



COMP 110/401

APPENDIX: DEBUGGING USING ECLIPSE

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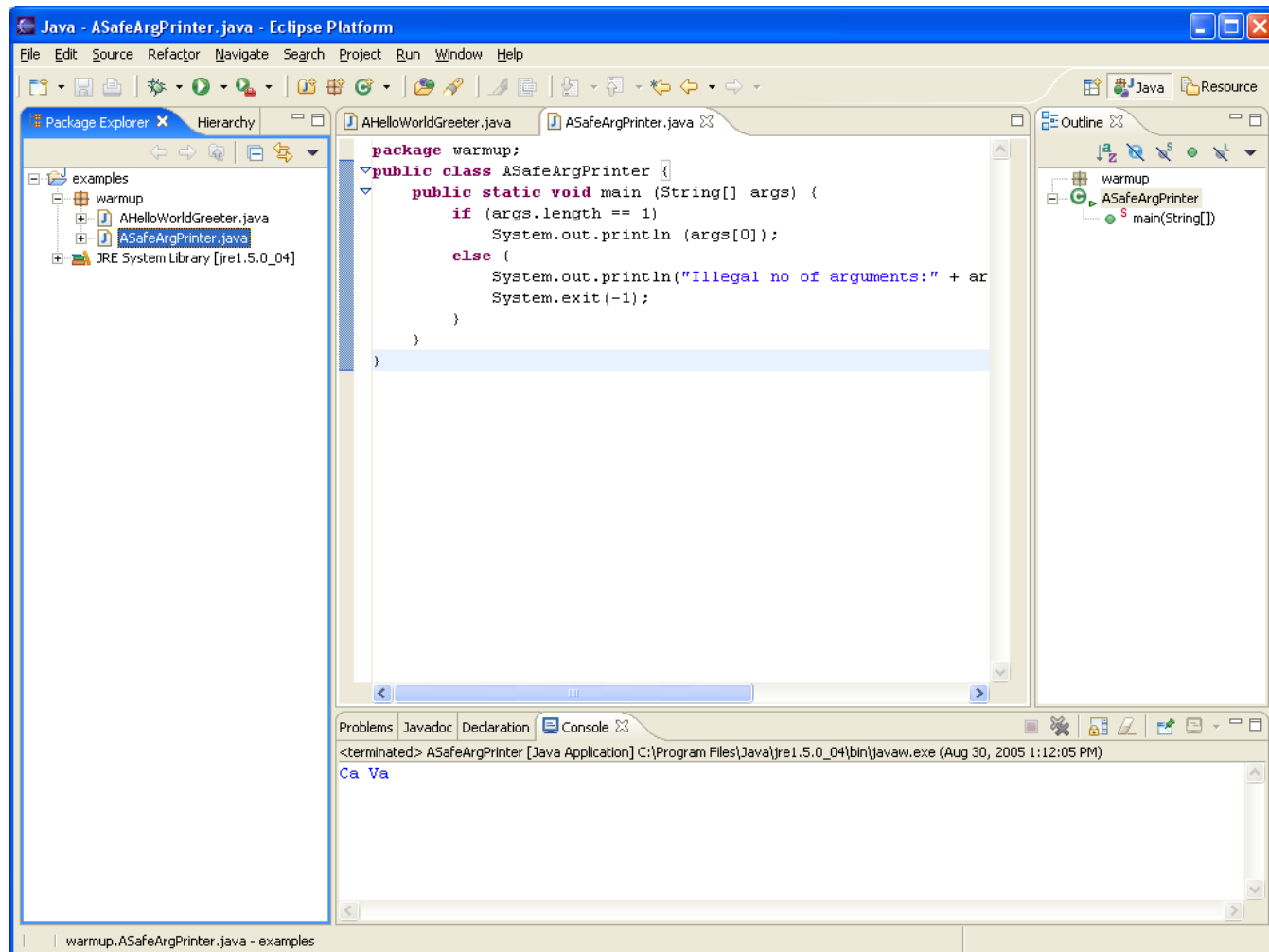
PREREQUISITE

- Eclipse

-

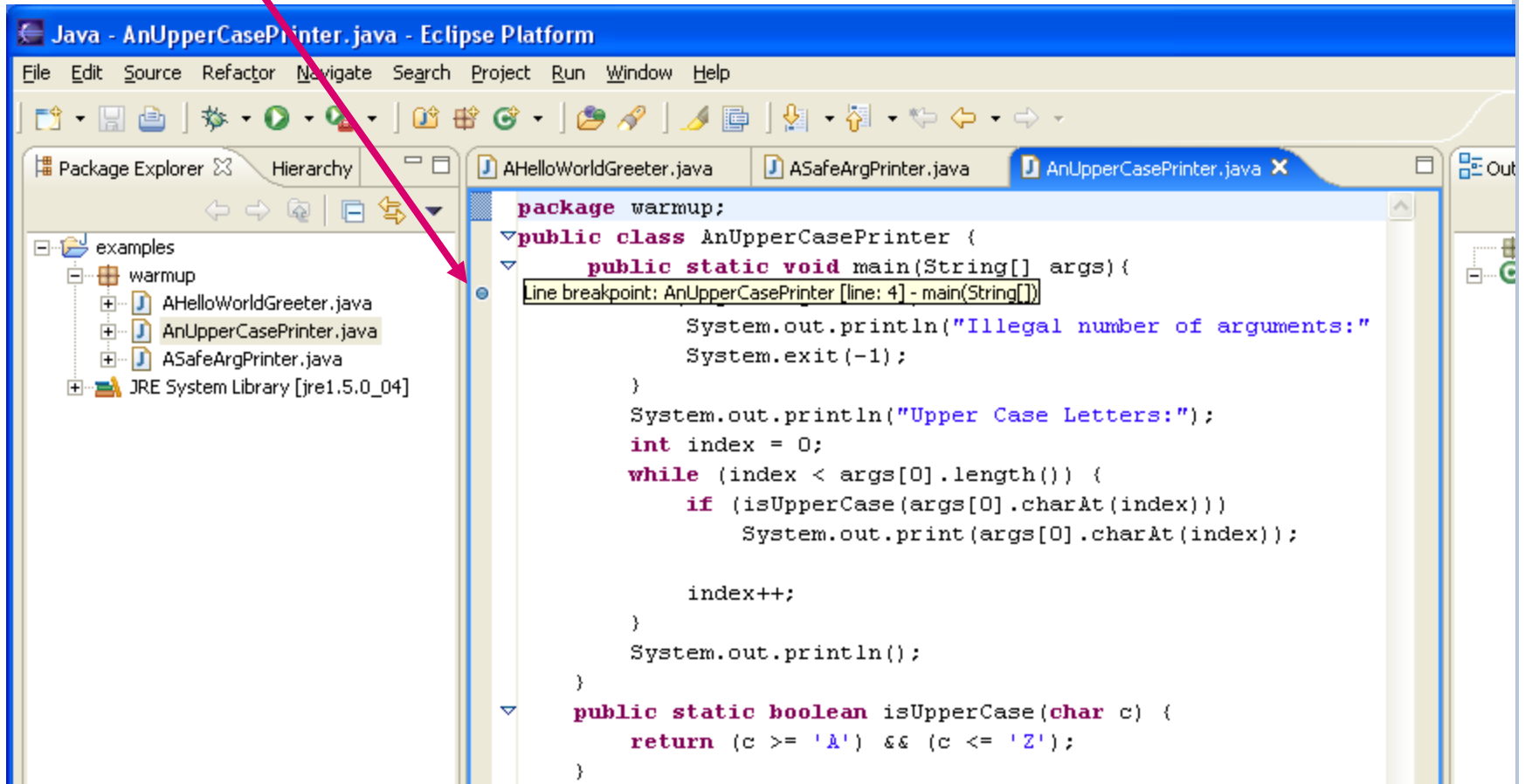


EXECUTING DEBUG

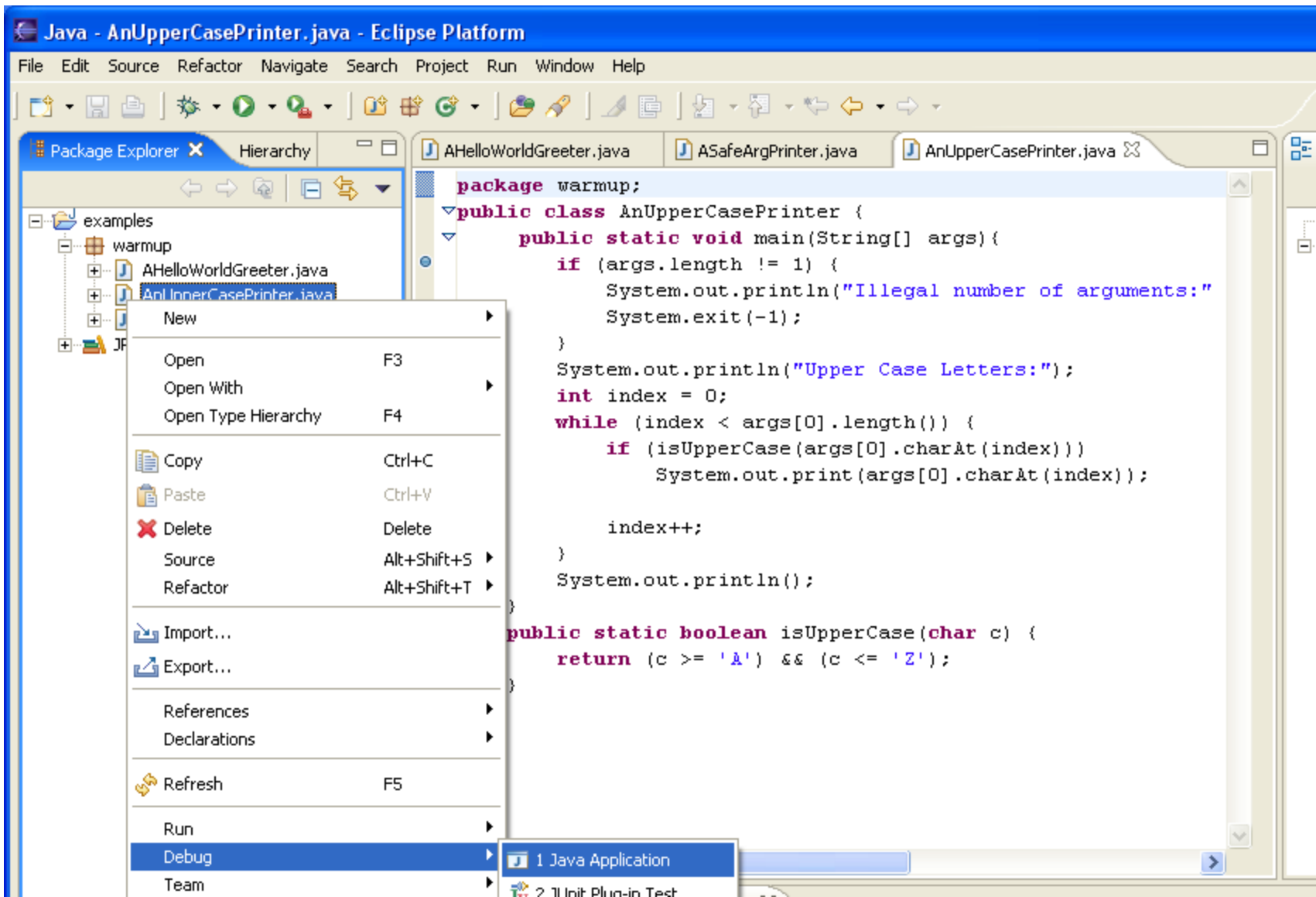


SETTING A BREAK POINT

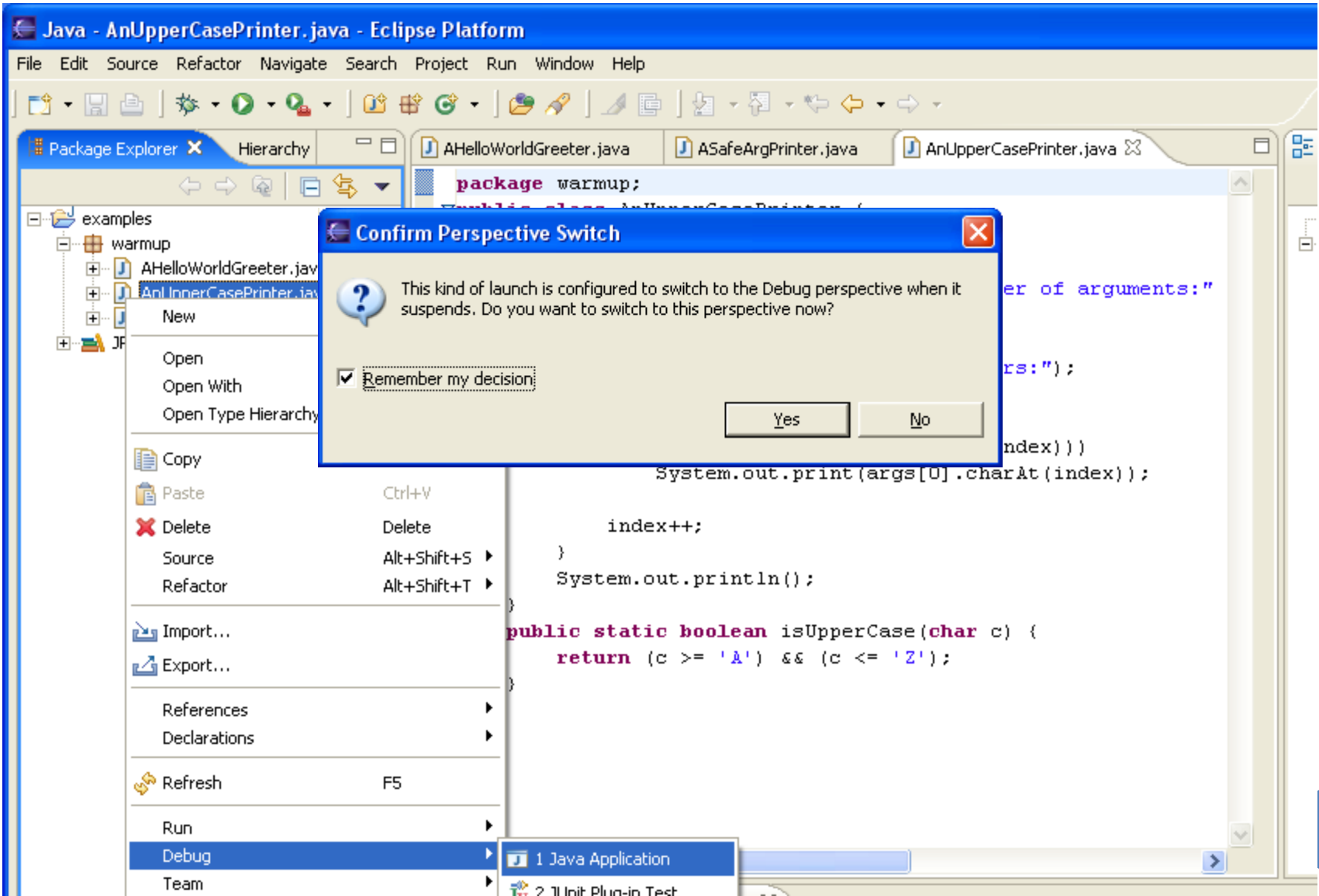
Double click where you want program to stop



EXECUTING DEBUG



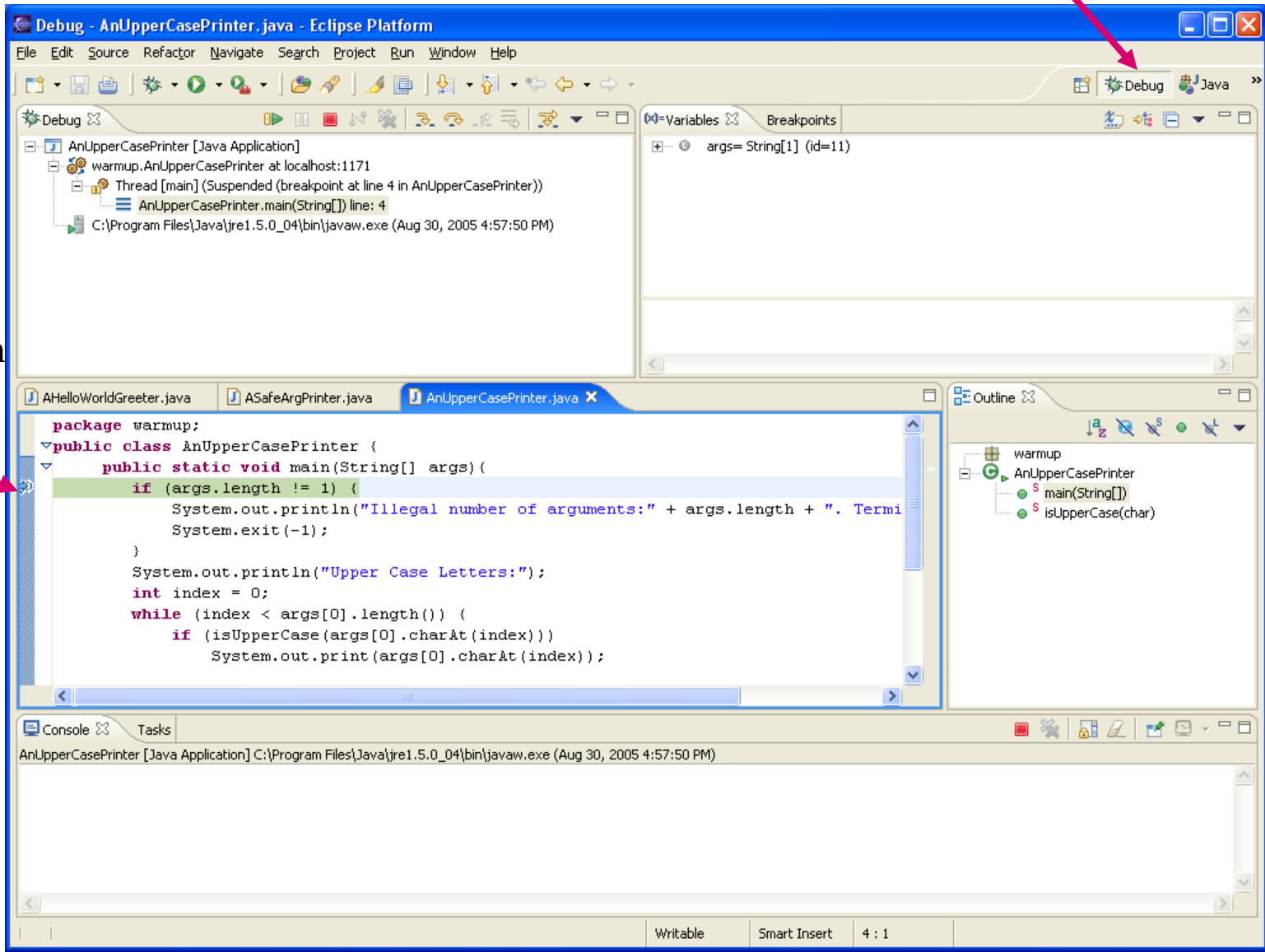
STARTING THE DEBUGGER



STOPPING AT BREAKPOINT

Debug Perspective

Next
statement
to be
executed



EXAMINING MAIN PARAMETERS

Debug - AnUpperCasePrinter.java - Eclipse Platform

File Edit Source Refactor Navigate Search Project Run Window Help

Debug

AnUpperCasePrinter [Java Application]

- warmup.AnUpperCasePrinter at localhost:1171
 - Thread [main] (Suspended (breakpoint at line 4 in AnUpperCasePrinter))
 - AnUpperCasePrinter.main(String[]) line: 4
- C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 4:57:50 PM)

Variables Breakpoints

args= String[1] (id=11)
[0]= "John F. Kennedy"

Main Parameters

[John F. Kennedy]

Outline

- warmup
 - AnUpperCasePrinter
 - main(String[])
 - isUpperCase(char)

```
package warmup;
public class AnUpperCasePrinter {
    public static void main(String[] args) {
        if (args.length != 1) {
            System.out.println("Illegal number of arguments:" + args.length + ". Terminate.");
            System.exit(-1);
        }
        System.out.println("Upper Case Letters:");
        int index = 0;
        while (index < args[0].length()) {
            if (isUpperCase(args[0].charAt(index)))
                System.out.print(args[0].charAt(index));
        }
    }
}
```

Console Tasks

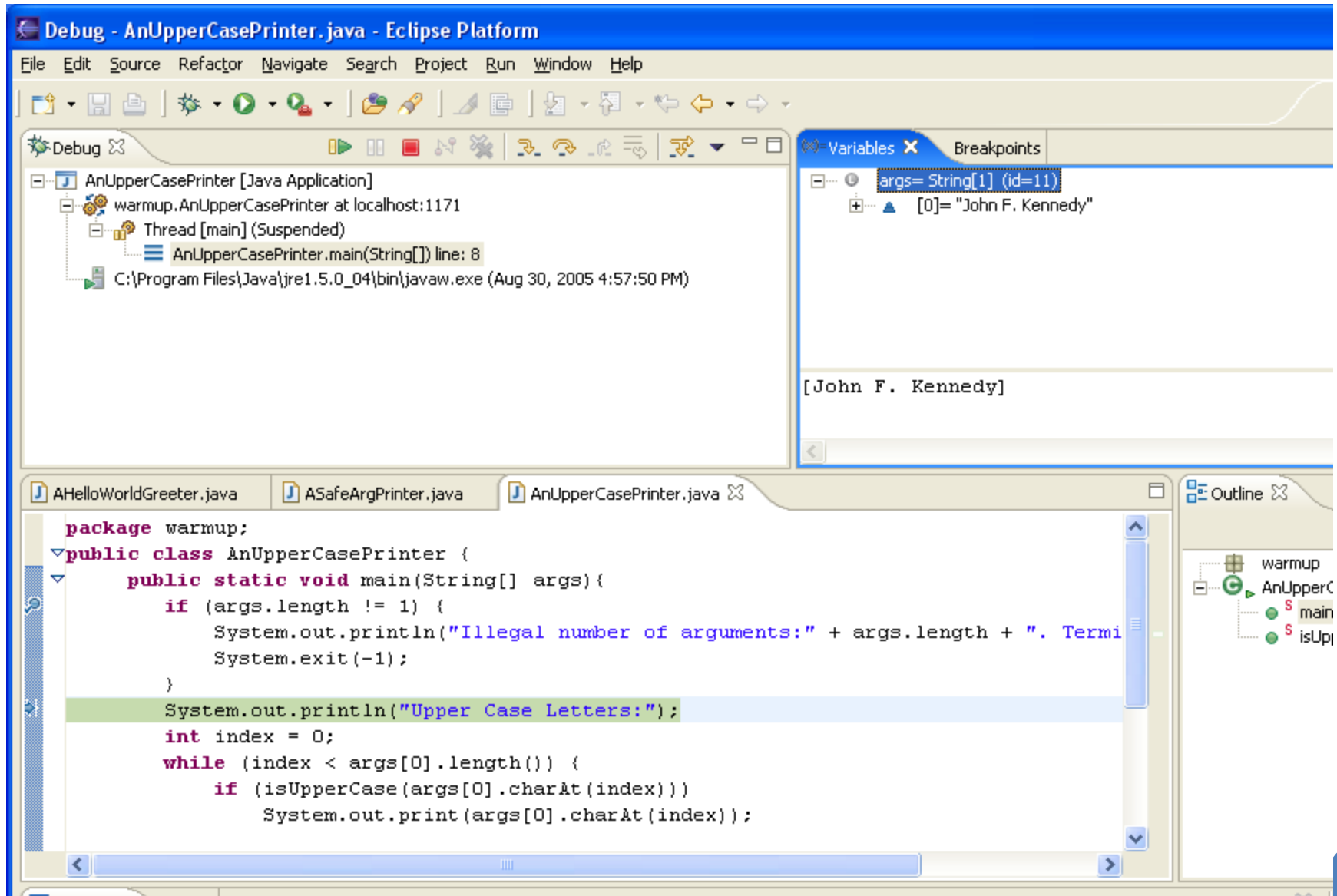
AnUpperCasePrinter [Java Application] C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 4:57:50 PM)

STEPPING TO NEXT STATEMENT

The screenshot shows the Eclipse IDE interface during a Java debug session. The title bar reads "Debug - AnUpperCasePrinter.java - Eclipse Platform". The menu bar includes File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, and Help. The Run menu is open, displaying various debugging actions with their corresponding keyboard shortcuts. The "Step Over" option is highlighted in blue. In the background, the "Breakpoints" view shows a breakpoint at line 4 of AnUpperCasePrinter.java, and the "Outline" view shows the project structure with "warmup" as the root and "AnUpper" as a sub-element. The main editor window displays the source code of AnUpperCasePrinter.java, with the following visible code:

```
package warmup;
public class AnUpperCasePrinter {
    public static void main(String[] args) {
        if (args.length != 1) {
            System.out.println("Invalid number of arguments. Terminating.");
            System.exit(-1);
        }
        System.out.println("Upper case printer");
        int index = 0;
        while (index < args[0].length()) {
            if (Character.isUpperCase(args[0].charAt(index))) {
                System.out.print(args[0].charAt(index) + " ");
            } else {
                System.out.print(Character.toUpperCase(args[0].charAt(index)) + " ");
            }
            index++;
        }
        System.out.println();
    }
}
```

NEXT STATEMENT



NEW OUTPUT AND LOCAL VARIABLE

Debug - AnUpperCasePrinter.java - Eclipse Platform

File Edit Source Refactor Navigate Search Project Run Window Help

Debug

AnUpperCasePrinter [Java Application]

- warmup.AnUpperCasePrinter at localhost:1171
 - Thread [main] (Suspended)
 - AnUpperCasePrinter.main(String[]) line: 11
 - C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 4:57:50 PM)

Variables

- args= String[1] (id=11)
 - [0]= "John F. Kennedy"
 - index= 0

Index gets initialized

[John F. Kennedy]

Outline

- warmup
 - AnUpperCasePrinter
 - main(String)
 - isUpperCas

```
package warmup;
public class AnUpperCasePrinter {
    public static void main(String[] args) {
        if (args.length != 1) {
            System.out.println("Illegal number of arguments:" + args.length + ". Terminating.");
            System.exit(-1);
        }
        System.out.println("Upper Case Letters:");
        int index = 0;
        while (index < args[0].length()) {
            if (isUpperCase(args[0].charAt(index))) {
                System.out.print(args[0].charAt(index));
            }
        }
    }
}
```

Console

AnUpperCasePrinter [Java Application] C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 4:57:50 PM)

Upper Case Letters: ← println()

STEP OVER

Debug - AnUpperCasePrinter.java - Eclipse Platform

File Edit Source Refactor Navigate Search Project Run Window Help

Debug

AnUpperCasePrinter [Java Application]

- warmup.AnUpperCasePrinter at localhost:1171
 - Thread [main] (Suspended)
 - AnUpperCasePrinter.main(String[]) line: 12
- C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 4:57:50 PM)

Variables Breakpoints

args= String[1] (id=11)

- [0]= "John F. Kennedy"
- index= 0

[John F. Kennedy]

Outline

- warmup
 - AnUpperCasePrinter
 - main(String)
 - isUpperCas

```
System.out.println("Upper Case Letters:");
int index = 0;
while (index < args[0].length()) {
    if (isUpperCase(args[0].charAt(index)))
        System.out.print(args[0].charAt(index));

    index++;
}
System.out.println();

public static boolean isUpperCase(char c) {
    return (c >= 'A') && (c <= 'Z');
}
```

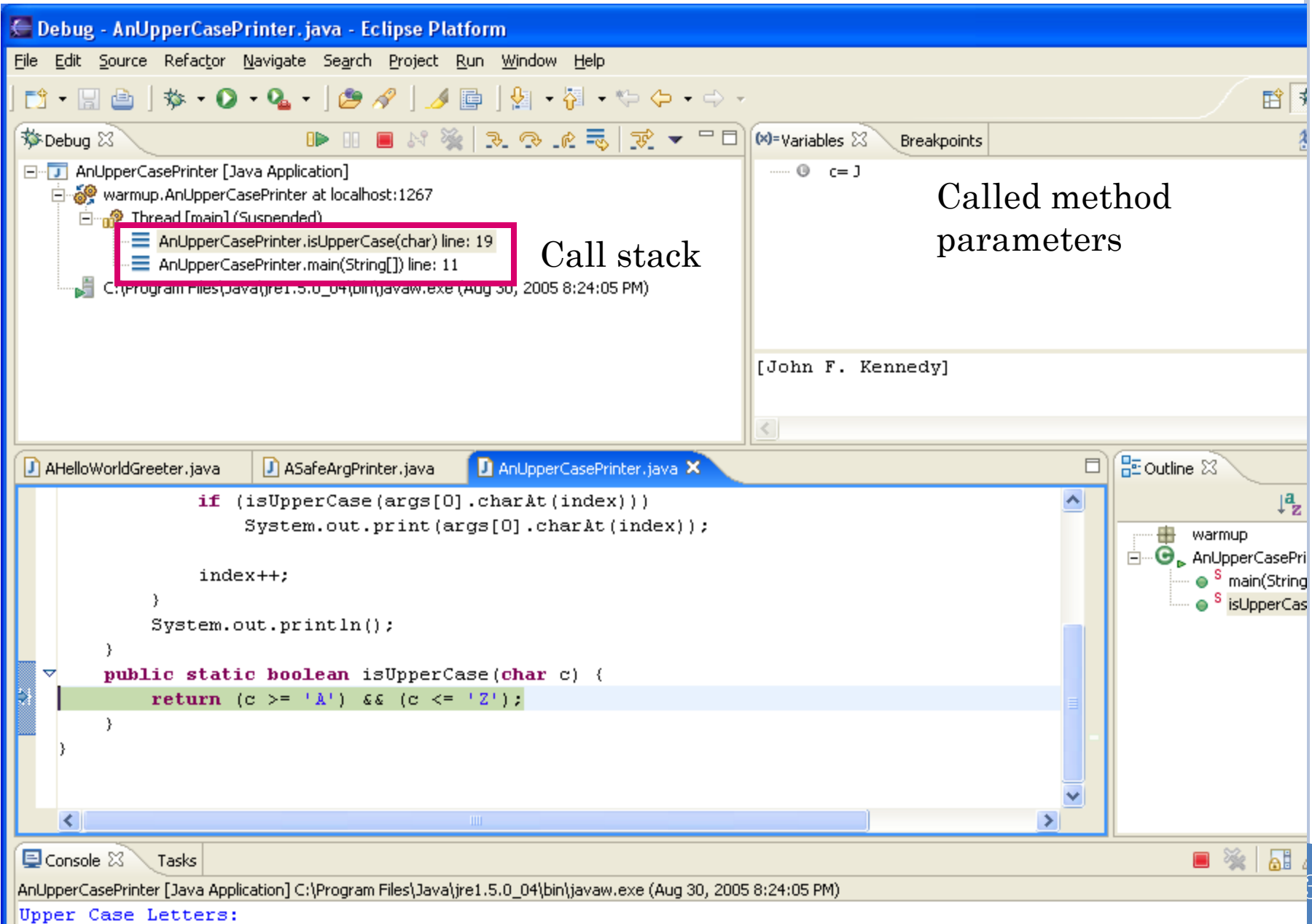
Console Tasks

AnUpperCasePrinter [Java Application] C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 4:57:50 PM)

Upper Case Letters:

2

STEP INTO



Debug - AnUpperCasePrinter.java - Eclipse Platform

File Edit Source Refactor Navigate Search Project Run Window Help

Debug

AnUpperCasePrinter [Java Application]

- warmup.AnUpperCasePrinter at localhost:1267
 - Thread [main] (Suspended)
 - AnUpperCasePrinter.isUpperCase(char) line: 19
 - AnUpperCasePrinter.main(String[]) line: 11
- C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 8:24:05 PM)

Call stack

Called method parameters

[John F. Kennedy]

Variables

c = J

Outline

- warmup
 - AnUpperCasePrinter
 - main(String)
 - isUpperCas

```
if (isUpperCase(args[0].charAt(index)))  
    System.out.print(args[0].charAt(index));  
  
    index++;  
}  
System.out.println();  
  
public static boolean isUpperCase(char c) {  
    return (c >= 'A') && (c <= 'Z');  
}
```

Console

AnUpperCasePrinter [Java Application] C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 8:24:05 PM)

Upper Case Letters:

STEP RETURN

Debug - AnUpperCasePrinter.java - Eclipse Platform

File Edit Source Refactor Navigate Search Project Run Window Help

Debug

AnUpperCasePrinter [Java Application]

- warmup.AnUpperCasePrinter at localhost:1267
 - Thread [main] (Suspended)
 - AnUpperCasePrinter.main(String[]) line: 11
- C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 8:24:05 PM)

Variables

- args= String[1] (id=11)
 - [0]= "John F. Kennedy"
- index= 0

[John F. Kennedy]

Outline

- warmup
 - AnUpperCasePrinter
 - main(String[])
 - isUpperCase(c)

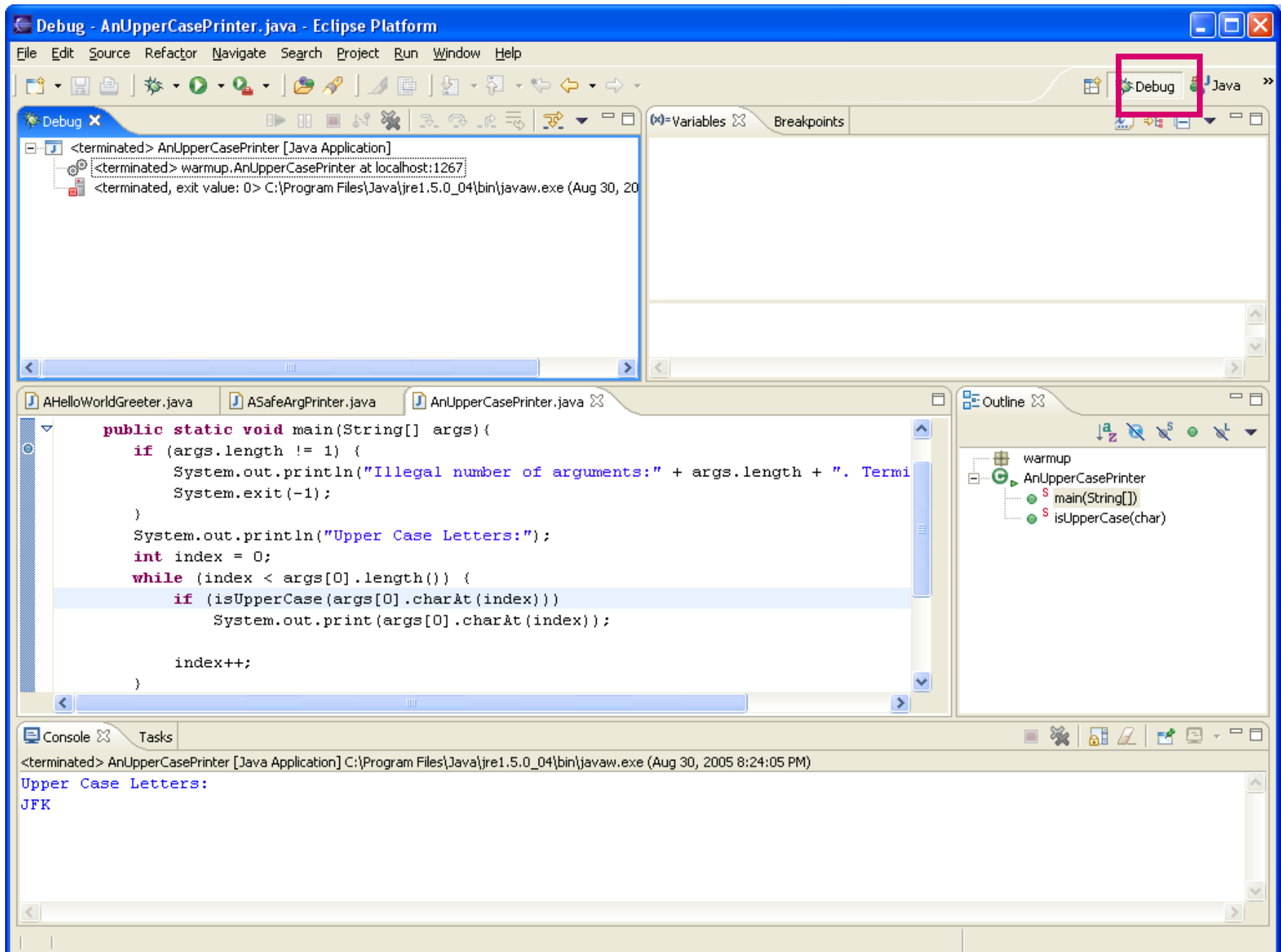
```
public static void main(String[] args) {  
    if (args.length != 1) {  
        System.out.println("Illegal number of arguments:" + args.length + ". Terminate.");  
        System.exit(-1);  
    }  
    System.out.println("Upper Case Letters:");  
    int index = 0;  
    while (index < args[0].length()) {  
        if (isUpperCase(args[0].charAt(index)))  
            System.out.print(args[0].charAt(index));  
        index++;  
    }  
}
```

Console

AnUpperCasePrinter [Java Application] C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 8:24:05 PM)

Upper Case Letters:

RESUME



RETURNING TO JAVA PERSPECTIVE

Java - AnUpperCasePrinter.java - Eclipse Platform

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer Hierarchy

examples

- warmup
 - AHelloWorldGreeter.java
 - AnUpperCasePrinter.java
 - ASafeArgPrinter.java
- JRE System Library [jre1.5.0_04]

```
package warmup;
public class AnUpperCasePrinter {
    public static void main(String[] args){
        if (args.length != 1) {
            System.out.println("Illegal number of arguments:");
            System.exit(-1);
        }
        System.out.println("Upper Case Letters:");
        int index = 0;
        while (index < args[0].length()) {
            if (isUpperCase(args[0].charAt(index)))
                System.out.print(args[0].charAt(index));

            index++;
        }
        System.out.println();
    }
    public static boolean isUpperCase(char c) {
        return (c >= 'A') && (c <= 'Z');
    }
}
```

Outline

- warmup
 - AnUpperCasePrinter
 - main(String[])
 - isUpperCase(char)

Problems Javadoc Declaration Console

<terminated> AnUpperCasePrinter [Java Application] C:\Program Files\Java\jre1.5.0_04\bin\javaw.exe (Aug 30, 2005 8:24:05 PM)

Upper Case Letters:
JFK

warmup - examples Writable Smart Insert 11 : 1