

Assignment (Part-4)
Control Statements: Part 2; Logical Operators

33. **(Find the Smallest Value)** Write an application that finds the smallest of several integers. Assume that the first value read specifies the number of values to input from the user.
34. **(Calculating the Product of Odd Integers)** Write an application that calculates the product of the odd integers from 1 to 15.
35. **(Factorials)** Write an application that calculates the factorials of 1 through 20. Display the results in tabular format.
36. **(Modified Compound-Interest Program)** Modify class `Interest` (learnt during class) to repeat its steps for interest rates of 5%, 6%, 7%, 8%, 9% and 10%. Use a `for` loop to vary the interest rate.
37. **(Triangle Printing Program)** Write an application that displays the following patterns, one below the other. Use `for` loops to generate the patterns. All asterisks (*) should be printed by a single statement of the form `System.out.print('*');` which causes the asterisks to print side by side. A statement of the form `System.out.println();` can be used to move to the next line. A statement of the form `System.out.print(' ');` can be used to display a space for the last two patterns. There should be no other output statements in the program.

*	* * * * *	* * * * *	
* *	* * * * *	* * * * *	* *
* * *	* * * * *	* * * * *	* * *
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38. **(Bar Chart Printing Program)** Write an application that reads five numbers between 1 and 30. For each number that's read, your program should display the same number of adjacent asterisks. For example, if your program reads the number 7, it should display `*****`. Display the bars of asterisks after you read all five numbers.

39. **(Calculating Sales)** An online retailer sells five products whose retail prices are as follows: Product 1, \$2.98; product 2, \$4.50; product 3, \$9.98; product 4, \$4.49 and product 5, \$6.87.

Write an application that reads a series of pairs of numbers as follows:

- (a) product number
- (b) quantity sold

Your program should use a `switch` statement to determine the retail price for each product. It should calculate and display the total retail value of all products sold. Use a sentinel-controlled loop to determine when the program should stop looping and display the final results.

40. **(Diamond Printing Program)** Write an application that prints the following diamond shape. You may use output statements that print a single asterisk (*), a single space or a single newline character. Maximize your use of repetition (with nested for statements), and minimize the number of output statements.

```
      *
     * *
    * * *
   * * * *
  * * * * *
 * * * * * *
* * * * * * *
 * * * * *
  * * * *
   * * *
    * *
     *
```