Esc101
Fundamentals of Computing
Spring 2005

Lecture 04
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http://www.iitk.ac.in/esc101/

Announcements

- Alternate course text(s) announced on email
  - Sufficient copies in library reserve
- Any problems with lab?
- Problems with pace of lecture?

Summary from Previous Lecture

- Binary numbers
- Pre-defined types: byte, short, int, long, float, double, char, boolean, void
- Identifiers and keywords
- Classes as types, object references
- Point/LineVec example

An Example: Point and LineVec

- Point consists of two pre-defined types
  - Note how Constructor has arguments
  - Note use of public keyword
- Line consists of two Points
  - Note how "new Point()" is called
  - Note how "origin.setX", "origin.setY" are called
  - Note use of local variables
  - Notion of scope of a variable
    - Within the last enclosing "{ }" (called a block of code)
  - Variables can be initialized during definition
  - Variable definitions can appear anywhere in the code

Type Conversions

- Widening conversions:
  - Shorter range to longer range
  - byte --> short --> int --> long --> float --> double
  - These are ***implicit***
- Narrowing conversions
  - Longer range to shorter range
  - These use ***explicit cast***
  - Examples:
    - int x = 127; byte y = (byte)x;
    - float a = 3.5; int b = (int)a; // rounded down

The Java String Class

- String is also a pre-defined type
  - But not a primitive type
  - Just like a programmer-defined class
- Example methods:
  - endsWith, equals, indexOf, substring
  - Notion of method name overload
    - Each method has a prototype
- Static methods:
  - Examples: valueOf(int x), valueOf(float y)
- Static variables are also possible
  - Example: say, maxSize for the Circle class

Summary and Next Class...

- Today:
  - Local variables, scope of a variable
  - Type conversions and casting
  - The Java String class
- Next class:
  - The Java String, Math classes
  - Using Java without BlueJ
  - The System.out object
  - Expressions, operators