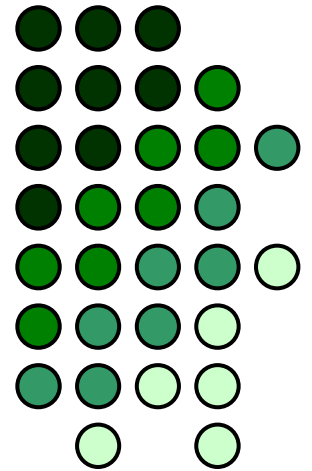# Java Programming Fundamentals
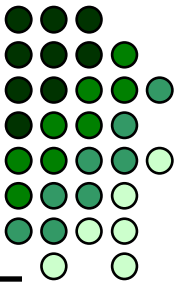
Paul Inventado

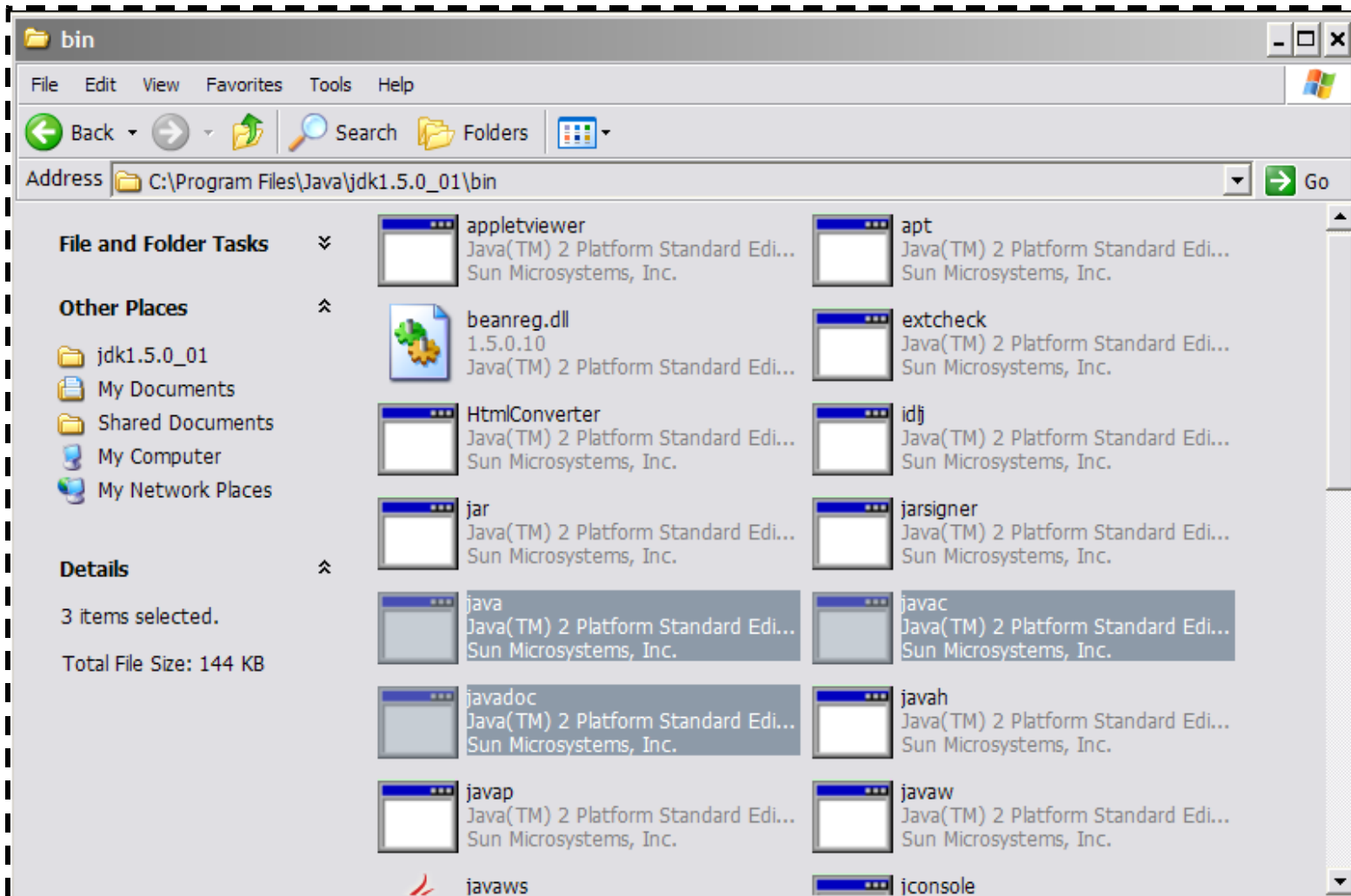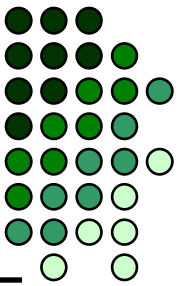De La Salle University

Java Programming Fundamentals

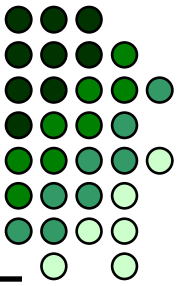What do I need for Java programming?

- The Java 2 Platform, Standard Edition (Java SDK)

  - Contains the Java compiler (`javac`),

    Java Virtual Machine or Interpreter (`java`), Java documenter (`javadoc`), etc.

Java Programming Fundamentals

Java Programming Fundamentals

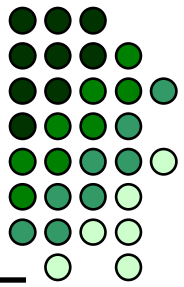What can I use to edit and compile/run Java programs?

- A text editor

    ex. NotePad, Edit

- Optional Java IDE (Integrated Development Environment)

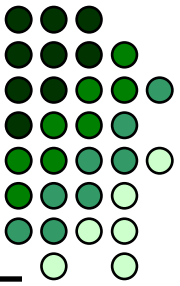   ex. BlueJ, JCreator, JBuilder, Eclipse

Java Programming Fundamentals

How are classes in Java implemented?

- To create a class file in Java, the filename and the class name should be the same (Java *is* case sensitive)

- A class file is translated into intermediary code which is later translated by the Java virtual machine (JVM)
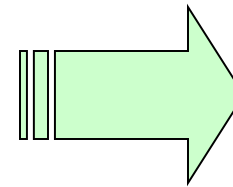
Java Programming Fundamentals

- **`javac`** (Java compiler) translates text into instructions into a bytecode
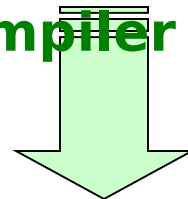
```
public class HelloWorld
{
 public static void main(String[] args)
 {
    System.out.println("Hello World");
 }
}
```

HelloWorld.java

Java Compiler

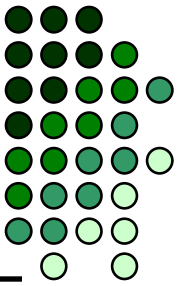**HelloWorld.class (Bytecode)**

11001111
11111000
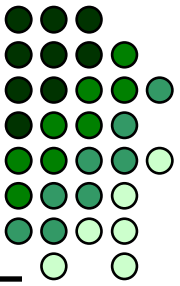
Java Programming Fundamentals

- A bytecode file contains instructions for the Java Virtual Machine (JVM)

- `java` (JVM) translates bytecode into lower level code

Java Programming Fundamentals

HelloWorld.class

```
11001111
11111000
00110101
01010110
```
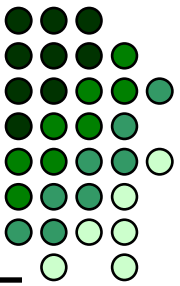
Windows JVM

MacOS JVM

Linux JVM

Computer

Java Programming Fundamentals

```
C:\WINDOWS\system32\cmd.exe                                    _ □ ×

C:\>dir *.java
 Volume in drive C is IBM_PRELOAD
 Volume Serial Number is 7827-6DB9

 Directory of C:\

01/17/2005  12:28 PM                840 Employee.java
02/04/2002  05:35 PM              1,191 EmployeeTest.java
               2 File(s)          2,031 bytes
               0 Dir(s)   1,121,345,536 bytes free

C:\>javac Employee.java

C:\>javac EmployeeTest.java

C:\>dir Employee*.*
 Volume in drive C is IBM_PRELOAD
 Volume Serial Number is 7827-6DB9

 Directory of C:\

01/17/2005  12:52 PM              1,119 Employee.class
01/17/2005  12:28 PM                840 Employee.java
01/17/2005  12:52 PM              1,108 EmployeeTest.class
02/04/2002  05:35 PM              1,191 EmployeeTest.java
               4 File(s)          4,258 bytes
               0 Dir(s)   1,121,333,248 bytes free

C:\>java EmployeeTest_
```
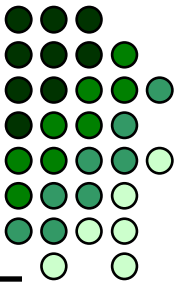
Compiling a java source code

Running a java Byte code

Java Programming Fundamentals
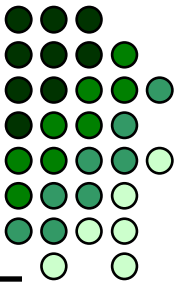
My first Java program

```java
public class Hello
{
    public static void main(String[] args)
    {
        System.out.println("Hello world");
        //Prints out a string into the console
    }
}
```

Java Programming Fundamentals

- Java entry point
  - For Java to know how to start, an entry point method is indicated.
  - This is similar to the main() function in C.
  - All statements in the main() method will be executed.
  - The main function in Java must follow the following format

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

Object Oriented Programming in Java

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