

Esc101

Fundamentals of Computing

Spring 2005

Lecture 05
07 Jan 2005, Friday

Bhaskaran Raman
Department of CSE
Indian Institute of Technology, Kanpur

<http://www.iitk.ac.in/esc101/>

Summary from Previous Lecture

- The Java String class
- Static variables, static methods
- The Java Math class
- Notion of a library
- Using java without bluej (javac, kedit)
 - Notion of a “main” method
 - Using the System.out object

Expressions in Java

- Three parts: operators, operands, result
- Examples involving literals:
 - $2+3$, $28/6$, $28.0/6$, $6+9+8.0$
 - “abc” + “123”
- Examples involving variables:
 - x/y , $x1+y2-z3$
- Type of result is the type of operand with widest range
 - Can use type cast; e.g. $(int)x + 6$, $(int)(x + 6)$

More on Expressions

- Evaluation is from left to right, subject to precedence:
 - Examples: $2+3*4$ is 14, $6.0/3.0/2.0$ is 1
- Can use `()` to override precedence
 - Examples: $(2+3)*4$ is 20, $6.0/(3.0/2.0)$ is 4
 - *When in doubt, use `()`*
- These are **arithmetic operators**: `+`, `-`, `*`, `/`, `%`
 - `%` gives remainder on integer division
- Method calls can be used in expressions:
 - Example: `getCurrVal()*2`

Other Operators

- Relational: `<`, `>`, `<=`, `>=`
- Equality: `==`, `!=`
- Examples:
 - `x < y`, `x == 7`, `7 != 9` (result type is **boolean**)
- Logical: `&`, `|`, `^`, `!`, `&&`, `||` (boolean operands)
- Bit manipulation: `&`, `|`, `^`, `!` (integer operands)
- Shift operators: `<<`, `>>`, `>>>` (integer operands)
- Some examples... (Expr.java)

Summary and Next Class...

- Today:
 - Expressions, operators
- Next class:
 - if-else, while, for
 - More loops, switch