

Esc101

Fundamentals of Computing

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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