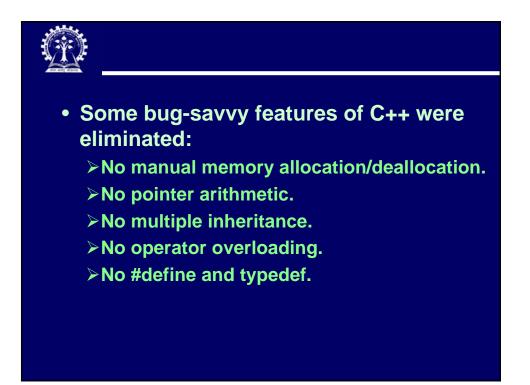
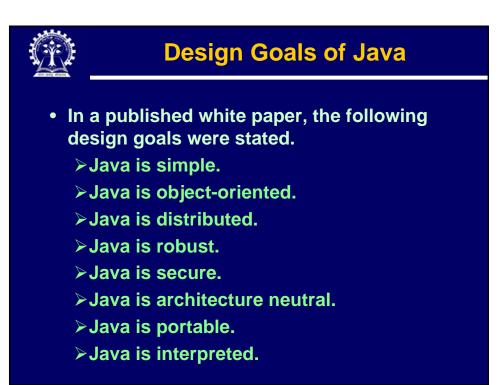
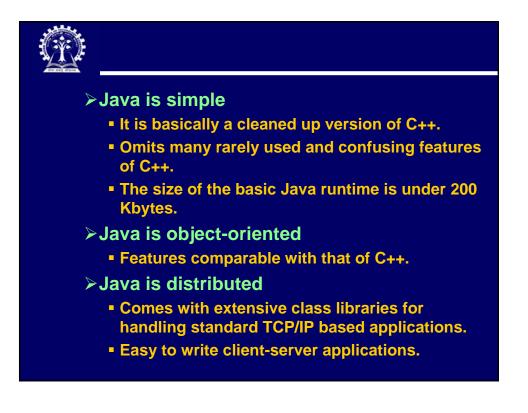


- The language Java originated at SUN Microsystems.
 - By a small group of people who were trying to develop a new object-oriented language that would be suitable for consumer applications.
- Java is a fully object-oriented language.
- It is easier to write bug-free code in java than C++.



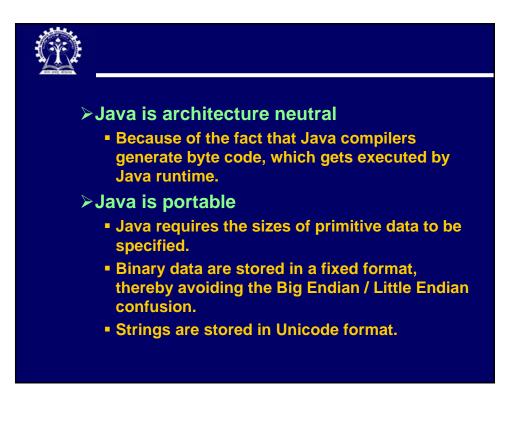


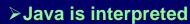




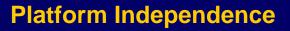
≻Java is robust

- Java compiler detects many errors that would possibly show up only at run time in some other languages.
- Use of pointers is safe; we can never access a bad pointer or make memory allocation errors.
- ≻Java is secure
 - The Java runtime disallows a number of things (to be discussed later) that may pose security threats.

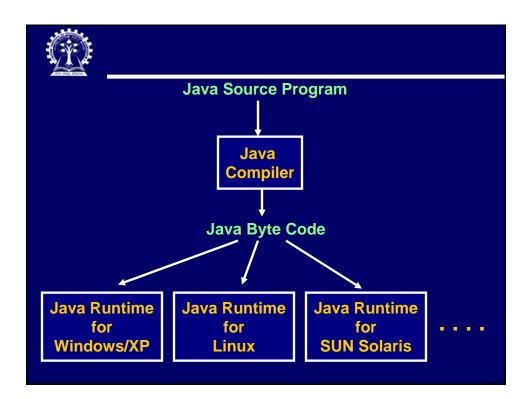


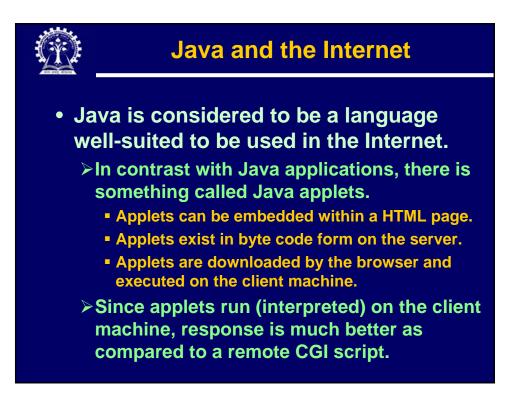


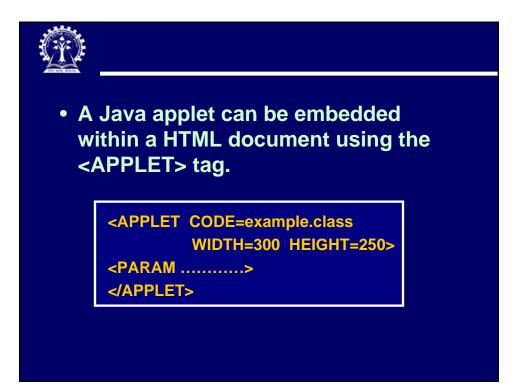
- The Java runtime (interpreter) can run on any machine / environment where it has been ported.
- The Java runtime is not platform independent; we need to have one for every possible environment.
- Existence of the Java runtime makes Java byte code platform independent.

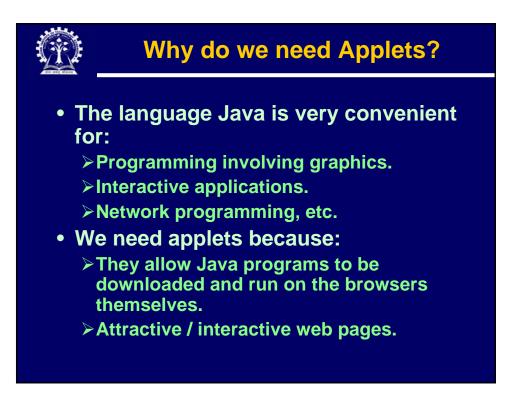


- Java solves this problem using the concept of Java Virtual Machine (JVM).
 - >JVM provides a virtual CPU and a virtual instruction set (called byte code).
 - The Java compiler transforms a Java source program into byte code.
 - ➢A Java interpreter (called Java Runtime) converts the byte code instructions to native processor instructions and executes them.
 - Specific to environment and OS.



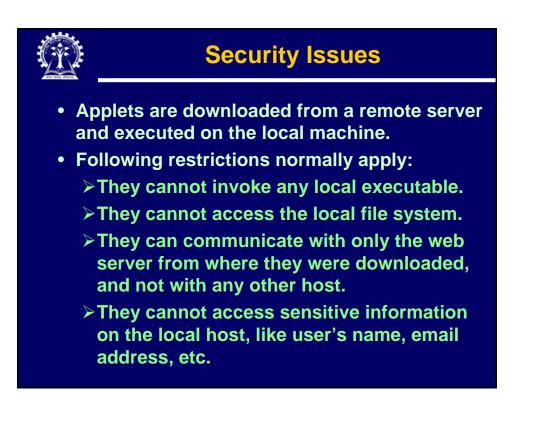


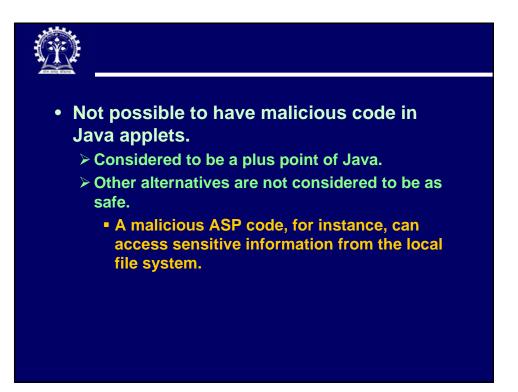


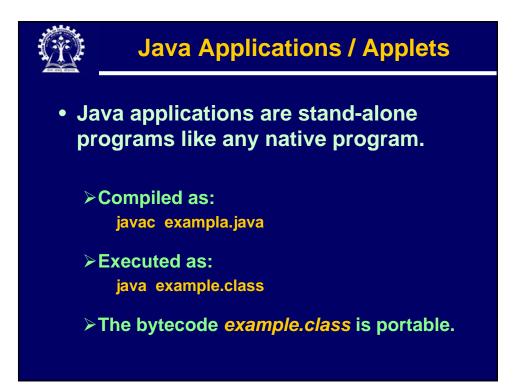


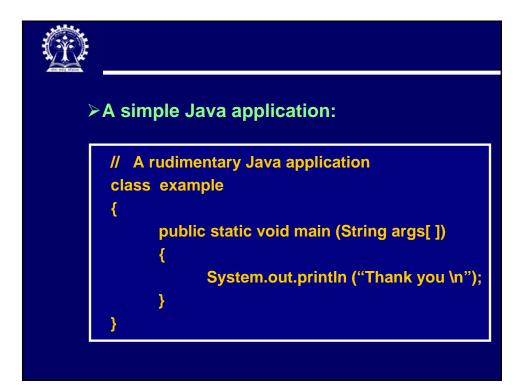


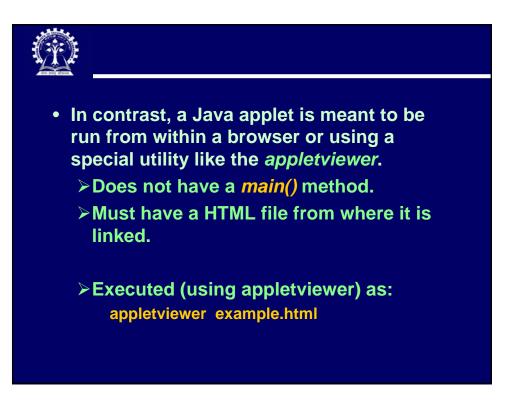
- Web based applications:
 - >A client computer can just have the JVM.
 - Users can download and use whatever programs/utilities they need.
 - A word processor.
 - An email client.
 - Game programs.
 - Only limited by imagination
- The language C# is considered as an alternative to Java for developing Internet applications.

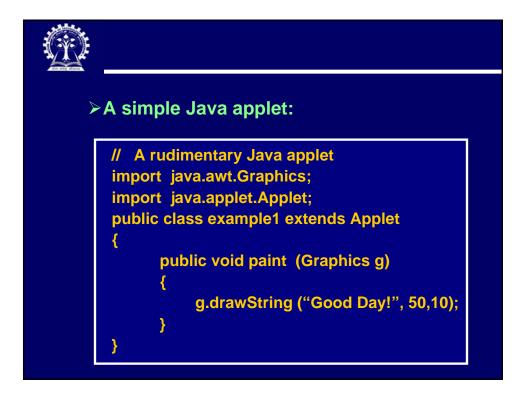


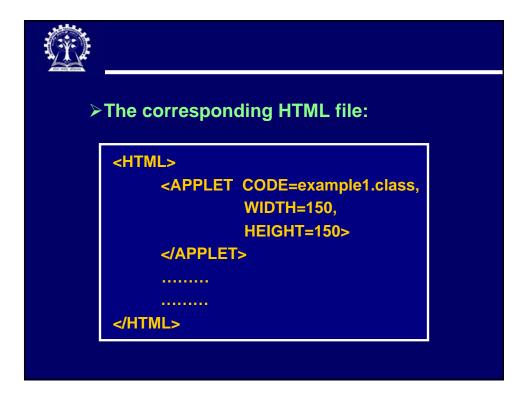


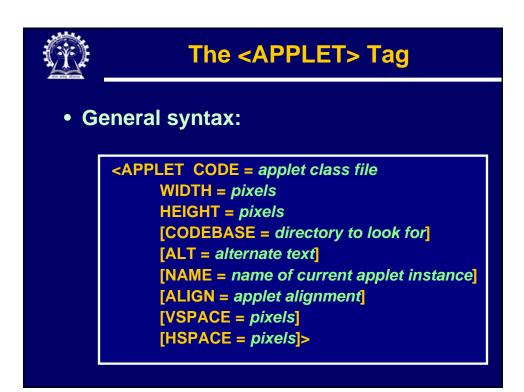


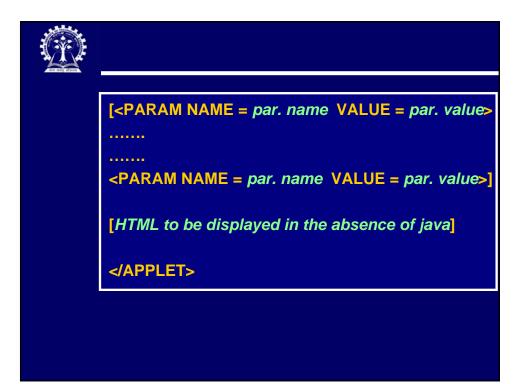






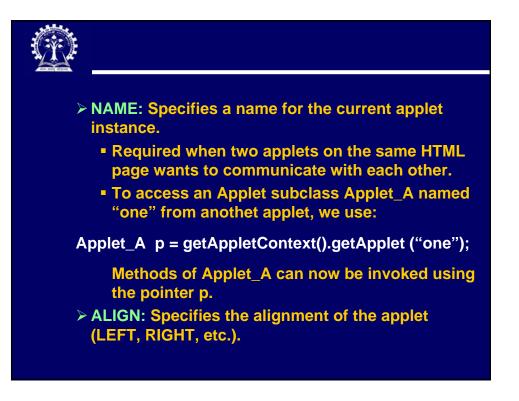


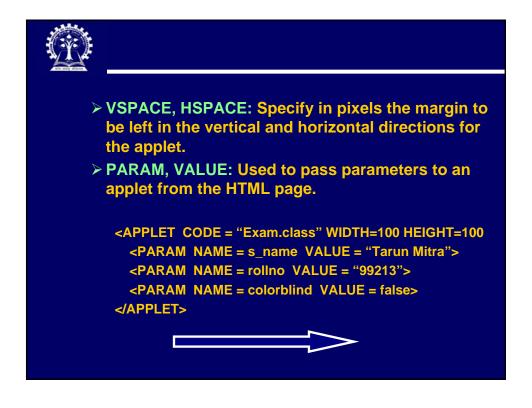




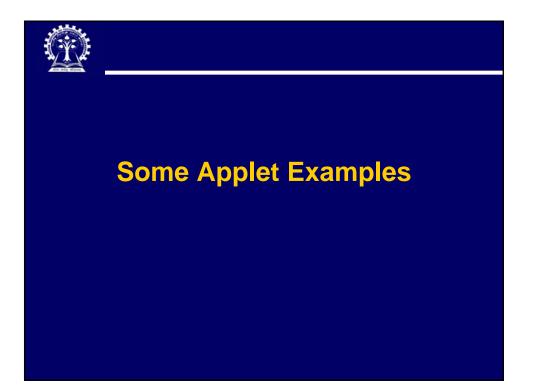


- CODE: Specifies the name of the applet class file (no subdirectories allowed).
- CODEBASE: Specifies a subdirectory where the applet is to be found.
 - In general, can be a URL pointing to any web server.
- ALT: Specifies a text message which is displayed if the browser understands the <APPLET> tag but cannot run the applet due to some reason.
- > WIDTH, HEIGHT: Specify the size of the applet display area in pixels.









import java.awt.*; import java.awt.Graphics; import java.applet.*; public class DrawLines extends Applet { public void paint (Graphics g) { for (int i = 10; i < 300; i += 10) { int x1 = 300-i; int y1 = 290; int x2 = 290 ; int y2 = i; g.drawLine (x1,y1, x2,y2); } }

