Programming 1

Tutorial 4

# Activity 1

Write a program in Java to find out if a number is prime in Java?

A number is called prime if it is divisible by either itself or 1. There are many algorithms to find prime numbers like, instead of dividing till number, division up to the square root of a number may be enough. Start from the simplest one and then try to solve this problem in a couple of different ways.

(\*) *Additional requirements*: write another version of this program to print out all prime numbers between 1000 and 2000.

## Expected result

Enter a positive integer: 17

It is a prime number.

Enter a positive integer: 15

It is not a prime number.

# Activity 2

Write a program to calculate your savings account balance after *y* years with an interest rate of *x* % per year. The interest is re-invested after each year.

## Expected result

How many years do you want to deposit your money? 10

How much money? 15300

What's the interest rate (%)? 6.8

After 10 years, you'll receive 29539.55

# Activity 3

Write a Java program to check if a number is a palindrome in Java.

A number is called a palindrome if the number is equal to the reverse of a number, e.g. 121 is a palindrome because the reverse of 121 is 121 itself. On the other hand 321 is not a palindrome because the reverse of 321 is 123, which is not equal to 321.

# Activity 4

Write a Java program to calculate Factorial of a user-entered integer using iteration. Factorial is defined as follows:

0! = 1

*n*! = *n* × (*n* – 1)!

# Activity 5

Write a program in Java to print the Fibonacci series up to a given number (entered by user).

Fibonacci is a popular number series in which, starting from the 3rd number, the number is equal to the sum of the previous two numbers. The first two numbers are 0 and 1.

# Activity 6

An Armstrong’s number is 3-digit number for which sum of cube of its digits are equal to itself. For example, 371 is an Armstrong number because of 3\*3\*3 + 7\*7\*7 + 1\*1\*1 = 371). Write Java program to find and print out all Armstrong’s numbers between 100 and 999.

# Activity 7

Write a program that reads an integer and prints how many digits the number has, by checking whether the number is ≥ 10, ≥ 100, and so on (assume that all integers are less than ten billion). If the number is negative, first multiply it with -1.

# Submission

Submit a **zip** file containing all Java programs to this tutorial’s submission box in the course website on FIT Portal.