

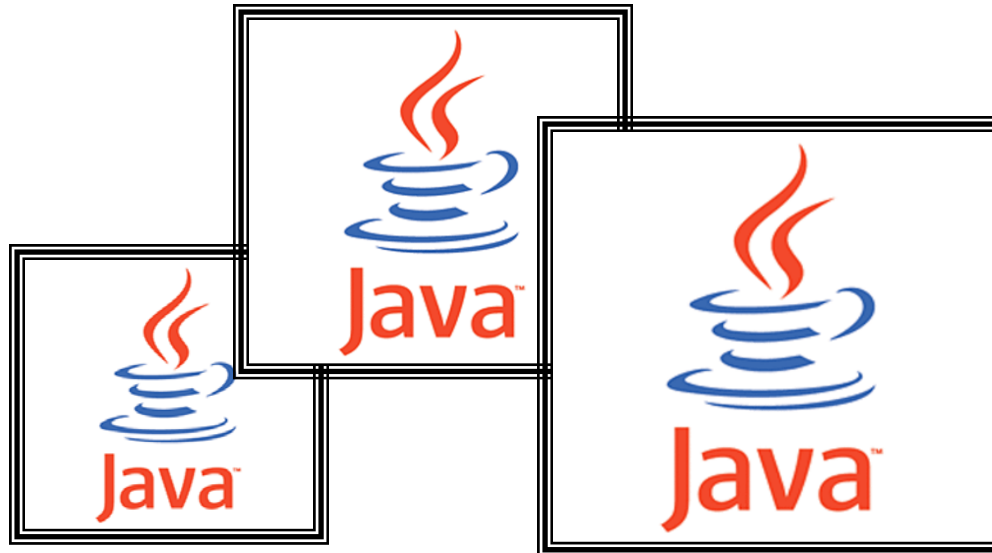
IT2205: Programming I

Section 2

Interacting with Java Programming environment (2 hrs)

Section 2.1

Installing and setting the Java environment in one's computer



How to Install Java

➤ What is installing of a software?

- Putting the Java software in your computer

➤ Why need Java to get installed?

- As soon as an operating system is installed Java doesn't get installed in a computer
- In order to execute the program written in Java

How to get Java software

- From a trusted source or someone
- From Java official website
 - <http://java.sun.com/j2se>
- Consider your operating system
 - Windows
 - Linux
 - Solaris
 - Mac OS

Java SE Downloads

[Next Releases \(Early Access\)](#)[Embedded Use](#)[Previous Releases](#)**Java Platform (JDK) 7u25****JDK 7 + NetBeans**

Java Platform, Standard Edition

Java SE 7u25

This release includes important security fixes. Oracle strongly recommends that all Java SE 7 users upgrade to this release.

[Learn more](#) ▶**Which Java package do I need?**

Java SDKs and Tools

- [Java SE](#)
- [Java EE and Glassfish](#)
- [Java ME](#)
- [JavaFX](#)
- [Java Card](#)
- [NetBeans IDE](#)

Java Resources

- [Java APIs](#)
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- [Forums](#)
- [Java Magazine](#)
- [Java.net](#)
- [Developer Training](#)
- [Tutorials](#)
- [Java.com](#)

Window's operating system
















- Java Developer Day hands-on workshops (free) and other events
- Java Magazine

JDK MD5 Checksum

Java SE Development Kit 7u25

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

☐ Accept License Agreement ☒ Decline License Agreement

Product / File Description	File Size	Download
Linux x86	90.38 MB	 jdk-7u25-linux-i586.rpm
Linux x86	93.12 MB	 jdk-7u25-linux-i586.tar.gz
Linux x64	91.46 MB	 jdk-7u25-linux-x64.rpm
Linux x64	91.85 MB	 jdk-7u25-linux-x64.tar.gz
Mac OS X x64	144.43 MB	 jdk-7u25-macosx-x64.dmg
Solaris x86 (SVR4 package)	136.02 MB	 jdk-7u25-solaris-i586.tar.Z
Solaris x86	12.22 MB	 jdk-7u25-solaris-i586.tar.gz
Solaris x64 (SVR4 package)	12.77 MB	 jdk-7u25-solaris-x64.tar.Z
Solaris x64	15.09 MB	 jdk-7u25-solaris-x64.tar.gz
Solaris SPARC (SVR4 package)	136.16 MB	 jdk-7u25-solaris-sparc.tar.Z
Solaris SPARC	15.5 MB	 jdk-7u25-solaris-sparc.tar.gz
Solaris SPARC 64-bit (SVR4 package)	13.05 MB	 jdk-7u25-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	17.67 MB	 jdk-7u25-solaris-sparcv9.tar.gz
Windows x86	89.09 MB	 jdk-7u25-windows-i586.exe
Windows x64	90.66 MB	 jdk-7u25-windows-x64.exe

Java SE Development Kit 7u25 Demos and Samples Downloads

Java SE Development Kit 7u25 Demos and Samples Downloads are released under the [Oracle BSD License](#)

What is the word size of a computer?

➤ Answer:

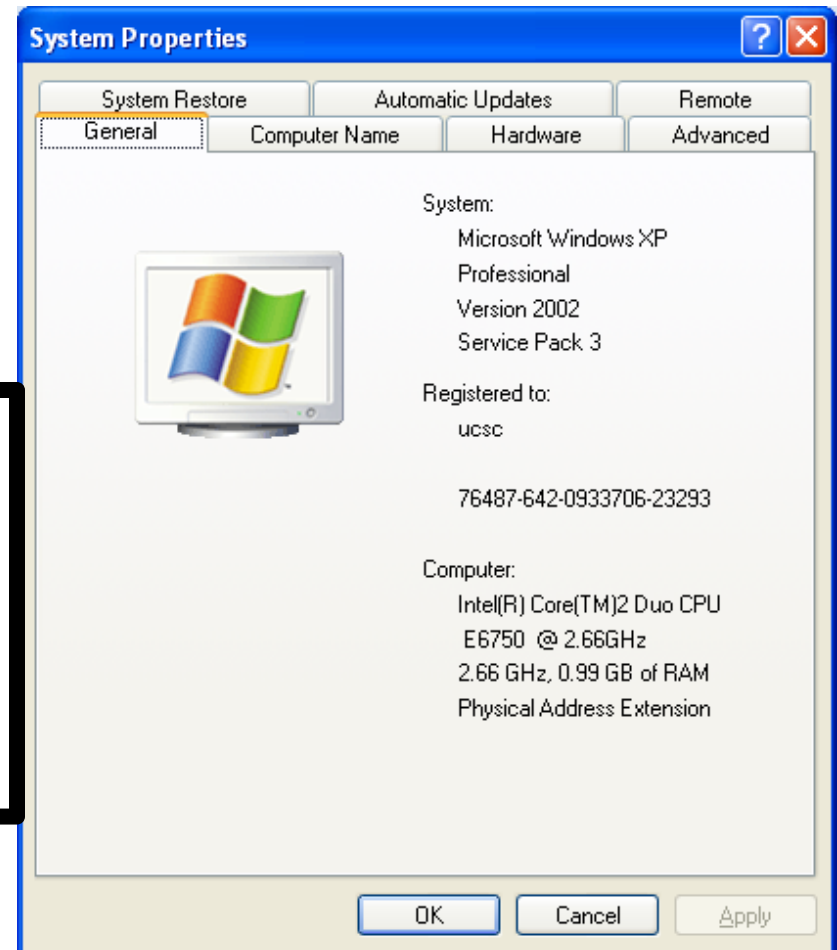
- **word size definition**-The number of bits that a CPU can process at one time. Processors with many different word sizes have existed though powers of two (8, 16, 32, 64) have predominated for many years. A processor's word size is often equal to the width of its external data bus though sometimes the bus is made narrower than the CPU to economise on packaging and circuit board costs.

How to check the word size of your computer(Windows)?

Select My computer → right click → select properties

Microsoft Windows XP Professional Version [year] means you're running Windows XP 32-bit.

Microsoft Windows XP Professional x64 Edition Version [year] means you're running Windows XP 64-bit.



Download Java

The screenshot shows a Mozilla Firefox browser window with the title "Download Java for Windows - Mozilla Firefox". The address bar displays "java.com/en/download/windows_xpi.jsp?locale=en". The page features the Java logo and a search bar. A sidebar on the left contains "Help Resources" and "Offline Installation" links. The main content area is titled "Download Java for Windows" and includes a "Recommended Version 7 Update 25 (filesize: 882 KB)" and a prominent red "Agree and Start Free Download" button. Below this, there is a section for "By downloading Java you acknowledge that you have read and accepted the terms of the [end user license agreement](#)". A lightbulb icon indicates a note: "When your Java installation completes, you **may need to restart your browser** (close all browser windows and re-open) to enable the Java installation." Further down, there are links for "Installation Instructions" and "System Requirements". A footer section provides links for "Select Language", "About Java", "Support", "Developers", "Privacy", "Terms of Use", "Trademarks", and "Disclaimer". The Oracle logo is visible in the bottom right corner of the page.

Download Java for Windows - Mozilla Firefox

File Edit View History Bookmarks Tools Help

(1) java download for windows 7 - Web S... x Download Java for Windows x Delta Search

java.com/en/download/windows_xpi.jsp?locale=en

AVG Search... Search Site Safety Do Not Track Facebook Performance

Java™ Download Help

Help Resources

- > What is Java?
- > Remove Older Versions
- > Disable Java
- > Error Messages
- > Troubleshoot Java
- > Other Help

Offline Installation

Trouble downloading?
Try the [offline installer](#)

Download Java for Windows

Recommended Version 7 Update 25 (filesize: 882 KB)

Agree and Start Free Download

By downloading Java you acknowledge that you have read and accepted the terms of the [end user license agreement](#)

💡 When your Java installation completes, you **may need to restart your browser** (close all browser windows and re-open) to enable the Java installation.

- > [Installation Instructions](#)
- > [System Requirements](#)

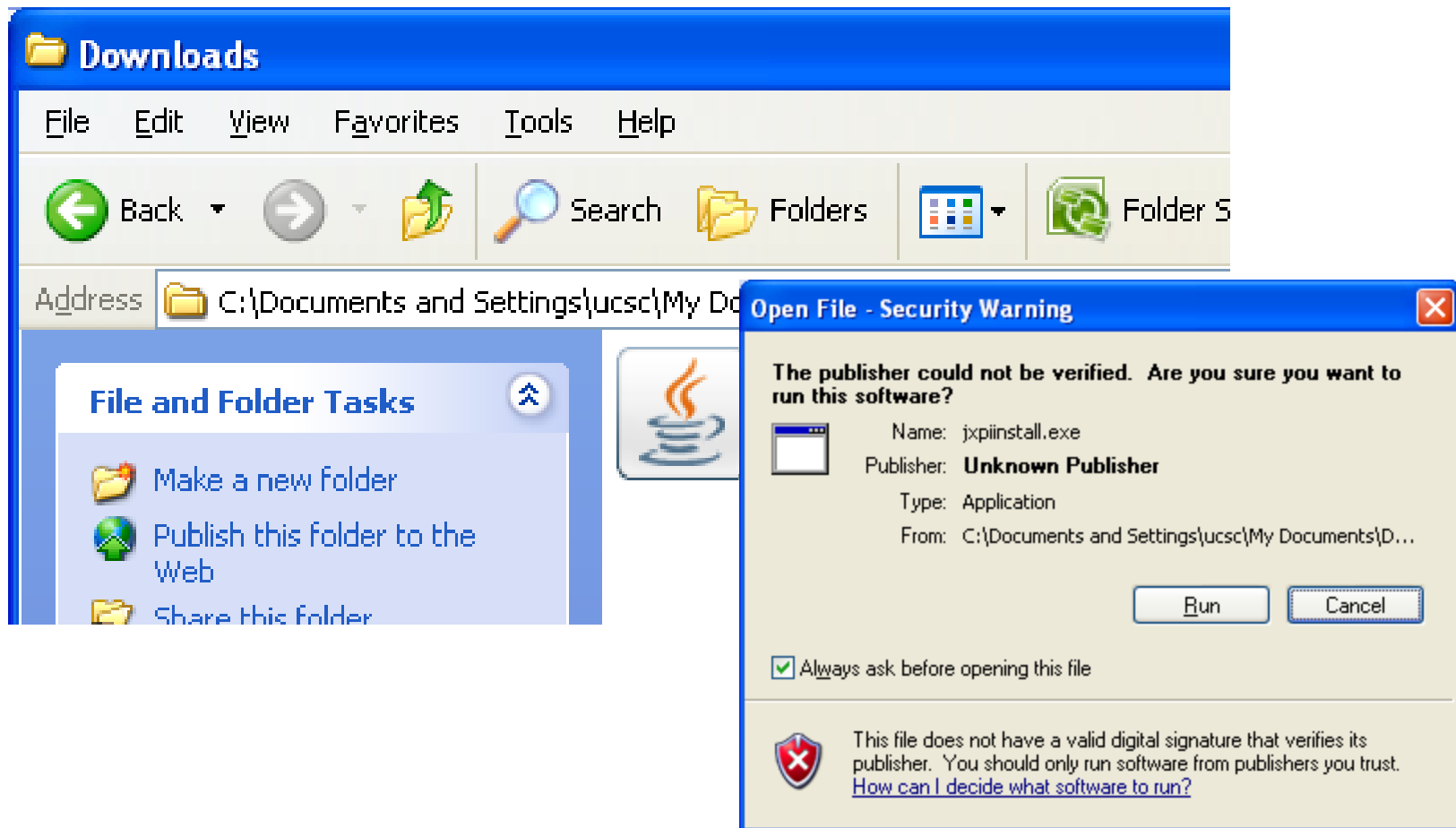
Not the right operating system? [See all Java downloads.](#)

Java software for your computer, or the Java Runtime Environment, is also referred to as the Java Runtime, Runtime Environment, Runtime, JRE, Java Virtual Machine, Virtual Machine, Java VM, JVM, VM, Java plug-in, Java plugin, Java add-on or Java download.

Select Language | About Java | Support | Developers
Privacy | Terms of Use | Trademarks | Disclaimer

ORACLE

Download Folder in your windows computer



What Java gets installed?

- Java 2 Platform is now installed
 - Java Virtual Environment (JVM)/ Java Run Time
 - A software implementation of a hypothetical computer(a computer within a computer)
 - Java Application Programming Interface (Java API)
 - A set of software components which facilitate to write your programs.

How to check whether Java has got installed?

➤ Go to the command prompt – how?

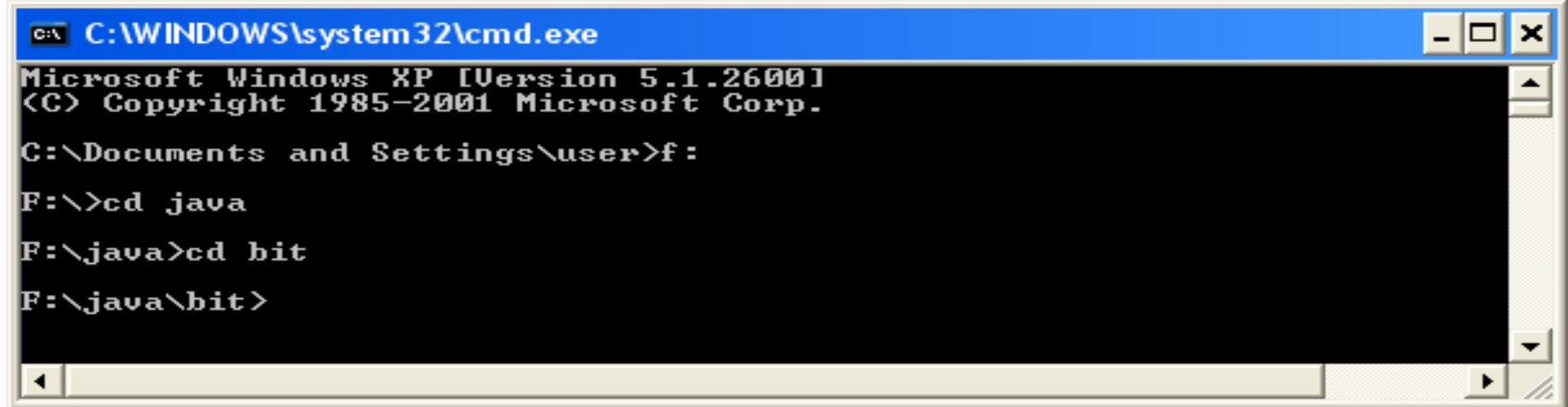
- Start → All programs → Accessories → command prompt
- Start → run (type cmd)



How to check whether Java has got installed? Cont...

- Switch to your working folder

eg:f:\java\bit



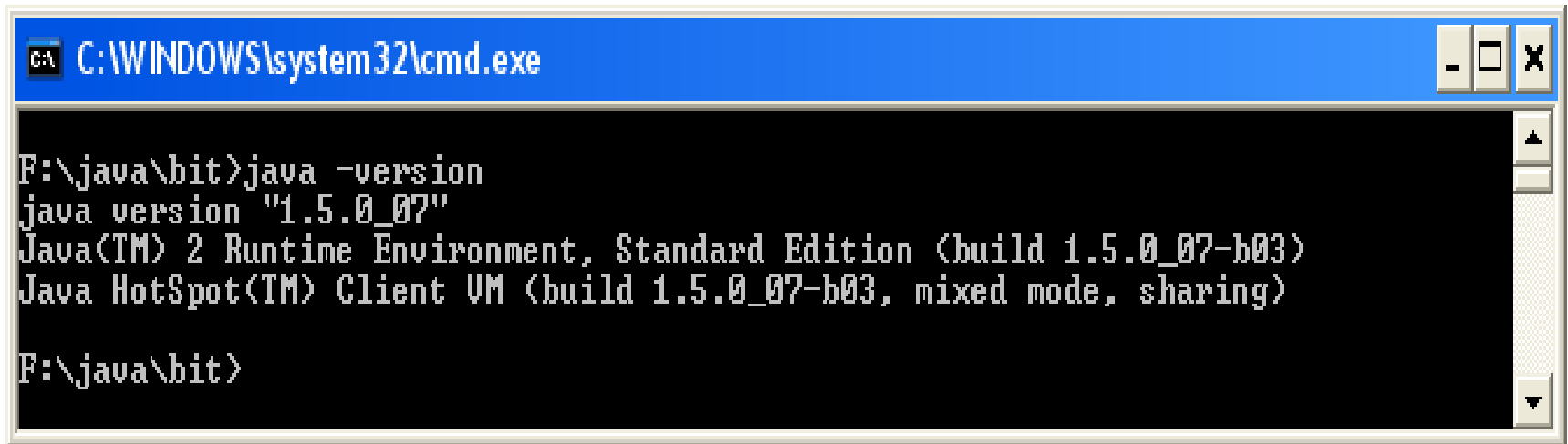
```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\user>f:
F:\>cd java
F:\java>cd bit
F:\java\bit>
```

How to check whether Java has got installed? Cont...

- In the command prompt check the Java Version

`java -version`



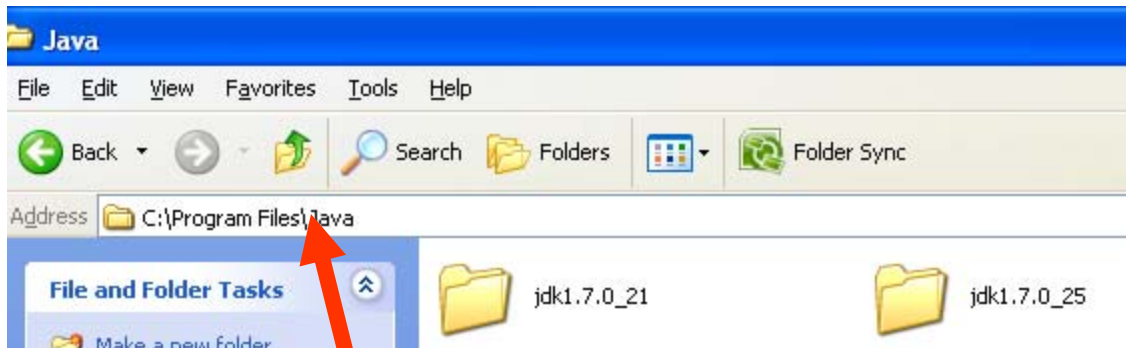
```
C:\WINDOWS\system32\cmd.exe

F:\java\bit>java -version
java version "1.5.0_07"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_07-b03)
Java HotSpot(TM) Client VM (build 1.5.0_07-b03, mixed mode, sharing)

F:\java\bit>
```

How to check whether Java has got installed? Cont...

➤ If you cannot see the version?- the reason



Our working folder

f:\java\bit

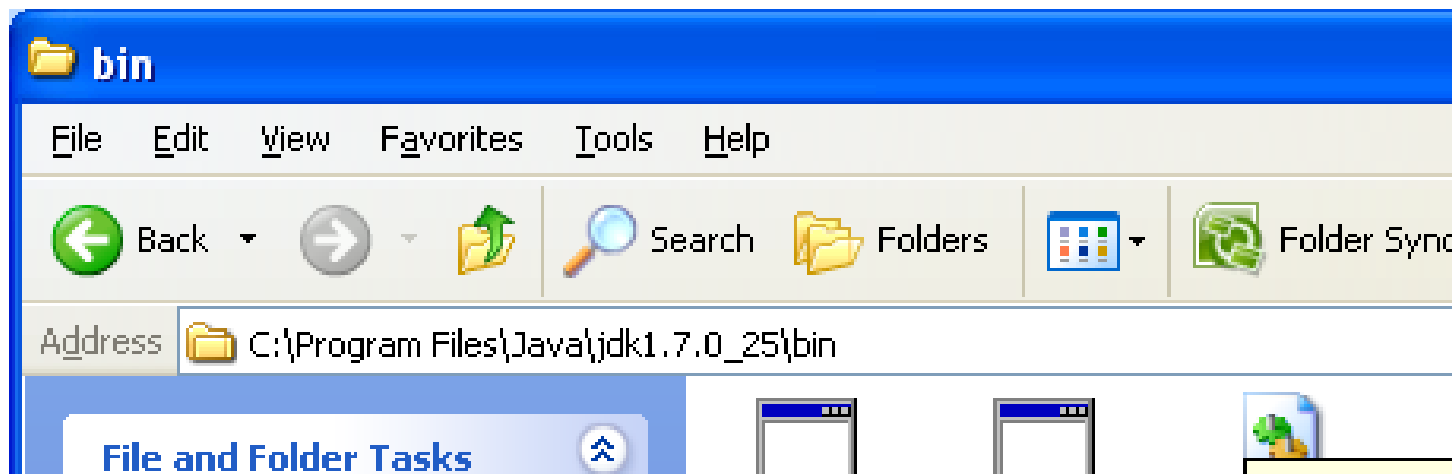
Java software

How to check whether Java has got installed? Cont...

- If you cannot see the Java version? – the solution
 - Set environment variables in your computer – two alternatives (path)
 - Temporarily
 - Permanently

How to check whether Java has got installed? Cont...

- If you cannot see the Java version? – the solution
 - Locating the path of the Java software



How to check whether Java has got installed? Cont...

- If you cannot see the Java version? – the solution
 - Setting the environment variables in your computer temporarily



A screenshot of a Windows command prompt window. The title bar is blue and reads "C:\WINDOWS\system32\cmd.exe". The command prompt shows the command `F:\java\bit>set path=c:\program files\java\jdk1.5.0_07\bin;%path%` entered at the prompt. The window has a scroll bar at the bottom and standard window controls on the right.

F:\java\bit>set path=c:\program files\java\jdk1.5.0_07\bin;%path%

How to check whether Java has got installed? Cont...

- If you cannot see the Java version? – the solution
 - Setting the environment variables in your computer permanently

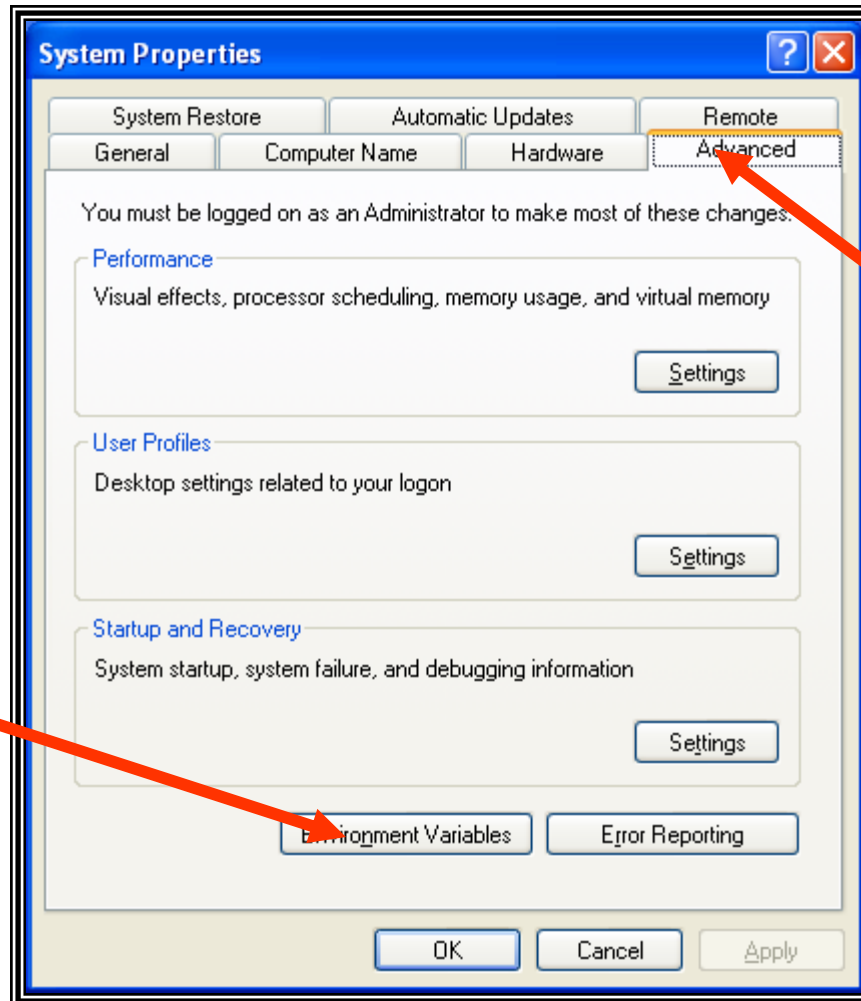
My computer Icon



Setting the environment variables in your computer permanently?



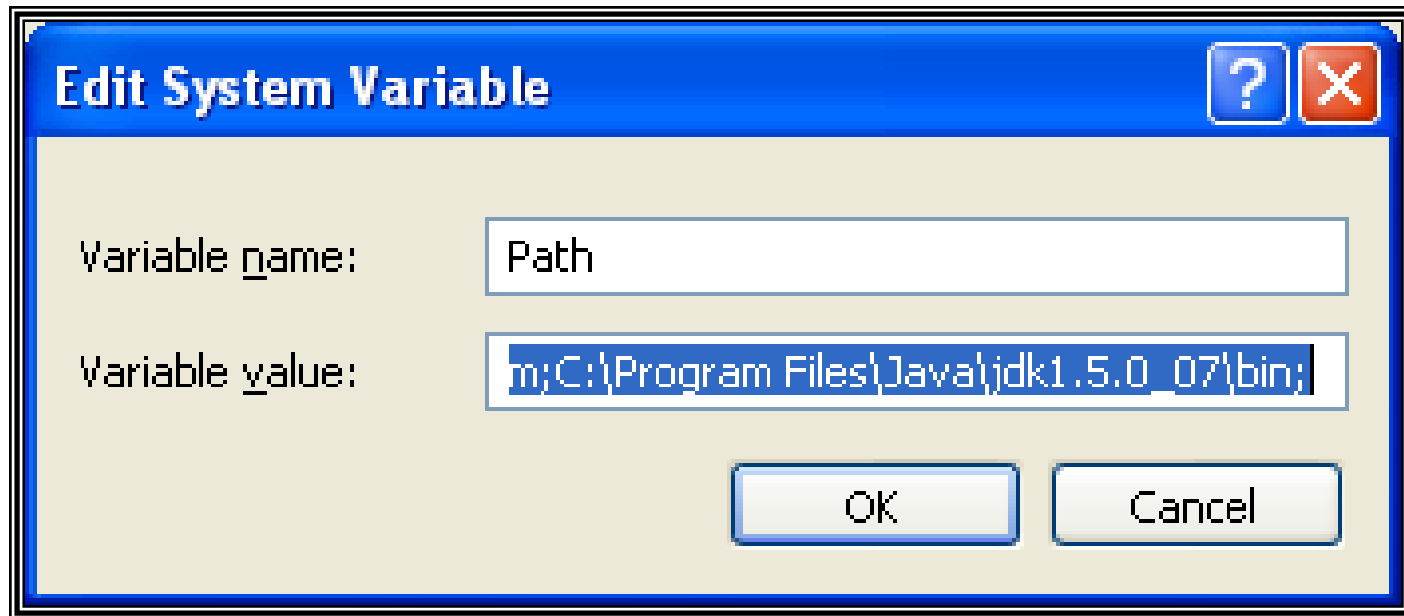
Setting the environment variables in your computer permanently? Cont...



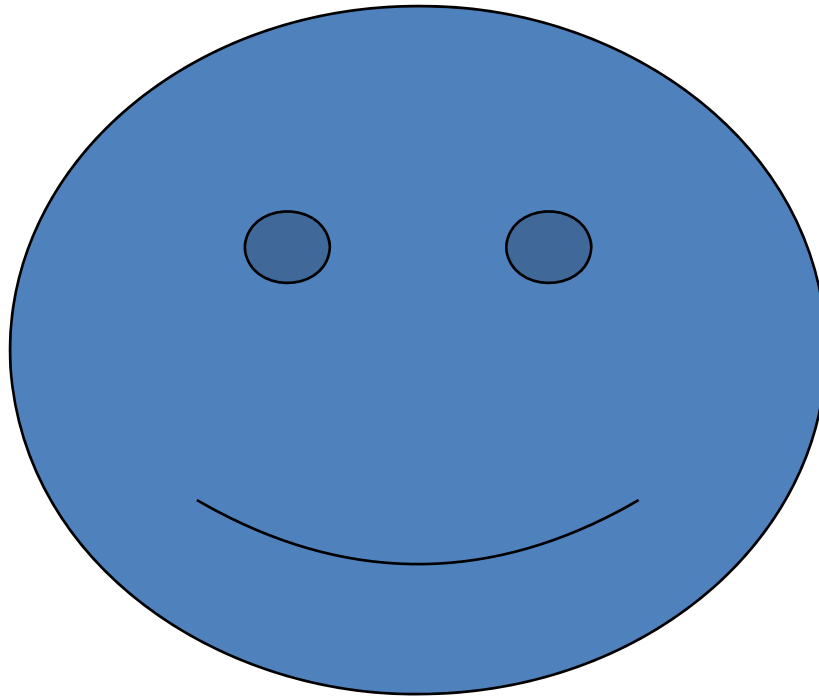
Advanced Tab

Environment
Variables

Setting the environment variables in your computer permanently? Cont...



Shall We Write a Java Program as a beginner?



Mother ?

- When your kindergarten era did you think to much when this picture was drawn ?

Shall We Write a Java Program as a beginner? Cont...

Say



in

Java.....?

A simple Java Console Program to say *Hello*

➤ Steps

- Enter the program using an editor
- Save the file
- Compile the file
- Run or interpret

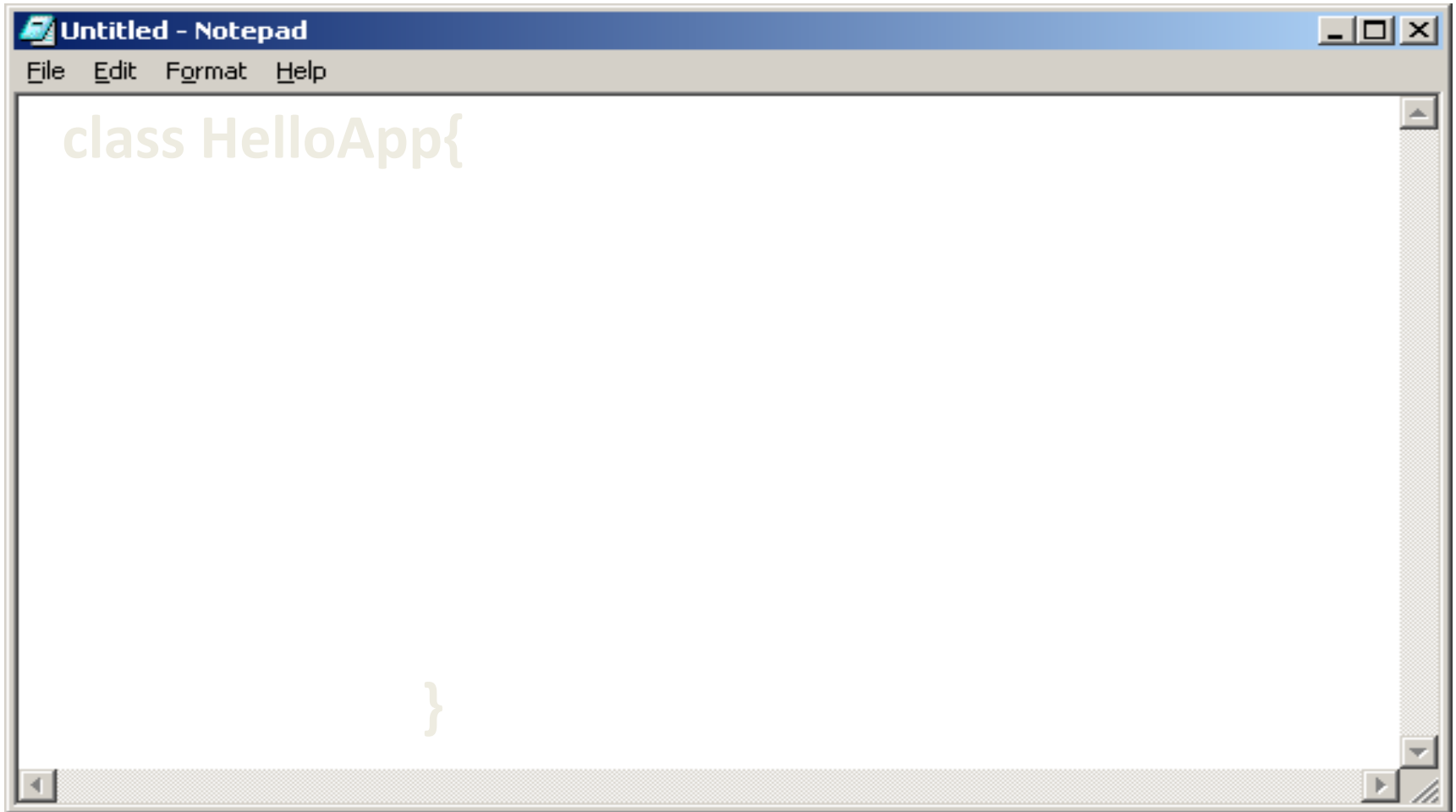
A simple Java Console Program to say *Hello* Cont...

➤ Steps

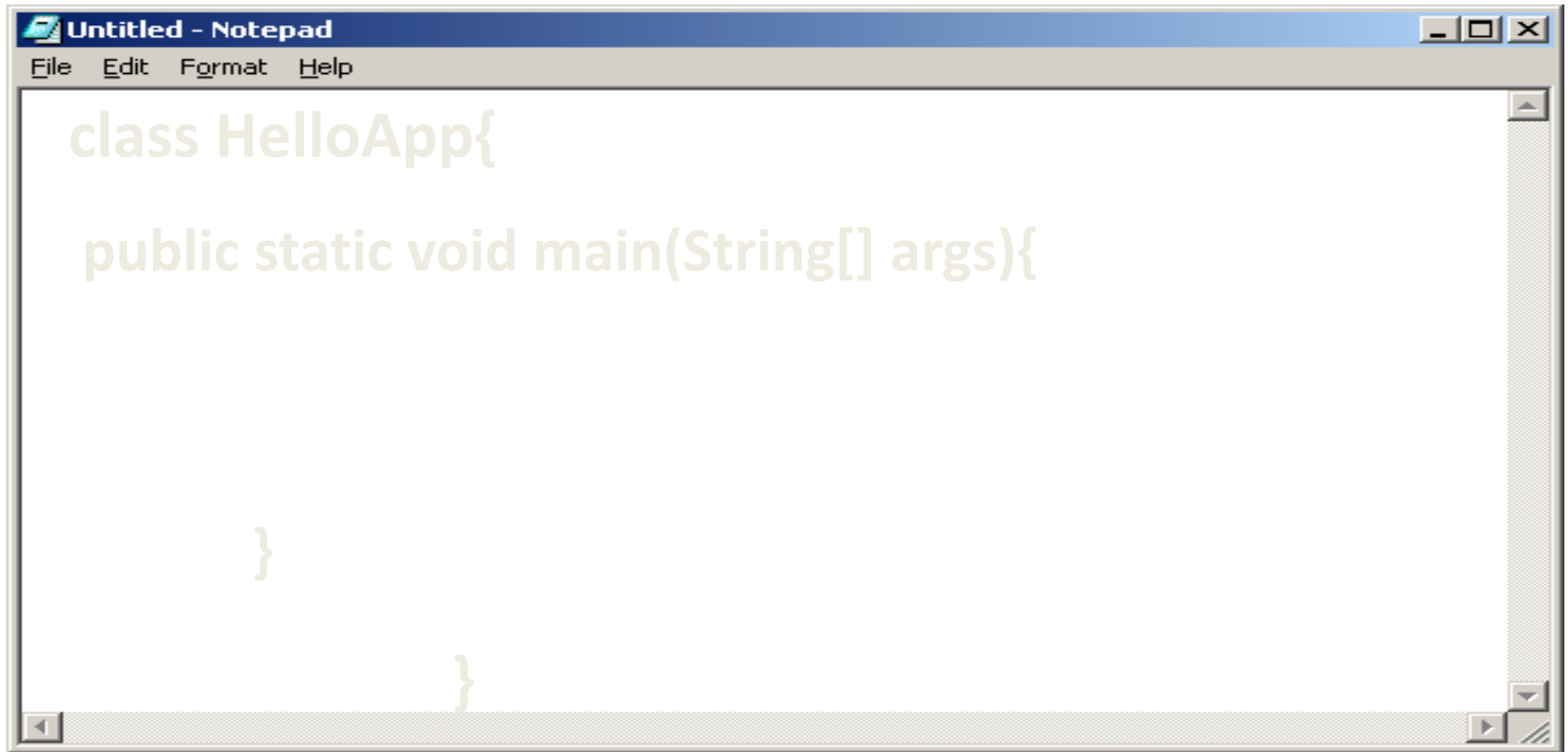
- Enter the Java program using an editor
 - Notepad
 - MS word
 - Linux

Ability to save the content in plain text

Enter the file giving a Class name

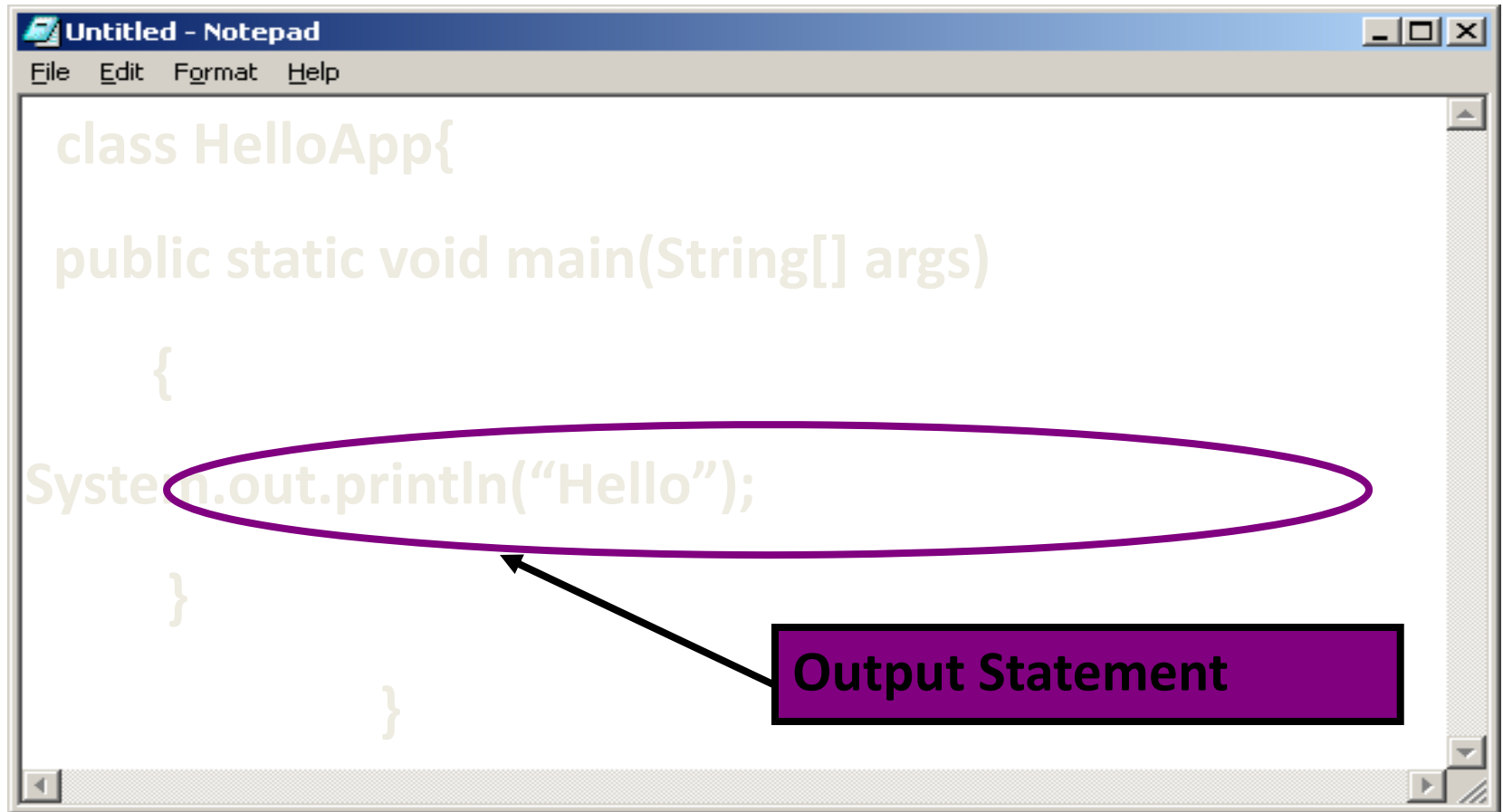


Include the main() method

A screenshot of a Notepad window titled "Untitled - Notepad". The window has a menu bar with "File", "Edit", "Format", and "Help". The text area contains the following Java code:

```
class HelloApp{  
  
    public static void main(String[] args){  
  
    }  
}
```

Enter Output Statement



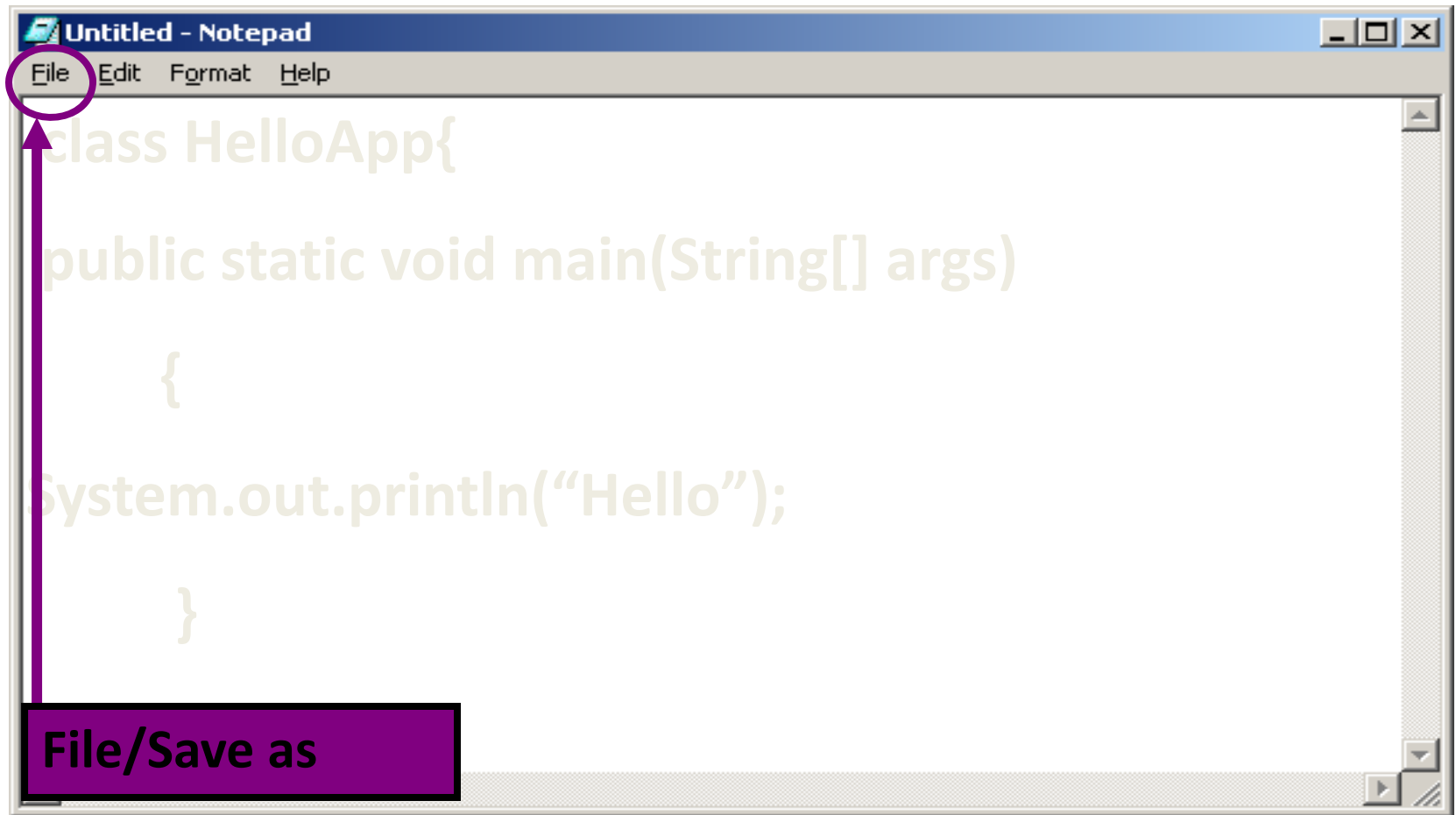
Save the file

giving class name as the file name

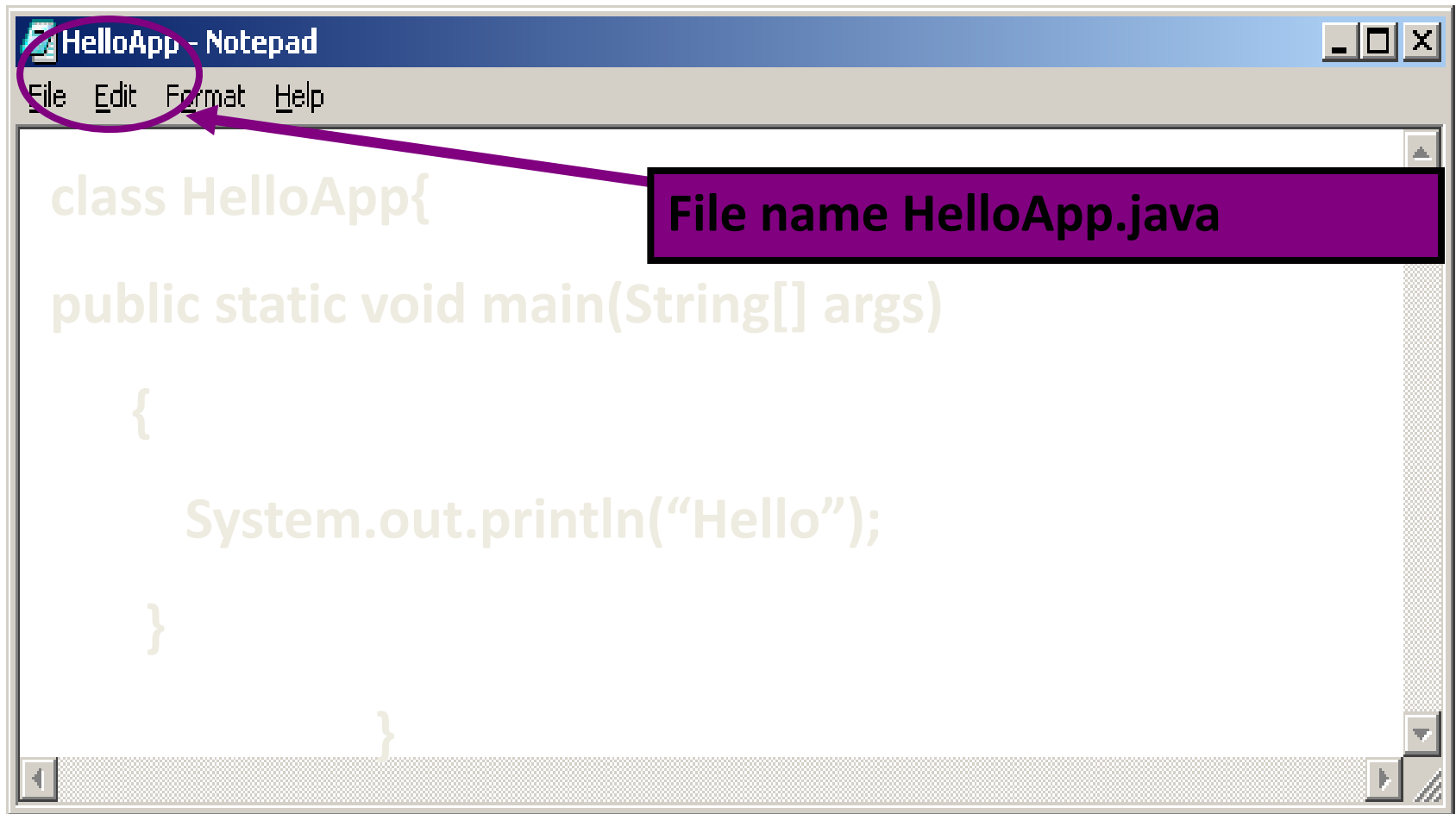
with .java file extension

HelloApp.java

Save the File as *HelloApp.java*



After Saving



How to Compile and Run

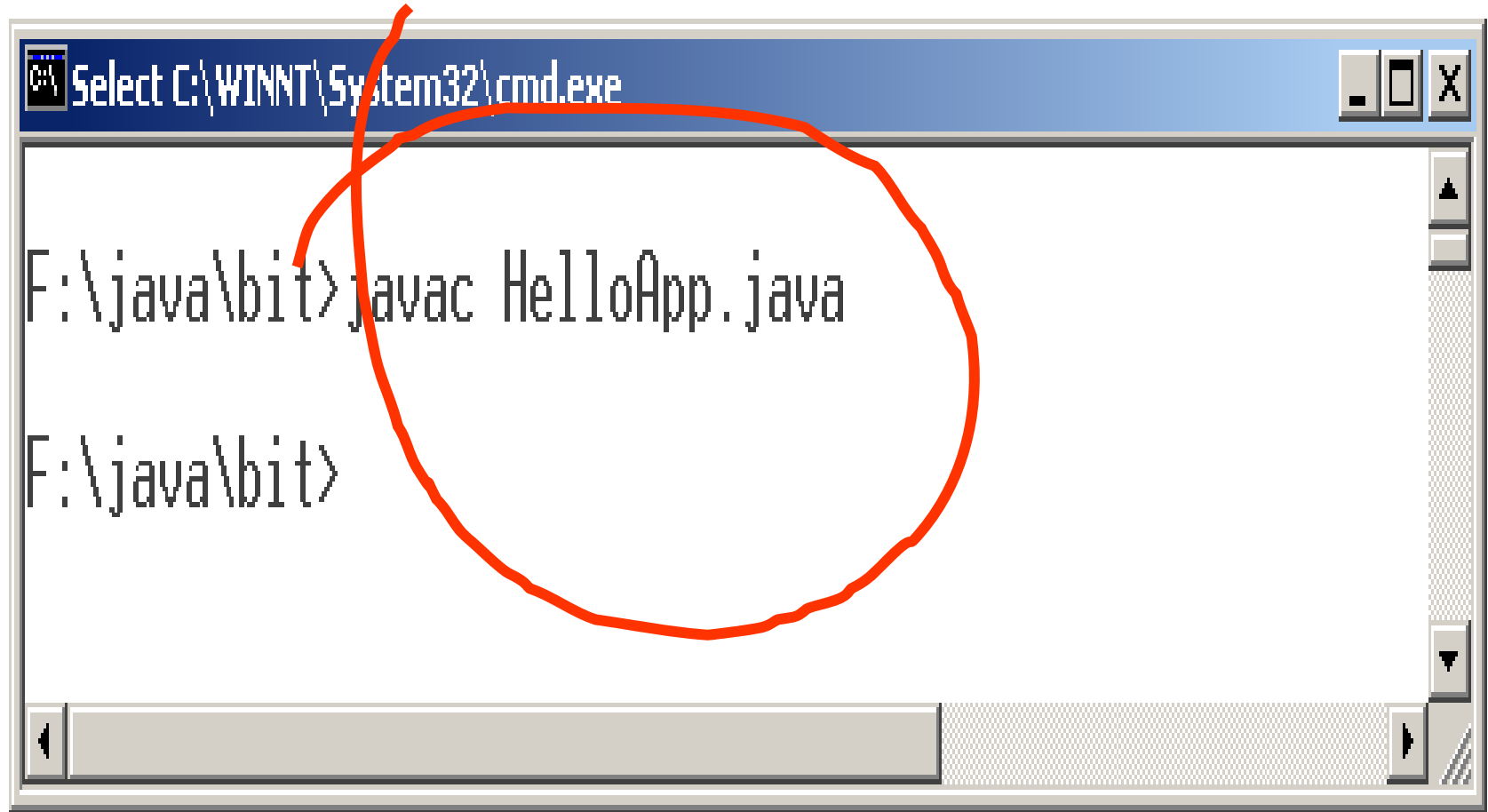
Compile the java program

javac HelloApp.java



Java compiler

How to Compile and Run Cont...



A screenshot of a Windows command prompt window. The title bar reads "Select C:\WINNT\System32\cmd.exe". The command prompt shows the directory "F:\java\bit" and the command "javac HelloApp.java" being executed. A red circle is drawn around the command and its output.

```
F:\java\bit>javac HelloApp.java  
F:\java\bit>
```

How to Compile and Run Cont...

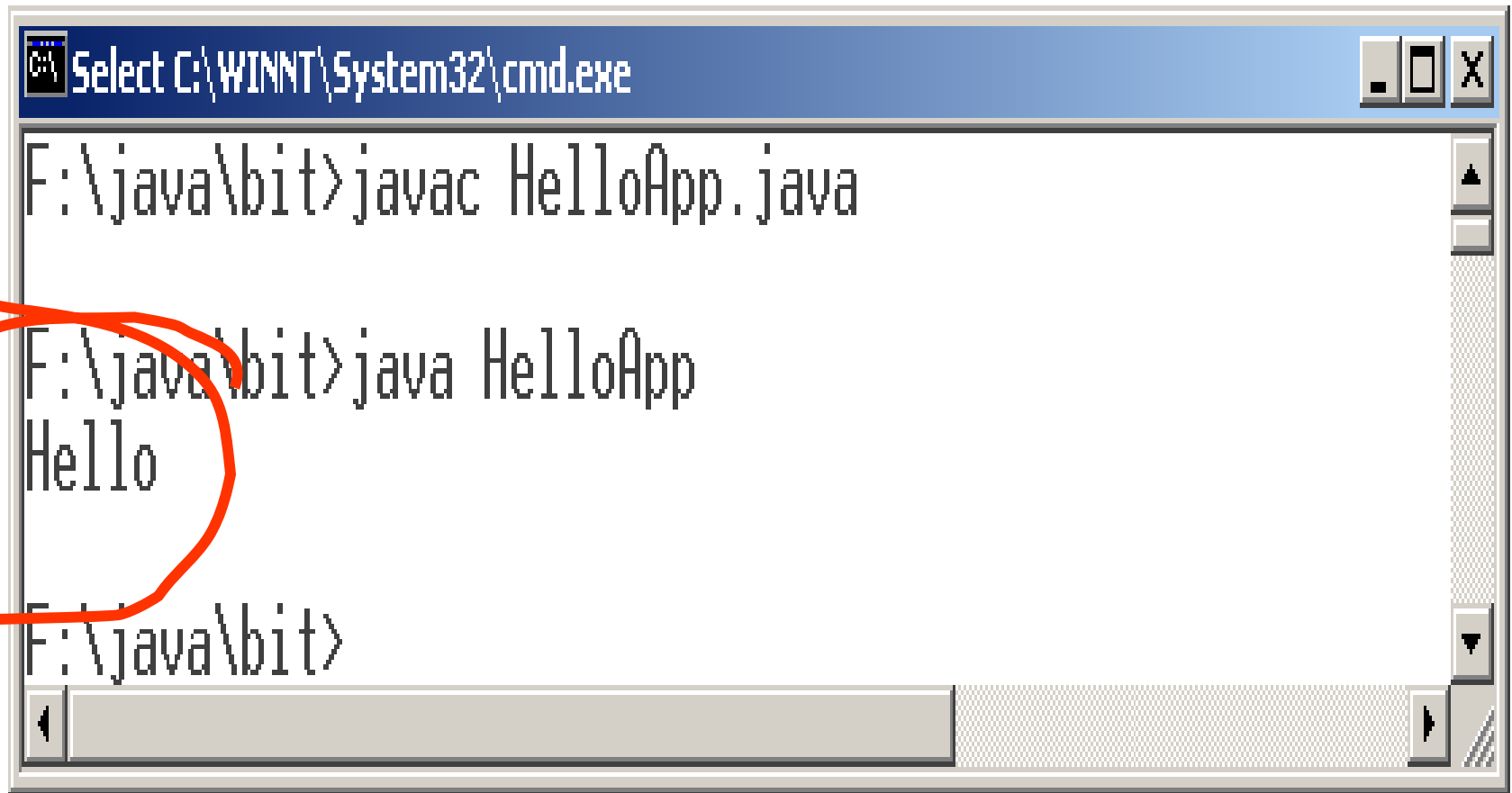
Run the program

```
java HelloApp
```



Java interpret or

How to Compile and Run Cont...



The screenshot shows a Windows command prompt window with the title bar "Select C:\WINNT\System32\cmd.exe". The command prompt is at the directory F:\java\bit. The first command entered is `javac HelloApp.java`. The second command is `java HelloApp`, which is circled in red. The output of the second command is `Hello`. The prompt then returns to `F:\java\bit>`.

```
Select C:\WINNT\System32\cmd.exe

F:\java\bit>javac HelloApp.java

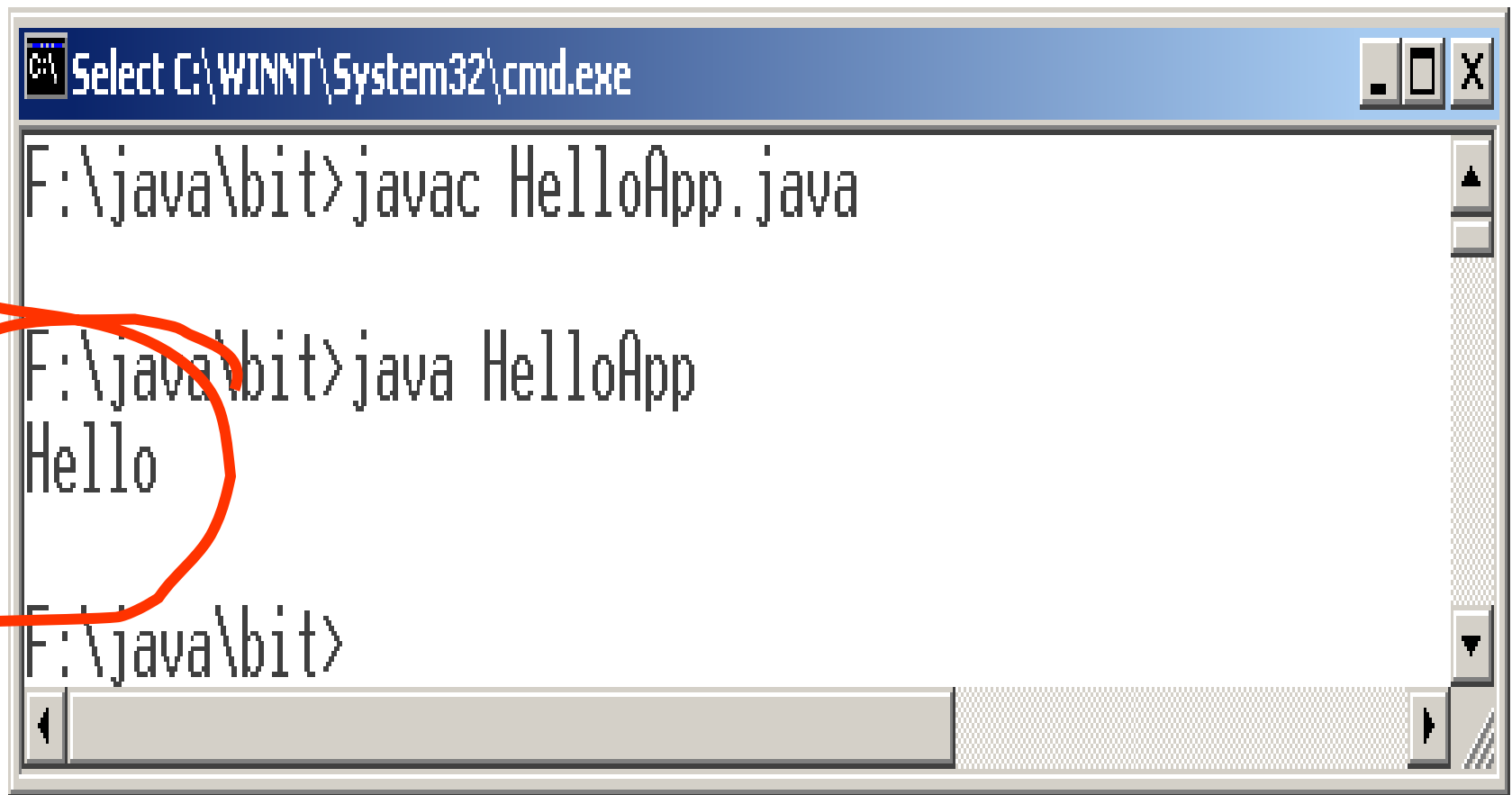
F:\java\bit>java HelloApp
Hello

F:\java\bit>
```

How to Compile and Run Cont...

It says hello...!!!

How to Compile and Run Cont...



The screenshot shows a Windows command prompt window with the title bar "Select C:\WINNT\System32\cmd.exe". The command prompt is at the directory "F:\java\bit". The first command entered is "javac HelloApp.java", which compiles the source file. The second command is "java HelloApp", which runs the program. The output of the program is "Hello". A red circle is drawn around the "java HelloApp" command and its output "Hello".

```
Select C:\WINNT\System32\cmd.exe

F:\java\bit>javac HelloApp.java

F:\java\bit>java HelloApp
Hello

F:\java\bit>
```

Linux Operating System

How do you get the software

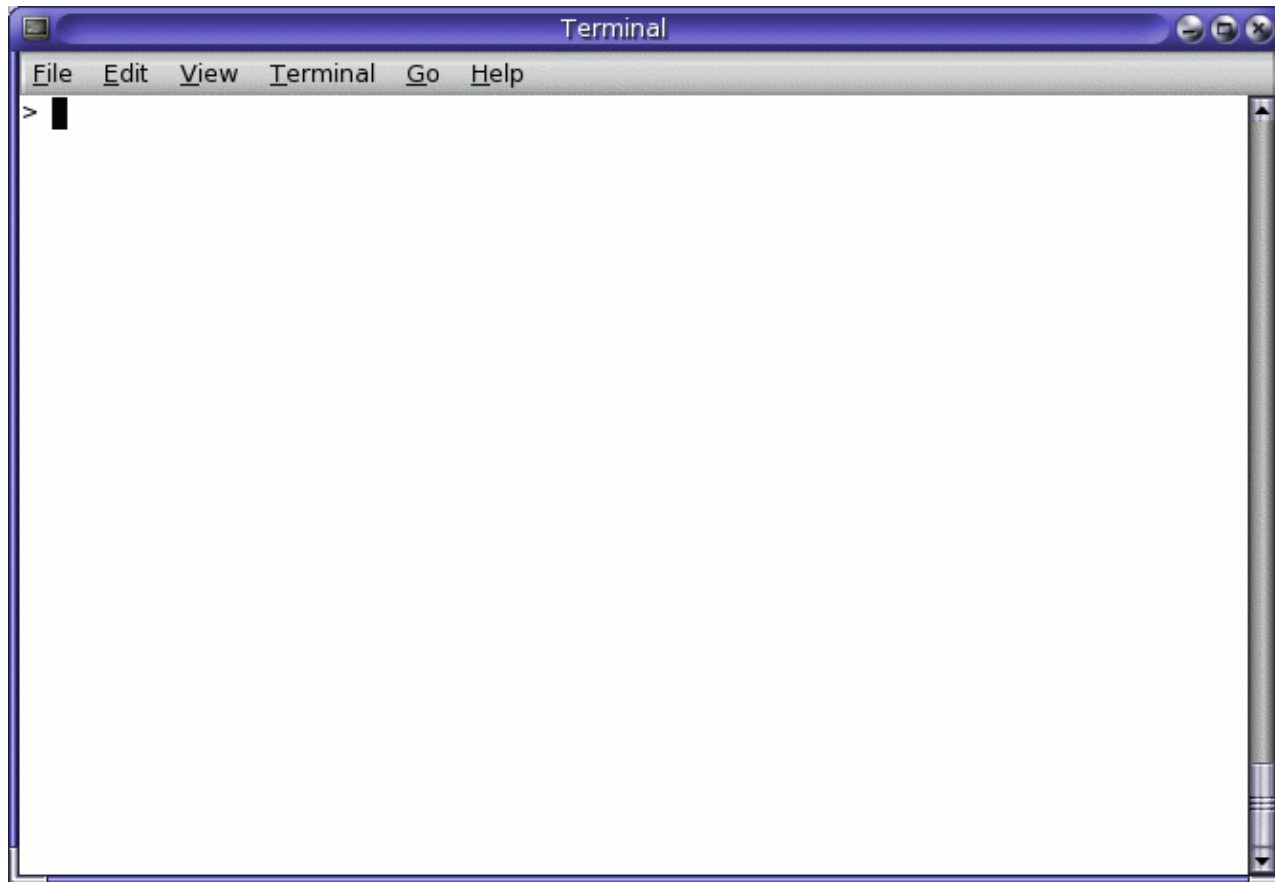
- To write your first program, you'll need:
 - **The Java SE Development Kit 6 (JDK 6)**
 - You can [download the Solaris OS or Linux version](#) and make sure you download the **JDK**, *not* the JRE
 - **A text editor**
 - In this example, we'll use Pico, an editor available for many UNIX-based platforms. You can easily adapt these instructions if you use a different text editor, such as `vi` or `emacs`.

Creating Your First Application

- Your first application, HelloWorldApp, will simply display the greeting "Hello world!". To create this program, you will:
 - **Create a source file**
 - **Compile the source file into a .class file**
 - **Run the program**

Create a source file

- First, open a shell, or "terminal," window.



Create a source file Cont...

- When you first bring up the prompt, your *current directory* will usually be your *home directory*. You can change your current directory to your home directory at any time by typing `cd` at the prompt and then pressing **Return**.
- The source files you create should be kept in a separate directory. You can create a directory by using the command `mkdir`.

Create a source file Cont...

- For example, to create the directory java in your home directory, use the following commands:

```
cdmkdir java
```

- To change your current directory to this new directory, you then enter:

```
cd java
```

- Now you can start creating your source file.
- Start the Pico editor by typing pico at the prompt and pressing **Return**. If the system responds with the message pico: command not found, then Pico is most likely unavailable. Consult your system administrator for more information, or use another editor.

Create a source file Cont...

➤ When you start Pico, it'll display a new, blank *buffer*. This is the area in which you will type your code.

➤ Type the following code into the new buffer:

```
/** * The HelloWorldApp class implements an application  
    that * simply prints "Hello World!" to standard output. */  
class HelloWorldApp {  
    public static void main(String[] args) {  
        System.out.println("Hello World!");  
        // Display the string.    }}
```

Create a source file Cont...

- Save the code in a file with the name HelloWorldApp.java
- In the Pico editor, you do this by typing **Ctrl-O** and then, at the bottom where you see the prompt File Name to write:, entering the directory in which you wish to create the file, followed by HelloWorldApp.java.
- For example, if you wish to save HelloWorldApp.java in the directory /home/jdoe/java, then you type /home/jdoe/java/HelloWorldApp.java and press **Return**.
- You can type **Ctrl-X** to exit Pico.

Compile the Source File into a .class File

- Bring up another shell window. To compile your source file, change your current directory to the directory where your file is located. For example, if your source directory is /home/jdoe/java, type the following command at the prompt and press **Return**:

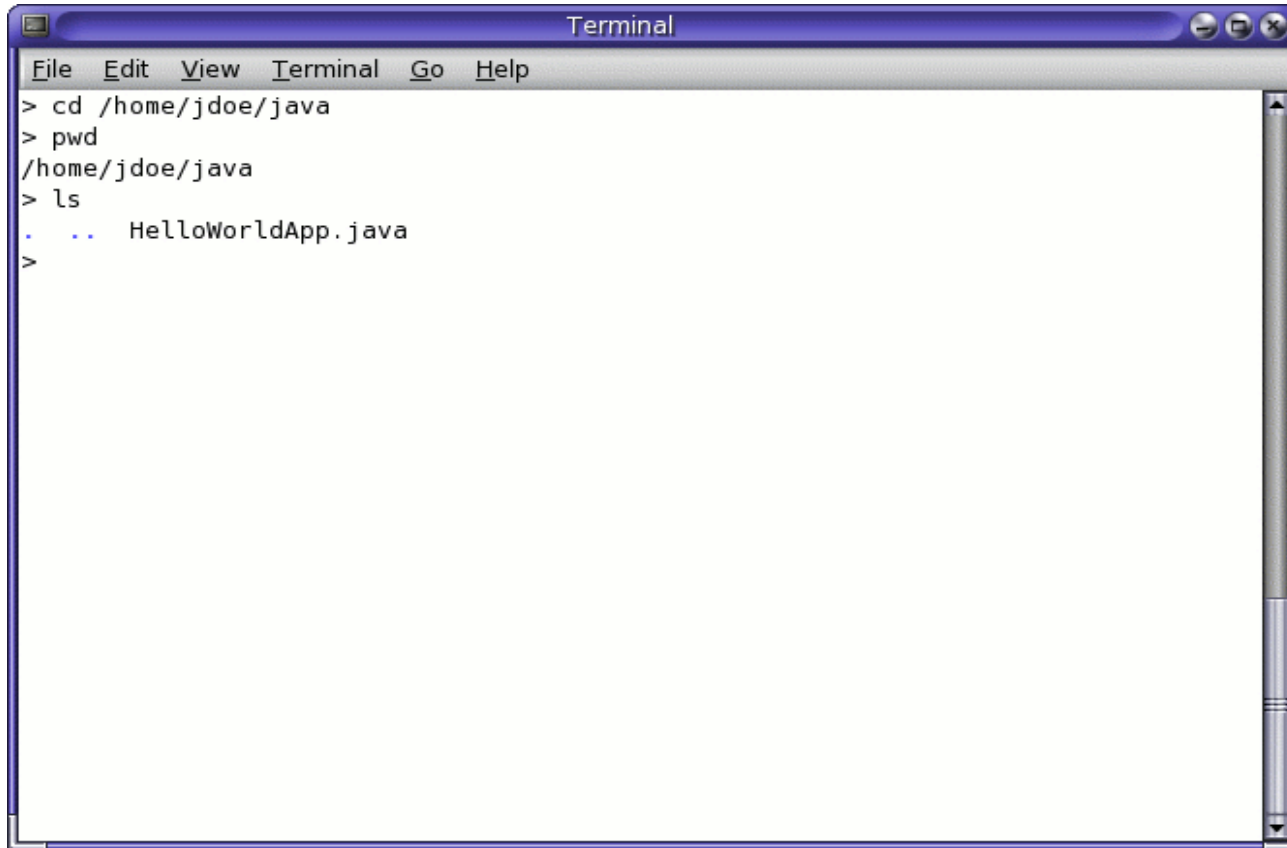
```
cd /home/jdoe/java
```

- If you enter pwd at the prompt, you should see the current directory, which in this example has been changed to /home/jdoe/java.

Compile the Source File into a .class File

Cont...

- If you enter `ls` at the prompt, you should see your file.

A screenshot of a terminal window titled "Terminal". The window has a menu bar with "File", "Edit", "View", "Terminal", "Go", and "Help". The terminal content shows a series of commands and their outputs: a prompt followed by `cd /home/jdoe/java`, another prompt followed by `pwd` which outputs `/home/jdoe/java`, a third prompt followed by `ls` which outputs `.. HelloWorldApp.java`, and a final prompt.

```
Terminal
File Edit View Terminal Go Help
> cd /home/jdoe/java
> pwd
/home/jdoe/java
> ls
.  ..  HelloWorldApp.java
>
```

Compile the Source File into a .class File

Cont...

- Now are ready to compile the source file. At the prompt, type the following command and press **Return**.

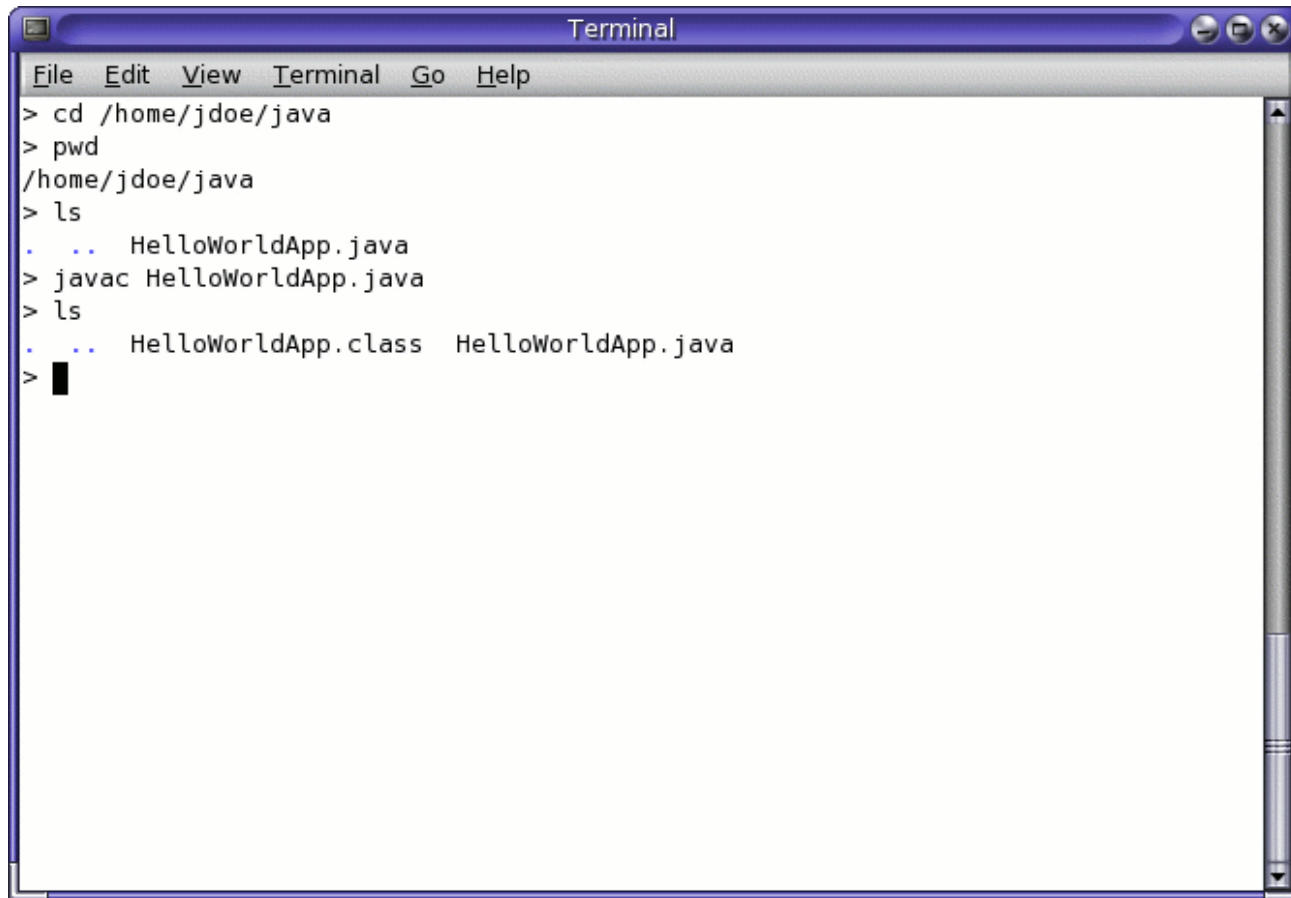
```
javac HelloWorldApp.java
```

- The compiler has generated a bytecode file, HelloWorldApp.class.

Compile the Source File into a .class File

Cont...

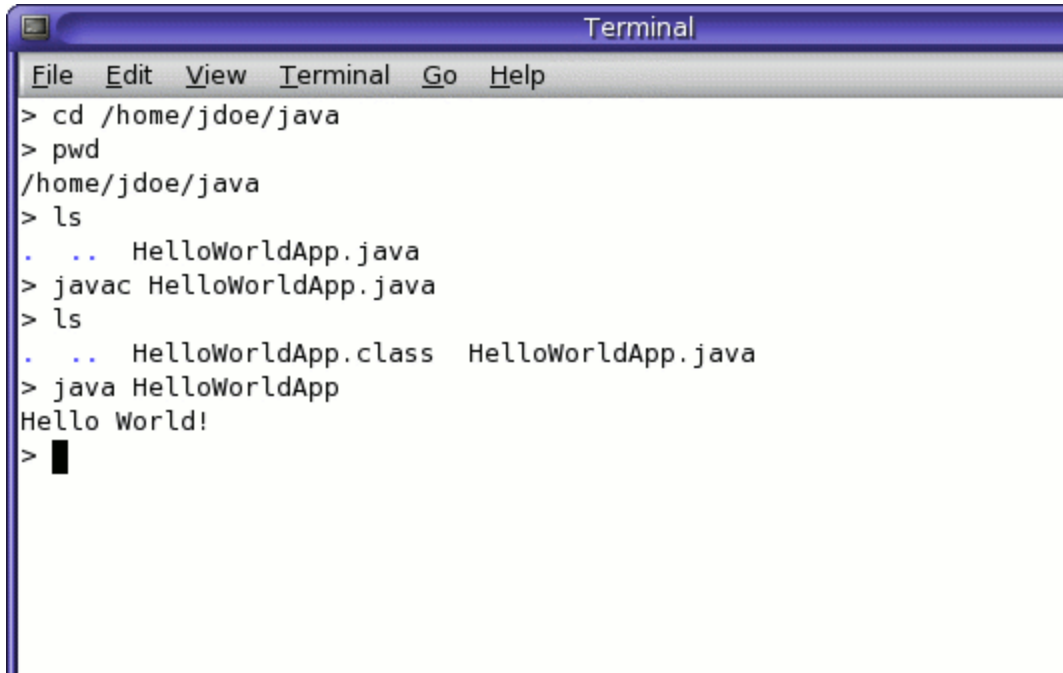
- At the prompt, type ls to see the new file that was generated: the following figure.



```
Terminal
File Edit View Terminal Go Help
> cd /home/jdoe/java
> pwd
/home/jdoe/java
> ls
.  ..  HelloWorldApp.java
> javac HelloWorldApp.java
> ls
.  ..  HelloWorldApp.class  HelloWorldApp.java
> 
```

Run the Program

- In the same directory, enter at the prompt:
java HelloWorldApp
- The following figure shows what you should now see.

A screenshot of a macOS-style Terminal window titled "Terminal". The window has a menu bar with "File", "Edit", "View", "Terminal", "Go", and "Help". The terminal shows a series of commands and their outputs: first, "cd /home/jdoe/java" changes the directory; then "pwd" returns "/home/jdoe/java"; "ls" lists "HelloWorldApp.java"; "javac HelloWorldApp.java" compiles the file; another "ls" shows both "HelloWorldApp.class" and "HelloWorldApp.java"; finally, "java HelloWorldApp" runs the program, outputting "Hello World!". The prompt ">" is followed by a cursor.

```
Terminal
File Edit View Terminal Go Help
> cd /home/jdoe/java
> pwd
/home/jdoe/java
> ls
.  ..  HelloWorldApp.java
> javac HelloWorldApp.java
> ls
.  ..  HelloWorldApp.class  HelloWorldApp.java
> java HelloWorldApp
Hello World!
> █
```

The End

