Core Java

5. Control Flow
Control Flow

• Control Flow tells us the sequence of steps a program flows through
• Control here refers to a step “controlling” the processor
• A program is a series of steps
• Control flows through those steps
• Can we have parallel control flows?
Program Execution

• In Java, all programs execute through a designated Main class

• Main class provides a main() function which can be invoked without creating an instance of the class

• In Main, we encounter a set of steps which are executed one after another

• A step is called a statement
Program Execution

- Do we always need *Main* classes?
- Some parts of Java allow you to write programs which can't usually execute by themselves
- But they can be invoked by other *Main* classes through specific mechanisms
- Examples are *Applets* and *EJBs*
Expression

• Basic unit of evaluation
• An expression is not a statement
• An expression basically is an assignment
• Compute things on the right hand side and assign them to left hand side
• Can chain assignments
• Use Numeric or Comparison operators on right side, and assign them to a compatible type on the left
Statement

• A simple statement is an expression followed by a semicolon ;

• A complex statement consists of a set of simple statements within a pair of braces {

• Assignment statements contain variable type and multiple expressions

• Execution is right to left
**Conditionals**

if(expr) statement1
else if(expr) statement2
else statement3

expr ? Statement1: statement2

switch(expr) {
  case val: statement1
  default: statement2
}

Loops

while(expr) statement

do statement while(expr);

for(expr1;expr2;expr3) statement

for(a:arr) statement
Labels

labelname: statement
break [labelname];
continue [labelname];
return [expr];
Scope and Lifetime

- Scope is the set of statements through which a variable is accessible
- The scope of the variable fits within its lifetime
Demonstration

• Compile and Execute a few programs
Questions?