Lab 05 – Loops & Strings

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CPSC 1150

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# Q1 – Binary to decimal

## Program B2D

**File name:** lab05\B2D.java

**Purpose:** Convert binary number entered by user to decimal and display it on the console.

**Packages:** java.util.Scanner

**Limitations:** It can’t handle any other characters other than ‘0’ and ‘1’.

**Input:** A binary number stored in a String. The binary number is expected to be a positive number. The variable containing the input is *binNum*.

**Output:** An integer number equal to the input in decimal form. The value is stored in the variable *decNum*.

**Flowchart:**

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Description automatically generated

**Test runs:**

|  |  |
| --- | --- |
| **binNum (Input)** | **decNum (Output)** |
| 1101 | 13 |
| 111 | 7 |
| 1010 | 1010 |

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Description automatically generated A picture containing text, font, screenshot

Description automatically generated

# Q2 – Display special numbers in tabular format

## Program Specials

**File name:** lab05\Specials.java

**Purpose:** To find and display in tabular format the special numbers between 10 and 1000 (exclusive). Special number being one that the sum of its odd position digits equals the sum of its even position digits.

**Input:** Not needed.

**Output:** Several lines in tabular format containing the special numbers in the specified range.

**Pseudocode:**

Algorithm (program name)

START

1. Set *i* = 11
2. Set *j* = 0
3. Repeat while *i* < 1000 is true
   1. If (*i* / 100 + *i* % 10) = ((*i* / 10) % 10) then
      1. Print *i*
      2. *j*++
   2. If *j* = 7 then
      1. Print new line
      2. *j* = 0
   3. *i*++

END (program name)

**Test run:**

A screenshot of a computer screen

Description automatically generated with medium confidence