I/O stream

• Java performs I/O through streams.
• A stream is linked to a physical device by the Java I/O system.
• All stream behave in the same manner, even if the actual physical device is different.
• Same I/O classes and methods apply to any physical device.
• Java.io package
Byte Stream

• Handling input/output of bytes
• InputStream abstract class defines input
• OutputStream abstract class defines output
• Example:
  System.in (console input from keyboard)
  System.out (console output to the screen)
Character Stream

• Handling input and output of characters
• Reader abstract class defines input
• Writer abstract class defines output
Console input using Character Streams

- BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
- Str = br.readLine();
- Need to catch IOException
- Demo ReadLines.java
Console output using Character Streams

- PrintWriter(OutputStream os, boolean flushOnNewline)
- PrintWriter(System.out, true);
- pw.println(something);
- Demo PrintWriterDemo.java
File output using FileWriter

- FileWriter(String filename, boolean append) throws IOException
- fw = new FileWriter("test.txt", false);
- fw.write(string);
- fw.close();
- Demo KtoD.java, a utility that convert keyboard input to disk.
File Input using FileReader

- FileReader(String filename) throws FileNotFoundException
- FileReader fr = new FileReader("test.txt");
- BufferedReader br = new BufferedReader(fr);
- br.readLine();
- fr.close();
- Demo DtoS.java, a utility that read data from disk and print to screen
One dimensional Array

- We have introduced one-dimensional array in our previous lectures.
- An array is a collection of variables of the same type, referred by a common name.
- `type array-name [] = new type[size];`
- `int age[] = new int[5]; // declaration`
- `age[0] = 20; // assignment`
- `Animal animal [] = new Animal[1000]; // declare`
- `animal[0] = new Animal(); // creation & assignment`
- Array length: `age.length`, `animal.length`
Two dimensional array

- int table[][] = new int[3][2]; // declare
- table[0][1] = 15; // assignment
- Demo TwoD.java