CS4A Lab #2 Professor Tom DeDonno - Chapters 3 Selection, 4 Loops and 5 Methods (For 9th Edition – don’t have 10th Edition Viewgraphs Yet)  
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Find the Java classes that represent constants for maximum and minimum values for short, int, and long. For short verify that its 2’s complement yields the correct value.

Long.MIN\_VALUE = -9223372036854775808

Long.MAX\_VALUE = 9223372036854775807

Integer.MIN\_VALUE = -2147483648

Integer.MAX\_VALUE = 2147483647

Short.MIN\_VALUE = -32768

Short.MAX\_VALUE = 32767

(32767 -> binary = 111111111111111)

Briefly describe the three selection control structures for Java. Give an example use of each one.

If then else: checking if a variable is positive, if it is positive output “positive”. If it is negative then output “negative”.

If( x > 0 ){ System.out.print(“Positive”); }

Else{ System.out.print(“Negative”);

Switch: Checking a variable for a letter grade, better way to implement nested if statements.

Switch(letterGrade){

Case ‘A’: System.out.print(“Grade is A”);

Break;

Case ‘B’: System.out.print(“Grade is B”);

Break;

Case ‘C’: System.out.print(“Grade is C”);

Break;

Case ‘D’: System.out.print(“Grade is D”);

Break;

Case ‘F’: System.out.print(“Grade is F”);

Break;

Default: System.out.print(“Invalid Letter Grade”);

}

Conditional Operator: Checking if a bool is true, output valid input, if not output invalid input. Shorter faster and simpler version of an if then else if.

System.out.print( (boolVar)? “valid input”: “Invalid input” );

Briefly describe the three looping repetition structures for Java.

For loop: loops based on a fixed number of iterations

For(int j = 0; j<10; j++) will loop 10 times starting from zero to nine.

While loop: Loop typically used when the number of iterations is not known, the loop is based on a boolean expression.

While(priceOne < priceTwo) will loop until this condition is not met

Do while loop: unlike a while, do while loops at least one every time. Loop is based on a Boolean expression and is checked at the end of the block instead of beginning.

Do{

}while(num1 != num2); runs at least once and checks the condition at the end

List the six forms of Flow control in Java?

Sequential

Selection

Repetition

Event handler/event

Function/method

Exception

Write a program that reads an integer and checks whether it is even. For example, if your input is 25, the output should be:

**Is 25 an even number? false**

If your input is 2000, the output should be:

**Is 2000 an even number? True**

**You must first write the entire program on this page, you may program it if you want to but you must write it out.**

import java.util.Scanner;

public class EvenInteger

{

public static void main(String[] args)

{

Scanner userInput = new Scanner(System.in);

System.out.print("Enter an integer: ");

int num = userInput.nextInt();

System.out.printf("Is %d an even number? %s\n",

num, (num % 2 ==0));

}

}