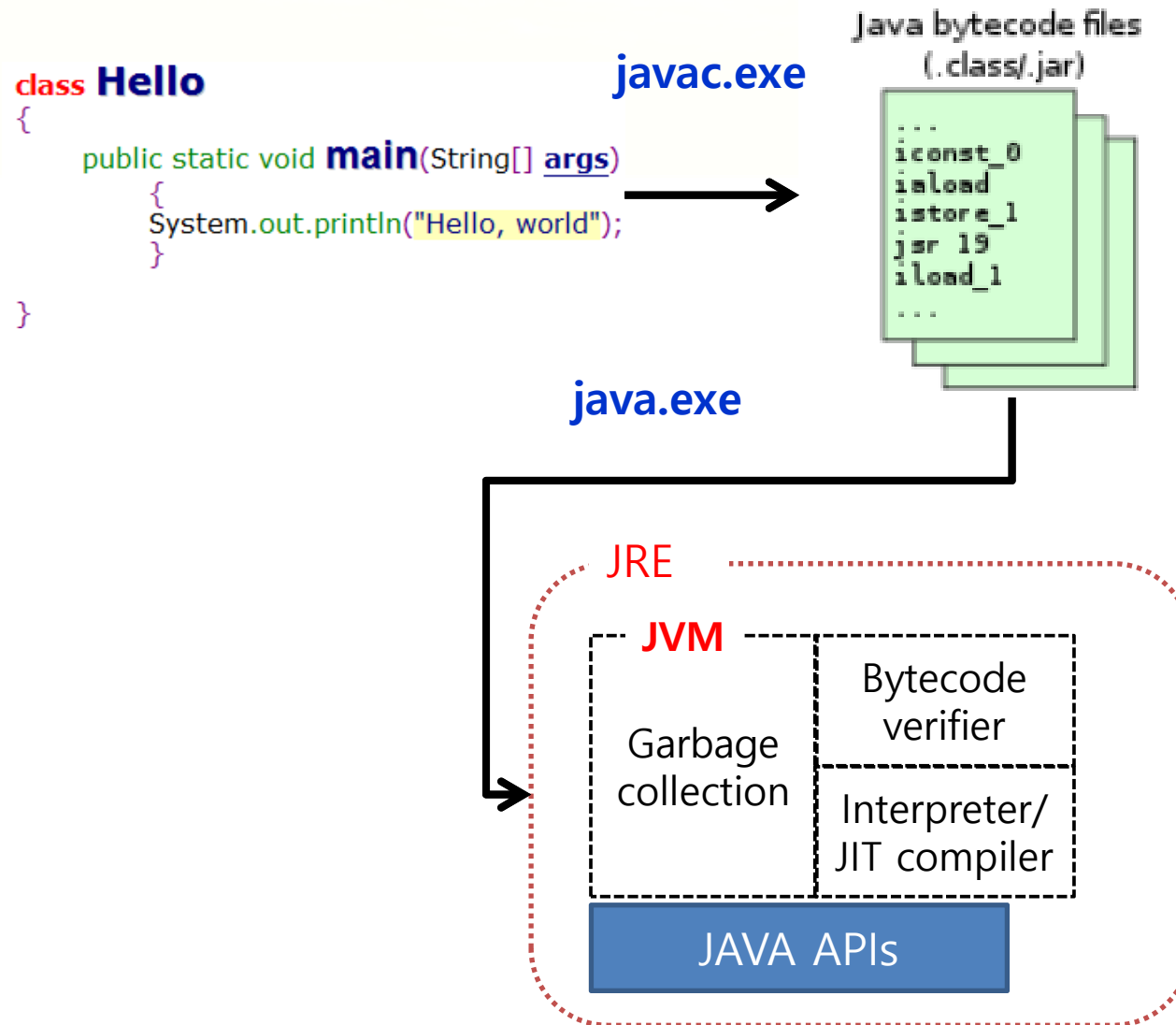


<http://xrath.com/javase/ko/6/docs/ko/api/index.html>

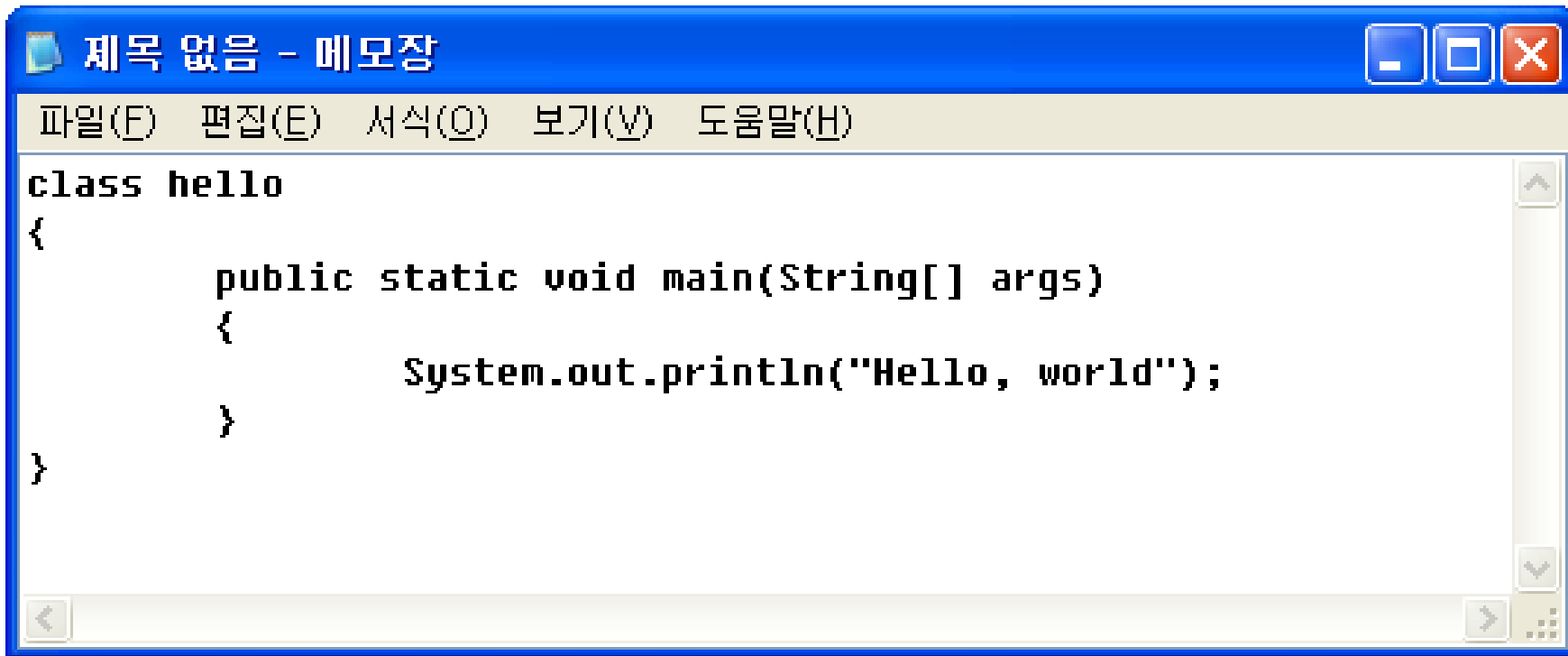
일반적인 프로그램 작성절차



JAVA 프로그램 작성 절차



첫 번째 JAVA 프로그램 작성 (1)

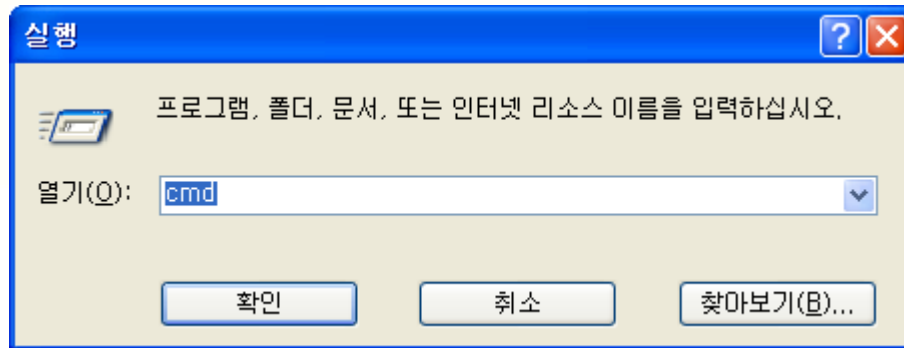


```
class hello
{
    public static void main(String[] args)
    {
        System.out.println("Hello, world");
    }
}
```

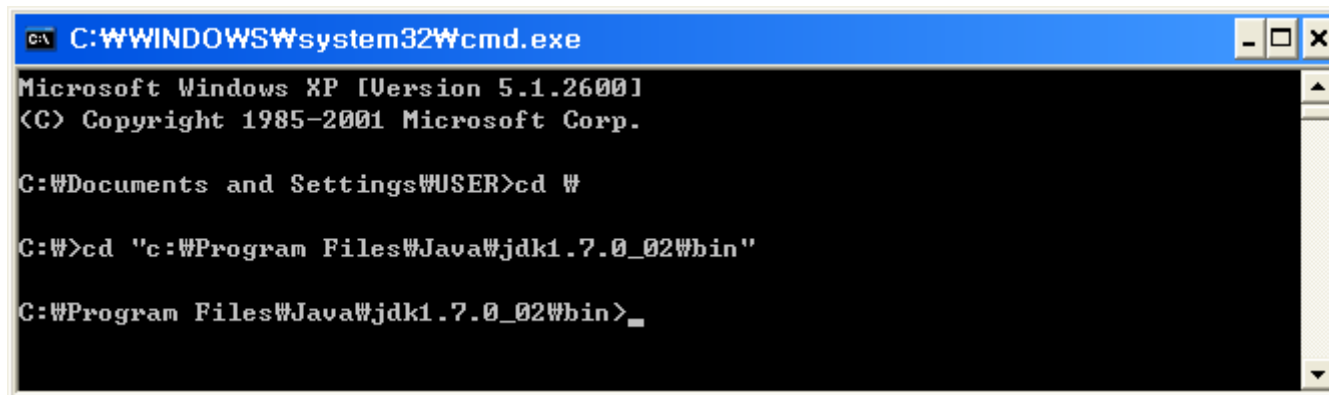
“C:\Program Files\Java\jdk1.7.0_02\bin” 폴더에 “test.java”로 파일저장

첫 번째 JAVA 프로그램 작성 (2)

Command window 열기



앞서 작성한 "hello.java"파일이 있는 폴더로 디렉토리 변경



첫 번째 JAVA 프로그램 작성 (3)

소스코드를 JAVA bytecode로 변환 – javac 이용

```
C:\Program Files\Java\jdk1.7.0_02\bin>javac
```

test.java

```
C:\Program Files\Java\jdk1.7.0_02\bin>dir hello*  
C 드라이브의 볼륨에는 이름이 없습니다.  
볼륨 일련 번호: 34A5-7835
```

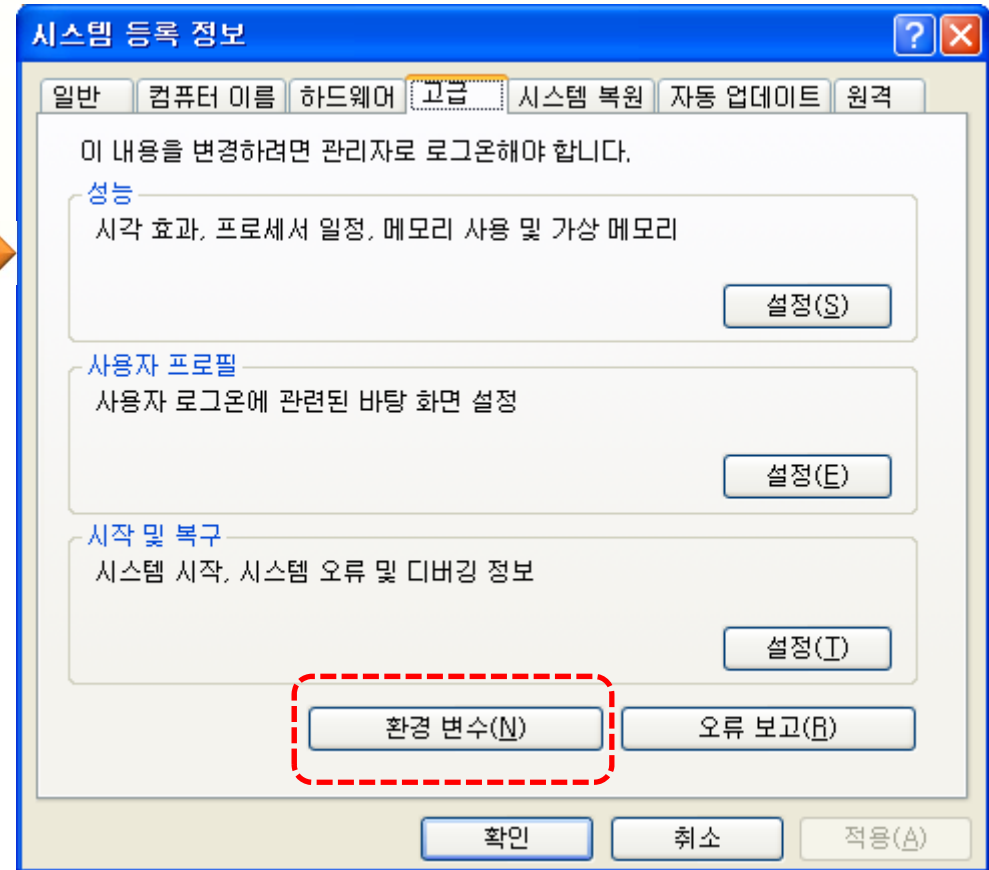
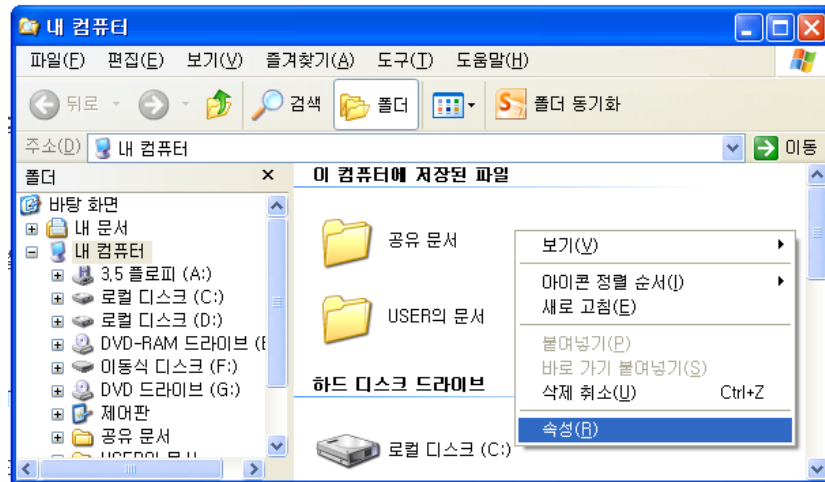
```
C:\Program Files\Java\jdk1.7.0_02\bin 디렉터리
```

```
2012-01-29 오후 09:02          416 hello.class  
2012-01-29 오후 08:55          149 hello.java
```

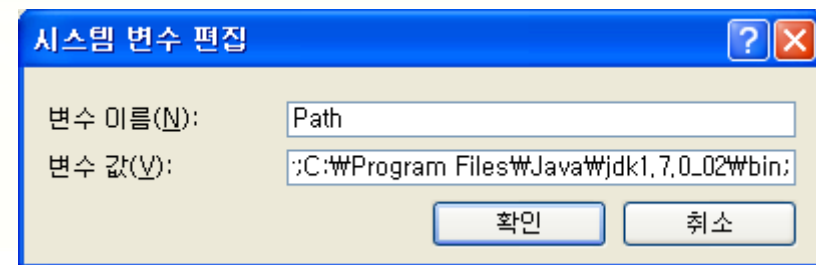
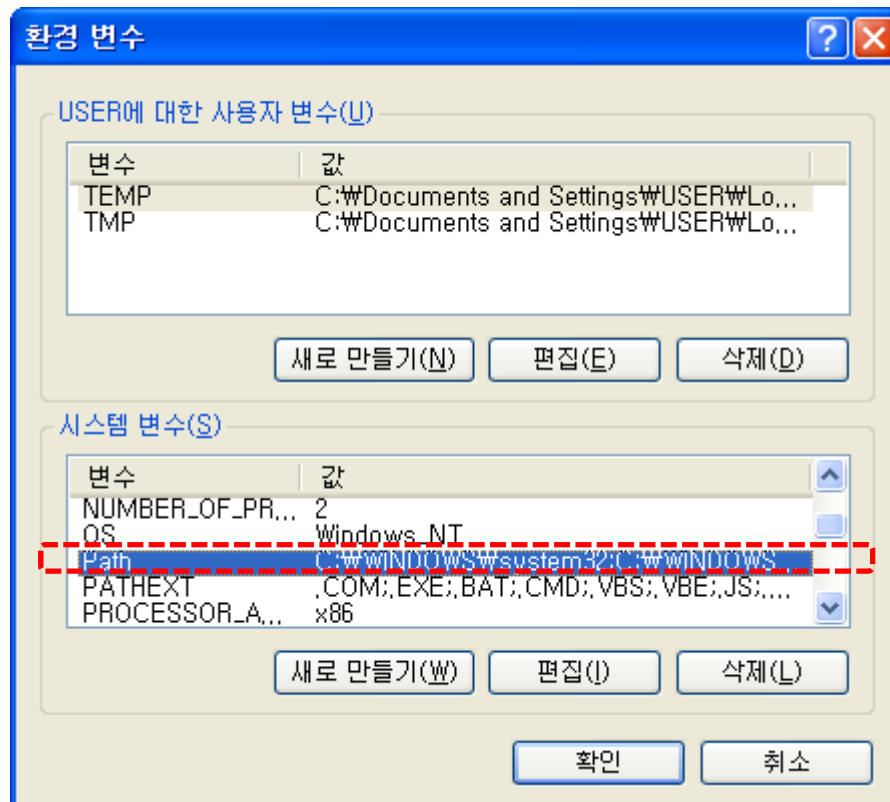
Bytecode 변환된 hello 클래스를 JVM을 이용 실행 – java

```
C:\Program Files\Java\jdk1.7.0_02\bin>java hello  
Hello, world
```

jdk/bin 폴더위치 환경변수로 등록 (1)



jdk/bin 폴더위치 환경변수로 등록 (2)



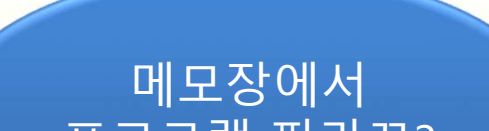
재부팅 or 재로그인

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

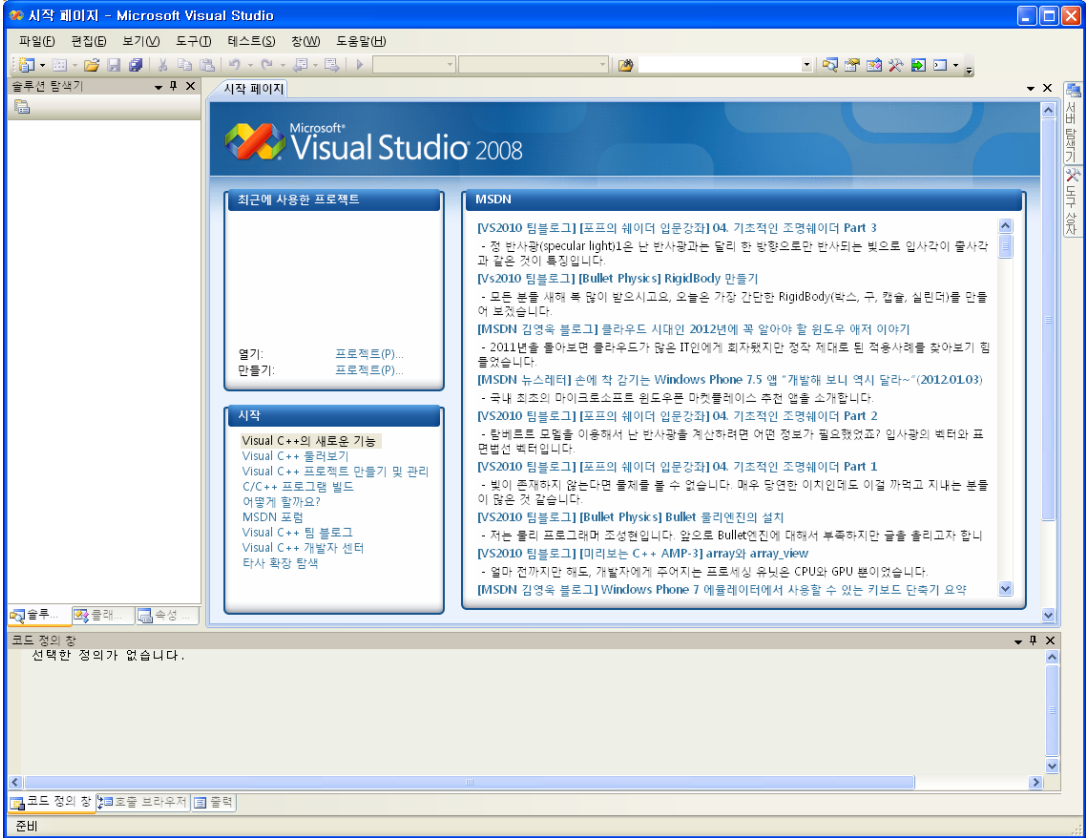
C:\Documents and Settings\USER>javac
Usage: javac <options> <source files>
where possible options include:
  -g               Generate all debugging info
  -g:none          Generate no debugging info
  -g:<lines,vars,source> Generate only some debugging info
  -nowarn          Generate no warnings
  -verbose         Output messages about what the compiler is doing
  -deprecation     Output source locations where deprecated APIs are used
  -classpath <path> Specify where to find user class files and annotations
  -cp <path>       Specify where to find user class files and annotations
  -sourcepath <path> Specify where to find input source files
  -bootclasspath <path> Override location of bootstrap class files
  -extdirs <dirs>   Override location of installed extensions
  -endorseddirs <dirs> Override location of endorsed standards path
  -proc:<none,only> Control whether annotation processing and/or compilation is done.
  -processor <class1>[,<class2>,<class3>...] Names of the annotation processors to run; bypasses default discovery process
```

A wide banner at the bottom of the slide with a background of a blue sky and white clouds. On the left side, the text "IDE!!!!" is written in a large, bold, dark blue font. A light blue wavy line runs horizontally across the banner, starting from the left and curving upwards towards the right.

IDE!!!!



메모장에서
프로그램 짜라꼬?



IDE (Integrated Development Kit)

이클립스(Eclipse) 다운로드

- 이클립스 공식홈페이지
 - <http://www.eclipse.org/>



Eclipse Downloads - Windows Internet Explorer





http://www.eclipse.org/downloads/

Home Downloads Users Members Committers Resources Projects About Us

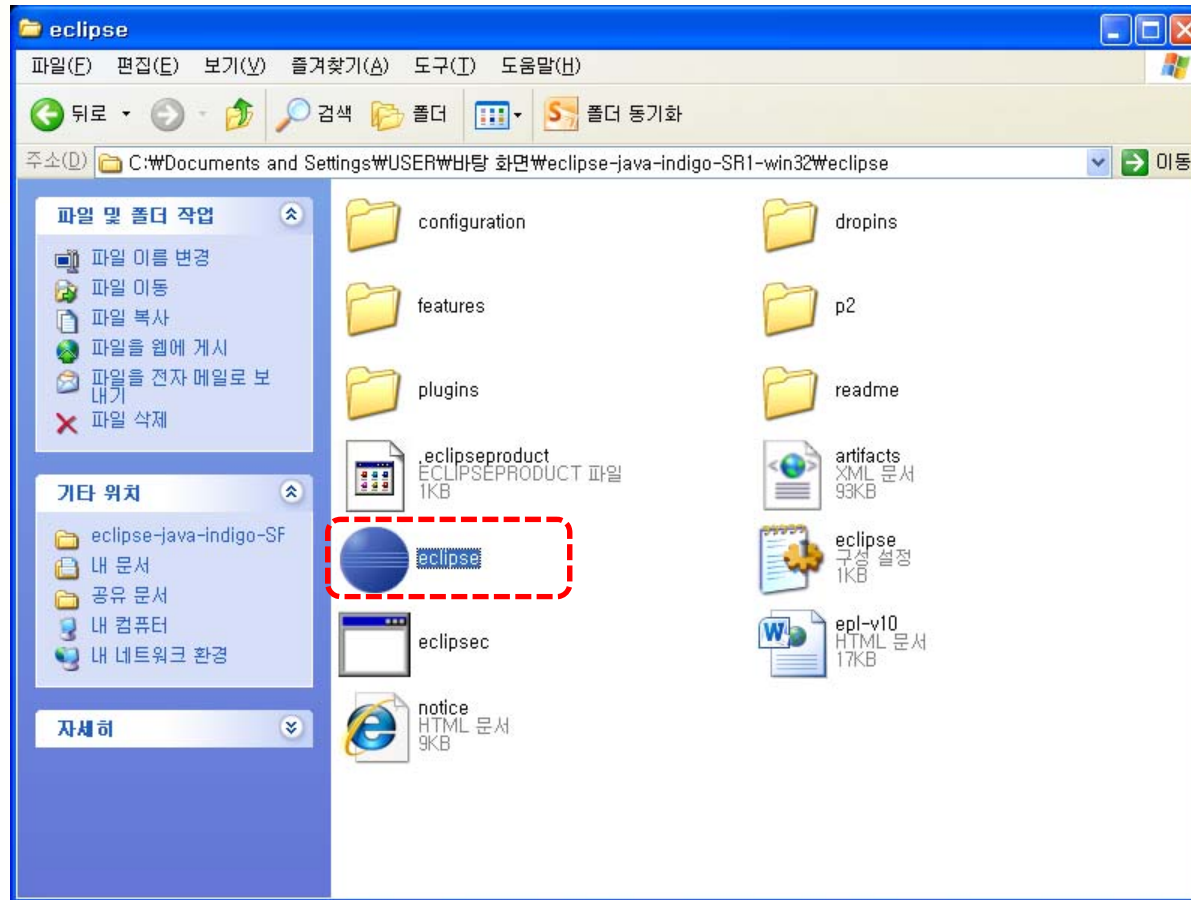
Eclipse Downloads

Packages Developer Builds Projects

Compare Packages Older Versions Eclipse Indigo (3.7.1) Packages for Windows

	Eclipse IDE for Java Developers , 128 MB Downloaded 3,123,954 Times Details	 Windows 32 Bit Windows 64 Bit
	Eclipse IDE for Java EE Developers , 212 MB Downloaded 2,206,268 Times Details	 Windows 32 Bit Windows 64 Bit
	Eclipse Classic 3.7.1 , 174 MB Downloaded 1,241,158 Times Details Other Downloads	 Windows 32 Bit Windows 64 Bit
	Eclipse IDE for C/C++ Developers (includes Incubating components) , 107 MB Downloaded 674,421 Times Details	 Windows 32 Bit Windows 64 Bit

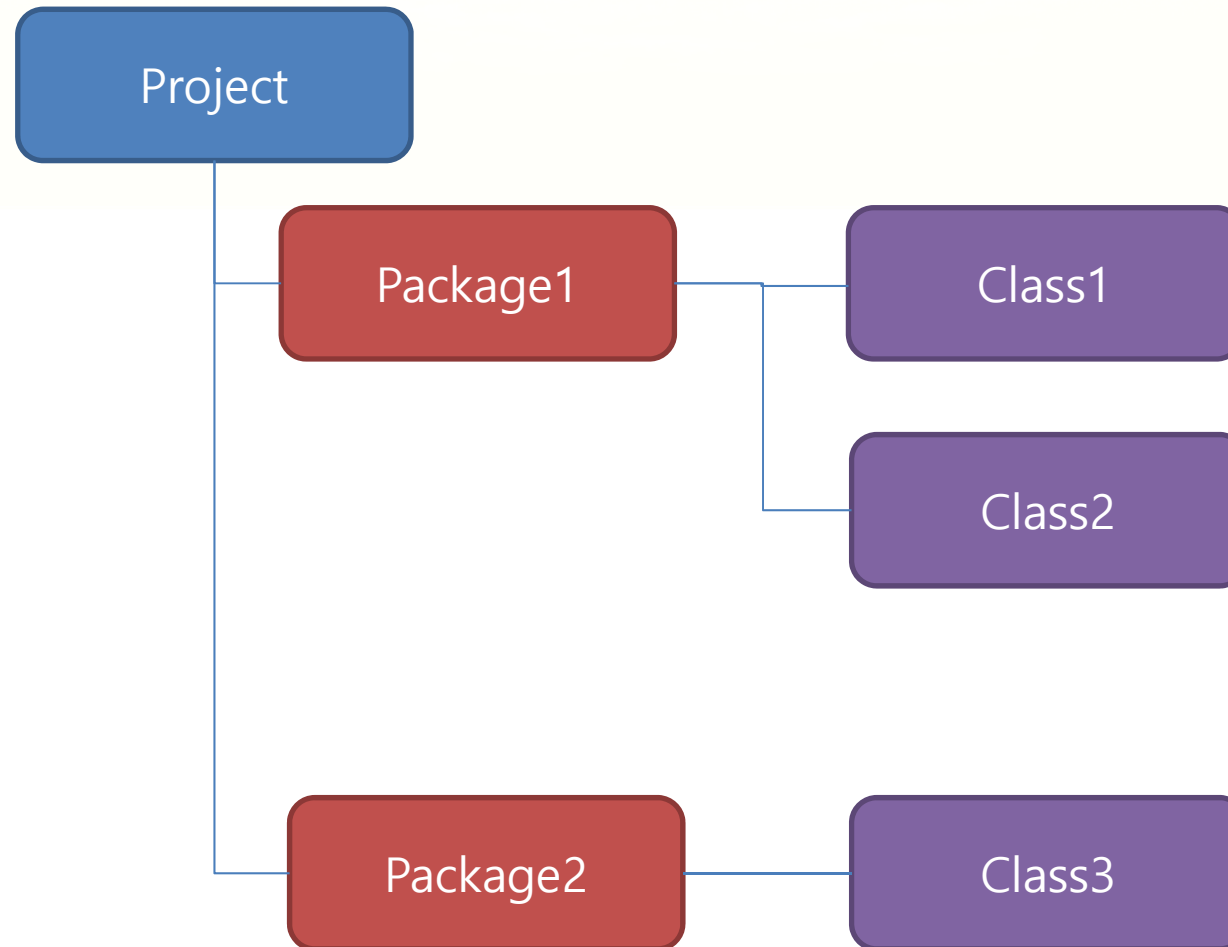
이클립스 실행



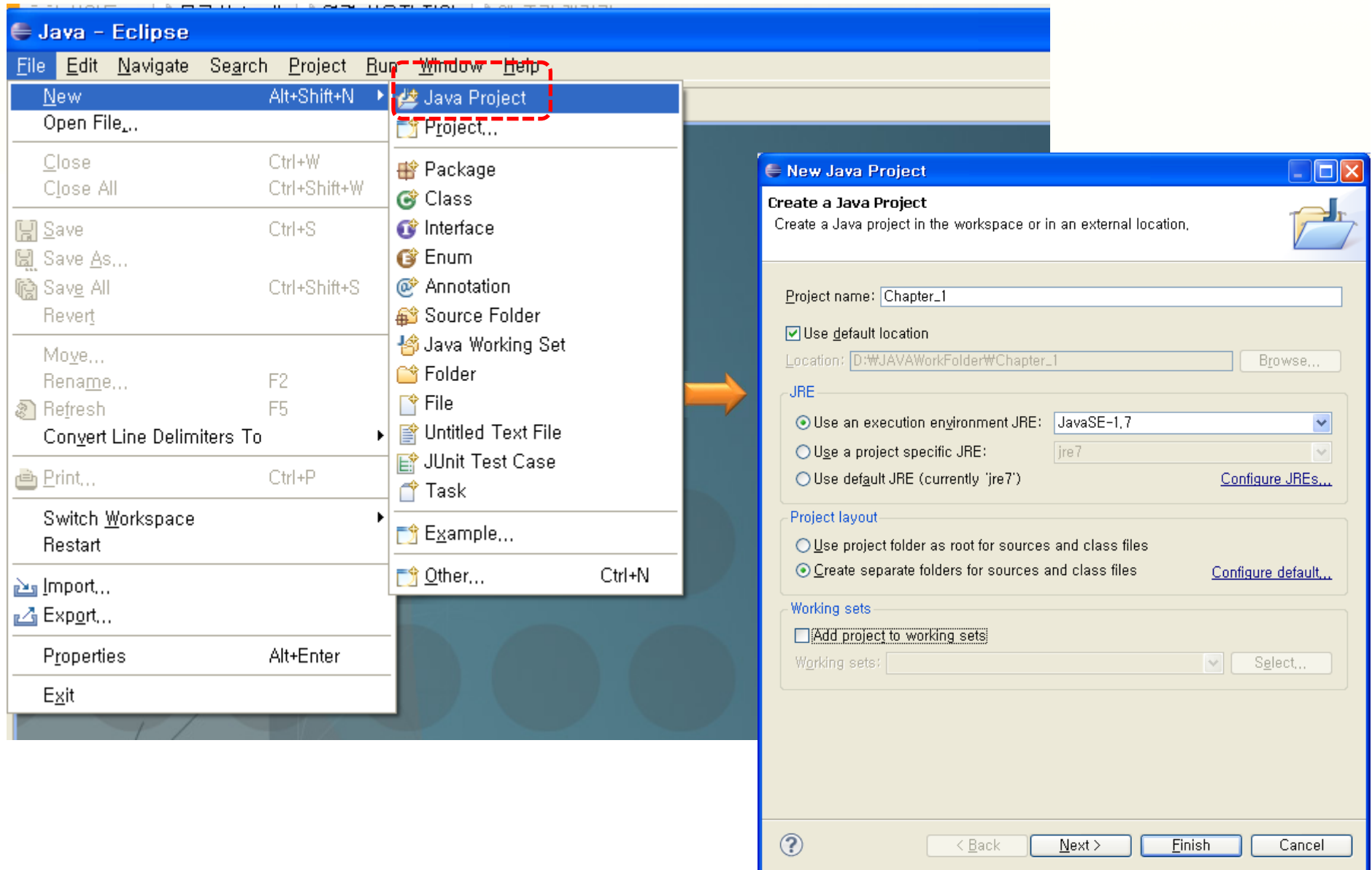
Eclipse와 JDK 연동하기



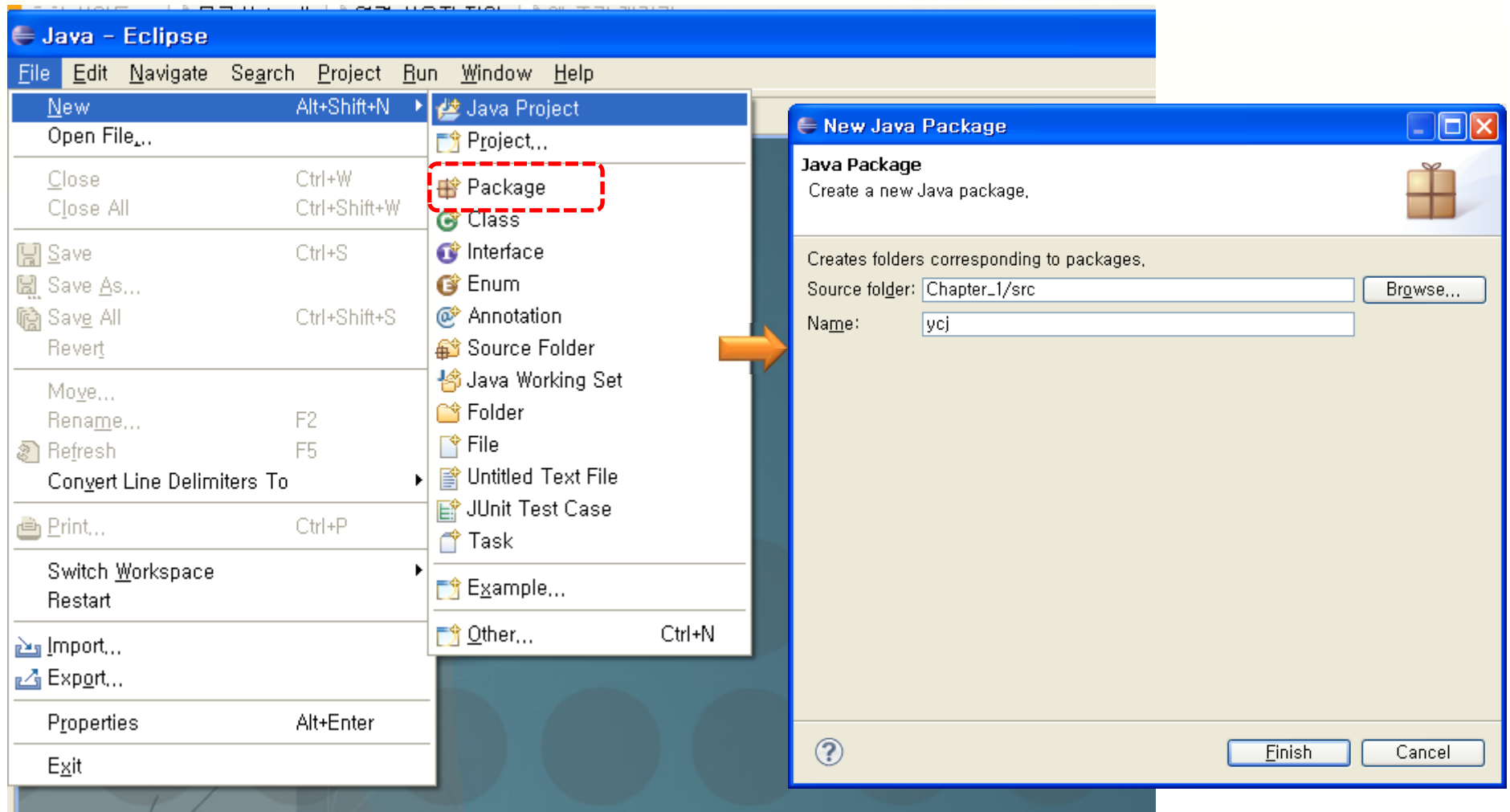
Eclipse 프로젝트 관리구조



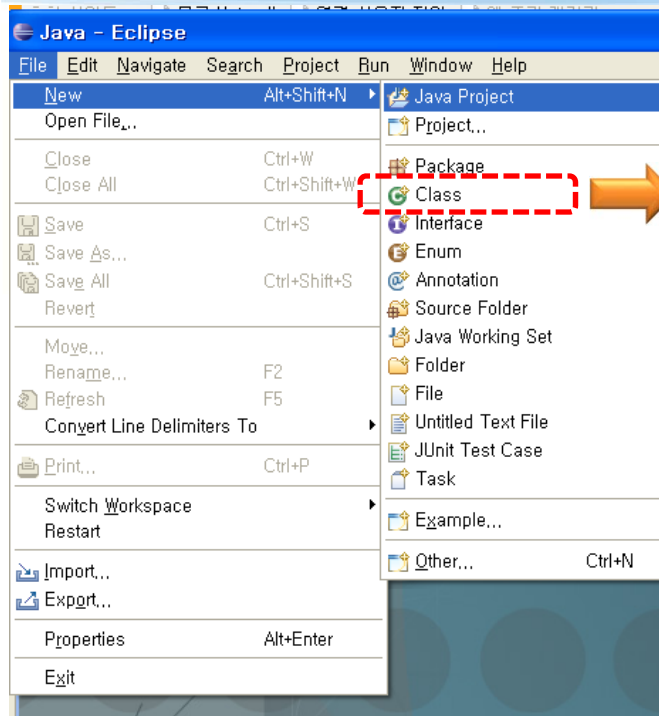
Eclipse 프로젝트/패키지/클래스 생성 (1)



Eclipse 프로젝트/패키지/클래스 생성 (2)



Eclipse 프로젝트/패키지/클래스 생성 (3)



New Java Class

Java Class

⚠ Type name is discouraged. By convention, Java type names usually start with an uppercase letter

Source folder:

Package:

☐ Enclosing type:

Name:

Modifiers: ☒ public ☐ default ☐ private ☐ protected
☐ abstract ☐ final ☐ static

Superclass:

Interfaces:

Which method stubs would you like to create?

☒ public static void main(String[] args)

☐ Constructors from superclass

☐ Inherited abstract methods

Do you want to add comments? (Configure templates and default value [here](#))

☐ Generate comments

Hello 클래스에 예제 작성 후 실행!!

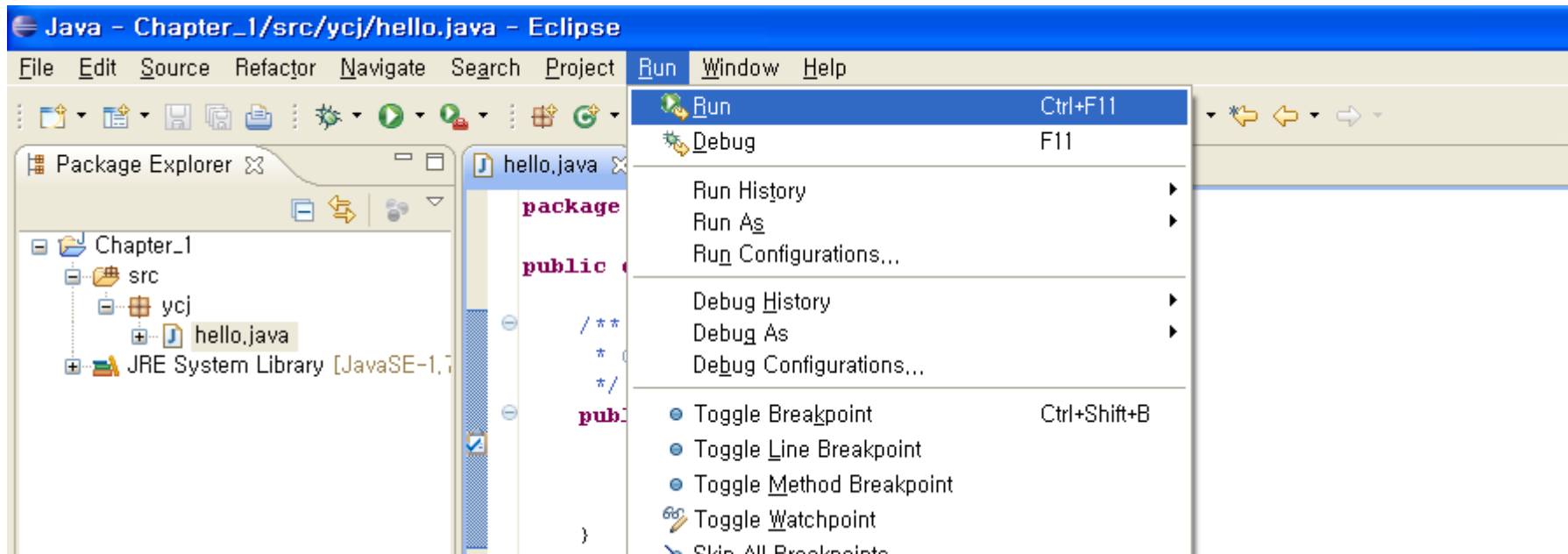
```
package ycj;

public class hello {

    /**
     * @param args
     */
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        System.out.println("Hello, world");
    }

}
```



Eclipse 디버깅 방법

- 실습 확인!!