**Department of Computer Science and Engineering**

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| **Course Code: CSE 110** | **Credits: 1.5** |
| **Course Name: Programming Language I** | **Semester: Fall’18** |

**Experiment/Lab 05  
Tracing**

1. **Topic Overview:**

In this lab, the students will engage themselves in hand tracing of Java programs. Given a code snippet, the students will trace the instructions of the program line by line on pen-and-paper and try to figure out the possible changes of variable values and program outcomes. Such activity will enable them to learn the very basic details of how a program works.

1. **Lesson Fit:**

Before performing this lab, the students must be introduced to the syntax, semantics and program writing rules of Java. Therefore, the students must complete Lab3 where they are required to write Java programs by themselves.

1. **Learning Outcome:**

After this lecture, the students will be able to:

* 1. Understand how a program executes its instructions step by step
  2. Understand how various operations change the variable values
  3. Understand how various complex expressions & compound operators work

1. **Anticipated Challenges and Possible Solutions**
   1. The students might get distracted & often make mistakes during calculation. Thus, the errors propagate through the following steps in a cascading manner.

**Solutions:**

* + 1. They must be careful & keep their cool while solving tracing
  1. Often the students make mistakes while evaluating complex expressions & compound operators.

**Solutions:**

* + 1. Understand the precedence & processing orders of complex expressions & compound operators
    2. Practice a lot!

1. **Acceptance and Evaluation**

If a task is a continuing task and one couldn’t finish within time limit, then s/he will continue from there in the next Lab, and if it is a one Lab task then it will be given as a home work.

1. **Activity Detail**
   1. **Hour: 1  
      Discussion:**During this period the teachers will discuss how the students need to prepare their tracing tables and use this table to keep track of changes in the program.  
       **Problem Task:**
      1. Problem 1 - 5
   2. **Hour: 2**

**Discussion:**

The teachers will select the problems which cover a variety of aspects of Java’s programming syntax and guide the students in solving them.

**Problem Task:**

* + 1. Problem 6 - 10 (Page z)
  1. **Hour: 3**

**Discussion:**

**Problem Task:**

* + 1. Problem 11- 14

1. **Home tasks**
   1. The students need to practice the problems at home that could not be covered during class hour

**Lab Activity List**

Trace the output of the following programs

In the following tasks,

First, save->compile->run it in Dr. Java / Jeilot and

Then, trace the output of the code by hand

Try to matching each of your manual output with output shown in DrJava / Jeliot

**Task 1**

|  |  |
| --- | --- |
| 1 | public class Q1 |
| 2 | { |
| 3 | public static void main(String[] args) |
| 4 | { |
| 5 | int x = 0, y =0; |
| 6 | int sum = 0; |
| 7 | while (x < 10){ |
| 8 | y = x - 3; |
| 9 | y = 40; |
| 10 | while (y > 22){ |
| 11 | if ((sum > 30) && (sum < 40)) |
| 12 | sum = sum + x \* 2 ; |
| 13 | else if ((sum > 40) && (sum < 50)) |
| 14 | sum = sum + x \* 3; |
| 15 | else |
| 16 | sum = sum + 23; |
| 17 | System.out.println(sum); |
| 18 | y = y - 10; |
| 19 | } |
| 20 | x += 2; |
| 21 | } |
| 22 | } |
| 23 | } |

**Task 2**

|  |  |
| --- | --- |
| 1 | public class Q2 |
| 2 | { |
| 3 | public static void main(String[] args) |
| 4 | { |
| 5 | String test = ""; |
| 6 | int i = 0, j = 0, k = 15; |
| 7 | while (i< 5){ |
| 8 | test = "-->"; |
| 9 | j = --k; |
| 10 | while (j > 10 ){ |
| 11 | test = i + j + test + i + j; |
| 12 | System.out.println(test); |
| 13 | j--; |
| 14 | } |
| 15 | i++; |
| 16 | } |
| 17 | } |
| 18 | } |

**Task 3**

|  |  |
| --- | --- |
| 1 | public class Q3{ |
| 2 | public static void main(String[] args){ |
| 3 | int x = 0, y =0; |
| 4 | int sum = 0; |
| 5 | while (x < 10){ |
| 6 | y = x - 3; |
| 7 | while (y < 3){ |
| 8 | sum = (sum % 2) + x - y \* 2 ; |
| 9 | System.out.println(sum); |
| 10 | y = y + 1; |
| 11 | } |
| 12 | if (x > 5){ |
| 13 | x++; |
| 14 | }else{ |
| 15 | x += 2; |
| 16 | } |
| 17 | } |
| 18 | } |
| 19 | } |

**Task 4**

|  |  |
| --- | --- |
| 1 | public class Q4{ |
| 2 | public static void main(String[] args){ |
| 3 | int x = 0, i =0, sum = 0; |
| 4 | i = 1; |
| 5 | x = 2; |
| 6 | sum = 0; |
| 7 | while (i< 20){ |
| 8 | x = x + i; |
| 9 | sum = sum + x + 1; |
| 10 | System.out.println(sum); |
| 11 | if (x > 5) |
| 12 | i += 2; |
| 13 | else |
| 14 | i += 3; |
| 15 | } |
| 16 | sum = sum + i; |
| 17 | System.out.println(sum); |
| 18 | } |
| 19 | } |

**Task 5**

|  |  |
| --- | --- |
| 1 | public class Q5{ |
| 2 | public static void main(String[] args){ |
| 3 | String test = ""; |
| 4 | int i = 0, j = 0, k = 15; |
| 5 | test = "-->"; |
| 6 | while (i< 5){ |
| 7 | j = --k; |
| 8 | while (j > 10 ){ |
| 9 | test = i + j + "-->" + test; |
| 10 | System.out.println(test); |
| 11 | j--; |
| 12 | } |
| 13 | i++; |
| 14 | } |
| 15 | } |
| 16 | } |

**Task 6**

|  |  |
| --- | --- |
| 1 | public class Q6{ |
| 2 | public static void main(String[] args){ |
| 3 | int x = 0, p =0, sum = 0; |
| 4 | p = 1; |
| 5 | x = 2; |
| 6 | double q; |
| 7 | sum = 0; |
| 8 | while (p < 10){ |
| 9 | q = x + p-(sum+5/3)/3.0%2 ; |
| 10 | sum = sum + (x++) + (int)q; |
| 11 | System.out.println(sum); |
| 12 | if (x > 5) |
| 13 | p += 4/2; |
| 14 | else |
| 15 | p += 3%1; |
| 16 | } |
| 17 | sum = sum + p; |
| 18 | System.out.println(sum); |
| 19 | } |
| 20 | } |

**Task 7**

|  |  |
| --- | --- |
| 1 | public class Q7{ |
| 2 | public static void main(String[] args){ |
| 3 | int test = 1; |
| 4 | int j = 0, k = 100; |
| 5 | while (k > 0){ |
| 6 | while (j < k ){ |
| 7 | test = k - j + 21; |
| 8 | System.out.println(1 + test); |
| 9 | j += 10; |
| 10 | } |
| 11 | k -= 10; |
| 12 | } |
| 13 | } |
| 14 | } |

**Task 8**

|  |  |
| --- | --- |
| 1 | public class Q8{ |
| 2 | public static void main(String[] args){ |
| 3 | int test = 1; |
| 4 | int j = 0, k = 100; |
| 5 | while (k > 0){ |
| 6 | while (j < k ){ |
| 7 | test = k - j + 11; |
| 8 | System.out.println(1 + test / 3 +"12"); |
| 9 | j+=10; |
| 10 | } |
| 11 | k-=10; |
| 12 | } |
| 13 | } |
| 14 | } |

**Task 9**

|  |  |
| --- | --- |
| 1 | public class Q9{ |
| 2 | public static void main(String[] args){ |
| 3 | int x = 0; |
| 4 | int y = 0; |
| 5 | int sum = 0; |
| 6 | double p; |
| 7 | while(x <18){ |
| 8 | y = x / 2; |
| 9 | while(y < x){ |
| 10 | p = (x + 15.0) /2; |
| 11 | sum = (sum + 3) + x + y \* 3 + (int)p; |
| 12 | System.out.println(sum); |
| 13 | y = y + 3; |
| 14 | } |
| 15 | x = x + 3; |
| 16 | } |
| 17 | } |
| 18 | } |

**Task 10**

|  |  |
| --- | --- |
| 1 | public class Q10 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, y = 0; |
| 4 | String sum = "0"; |
| 5 | double p; |
| 6 | while (x < 9) { |
| 7 | y = x / 2; |
| 8 | while (y < x) { |
| 9 | p = (x + 5.0) / 2; |
| 10 | sum = (sum + 2) + x + "y \* 2" + (int) p ; |
| 11 | System.out.println(sum); |
| 12 | y = y + 1; |
| 13 | } |
| 14 | x = x + 2; |
| 15 | if (x > 5) { |
| 16 | sum = "2"; |
| 17 | } else { |
| 18 | sum += "3"; |
| 19 | } |
| 20 | } |
| 21 | } |
| 22 | } |

**Task 11**

|  |  |
| --- | --- |
| 1 | public class Q11 { |
| 2 | public static void main(String[] args) { |
| 3 | String test = ""; |
| 4 | int i = 1, j = 1, k = 14; |
| 5 | test = "-->"; |
| 6 | while (i< 5) { |
| 7 | j = --k; |
| 8 | while (j > 9 ) { |
| 9 | test = i + (j-2) + "-->" + test; |
| 10 | System.out.println(test); |
| 11 | j--; |
| 12 | } |
| 13 | i++; |
| 14 | } |
| 15 | } |
| 16 | } |

**Task 12**

|  |  |
| --- | --- |
| 1 | public class Q12 { |
| 2 | public static void main(String[] args) { |
| 3 | int p = 5; |
| 4 | int q = 6; |
| 5 | int r = 9; |
| 6 | int sum = 0; |
| 7 | if (p < 12) { |
| 8 | System.out.println(r + 2); |
| 9 | } else { |
| 10 | System.out.println(r + p); |
| 11 | } |
| 12 |  |
| 13 | if (q > 20){ |
| 14 | System.out.println(r + 19); |
| 15 | } else if (q <= 6) { |
| 16 | System.out.println(q + 3); |
| 17 | } else{ |
| 18 | System.out.println(p + q + r); |
| 19 | } |
| 20 |  |
| 21 | if (r > 15) { |
| 22 | System.out.println(r); |
| 23 | } else if (r == 0) { |
| 24 | System.out.println(p + q); |
| 25 | } else { |
| 26 | System.out.println(p); |
| 27 | } |
| 28 |  |
| 29 | if (sum != 0) { |
| 30 | System.out.println(3); |
| 31 | } else { |
| 32 | System.out.println(sum + 32); |
| 33 | } |
| 34 |  |
| 35 | if(p > 0 && r < 10){ |
| 36 | System.out.println(p + r); |
| 37 | } else { |
| 38 | System.out.println(p - r); |
| 39 | } |
| 40 | } |
| 41 | } |

**Task 13**

|  |  |
| --- | --- |
| 1 | public class Quiz13 { |
| 2 | public static void main(String[] args){ |
| 3 | int x = 0, p = 0, sum = 0; |
| 4 | p = 1; |
| 5 | x = 2; |
| 6 | double q; |
| 7 | sum = 0; |
| 8 | while (p < 10) { |
| 9 | q = x + p-(sum+5/3)/3.0%2 ; |
| 10 | sum = sum + (x++) + (int)q; |
| 11 | System.out.println(sum); |
| 12 | if (x > 5) |
| 13 | p += 4/2; |
| 14 | else |
| 15 | p += 3%1; |
| 16 | } |
| 17 | sum = sum + p; |
| 18 | System.out.println(sum); |
| 19 | } |
| 20 | } |

**Task 14**

|  |  |
| --- | --- |
| 1 | public class Q14 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, i =0, sum = 0; |
| 4 | i = 1; |
| 5 | x = 2; |
| 6 | sum = 0; |
| 7 | while (i< 20){ |
| 8 | x = x + i; |
| 9 | sum = sum + x + 1; |
| 10 | System.out.println(sum); |
| 11 | if (x > 5) |
| 12 | i += 2; |
| 13 | else |
| 14 | i += 3; |
| 15 | } |
| 16 | sum = sum + i; |
| 17 | System.out.println(sum); |
| 18 | } |
| 19 | } |

**Task 15**

|  |  |
| --- | --- |
| 1 | public class Q15 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, y =0; |
| 4 | int sum = 0; |
| 5 | while (x < 10){ |
| 6 | y = x - 3; |
| 7 | y = 40; |
| 8 | while (y > 22){ |
| 9 | if ((sum > 30) && (sum < 40)) |
| 10 | sum = sum + x \* 2 ; |
| 11 | else if ((sum > 40) && (sum < 50)) |
| 12 | sum = sum + x \* 3; |
| 13 | else |
| 14 | sum = sum + 23; |
| 15 | System.out.println(sum); |
| 16 | y = y - 10; |
| 17 | } |
| 18 | x += 2; |
| 19 | } |
| 20 | } |
| 21 | } |

**Task 16**

|  |  |
| --- | --- |
| 1 | public class Q16 { |
| 2 | public static void main(String[] args) { |
| 3 | boolean var1=false, var2=false, var3=false, var4=false,var5=false; |
| 4 | boolean var6=false, result1=false, result2=false, result3=false, result4=false; |
| 5 | boolean result5=false, result6=false, result7=false, result8=false; |
| 6 | boolean result9=false, result10=false; |
| 7 | var1=4 > 3 - 1; |
| 8 | var2=var1 && false; |
| 9 | var3=true; |
| 10 | var4=false; |
| 11 | var5=true; |
| 12 | var6=var3 && false; |
| 13 | result1=(var1 || var2) && (8 \* 10 > 45); |
| 14 | result2=(var1 || var2) && (result1 && false); |
| 15 | result3=(var1 && result1) || result2; |
| 16 | result4=(var1 || var2) || ((var3 && var1) && false); |
| 17 | result5=(var1 && var2) && (result3 || var1); |
| 18 | result6=((var3 || var2) && !(result5)) || true; |
| 19 | result7=(var4 && result1) && ((result1 && false) || true); |
| 20 | result8=((var1 && result3) && (var5 || var6)) && true; |
| 21 | result9=((result2 && var2) || (result7 && var1)) && false; |
| 22 | result10=!(var1 && true); |
| 23 | } |
| 24 | } |

Show the values of the result variables in the above program:

|  |  |
| --- | --- |
| result1 |  |
| result2 |  |
| result3 |  |
| result4 |  |
| result5 |  |
| result6 |  |
| result7 |  |
| result8 |  |
| result9 |  |
| result10 |  |

**Task 17**

|  |  |
| --- | --- |
| 1 | public class Q17 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, i = 0, sum = 0; |
| 4 | i = 1; |
| 5 | x = 2; |
| 6 | sum = 0; |
| 7 | while (i< 20) { |
| 8 | x = x + i; |
| 9 | sum = sum + x + 3; |
| 10 | System.out.println(sum); |
| 11 | if (x > 5) |
| 12 | i += 2; |
| 13 | else |
| 14 | i += 3; |
| 15 | } |
| 16 | sum = sum + i; |
| 17 | System.out.println(sum); |
| 18 | } |
| 19 | } |
|  | **Task 18** |
| 1 | public class Q18 { | |
| 2 | public static void main(String[] args) { | |
| 3 | int x = 0, y =0; | |
| 4 | int sum = 0; | |
| 5 | while (x < 10){ | |
| 6 | y = x - 3; | |
| 7 | y = 40; | |
| 8 | while (y > 22){ | |
| 9 | if ((sum > 30) && (sum < 40)) | |
| 10 | sum = sum + x \* 3 ; | |
| 11 | else if ((sum > 40) && (sum < 50)) | |
| 12 | sum = sum + x \* 4; | |
| 13 | else | |
| 14 | sum = sum + 24; | |
| 15 | System.out.println(sum); | |
| 16 | y = y - 10; | |
| 17 | } | |
| 18 | x += 2; | |
| 19 | } | |
| 20 | } | |
| 21 | } | |

**Task 19**

|  |  |
| --- | --- |
| 1 | public class Q19 { |
| 2 | public static void main(String[] args) { |
| 3 | boolean var1=false, var2=false, var3=false, var4=false,var5=false; |
| 4 | boolean var6=false, result1=false, result2=false, result3=false, result4=false; |
| 5 | boolean result5=false, result6=false, result7=false, result8=false; |
| 6 | boolean result9=false, result10=false; |
| 7 | var1=4 < 3 - 1; |
| 8 | var2=var1 && false; |
| 9 | var3=false; |
| 10 | var4=true; |
| 11 | var5=false; |
| 12 | var6=var3 && true; |
| 13 | result1=(var1 || var2) && (8 \* 10 > 45); |
| 14 | result2=(var1 || var2) && (result1 && false); |
| 15 | result3=(var1 && result1) || result2; |
| 16 | result4=(var1 || var2) || ((var3 && var1) && false); |
| 17 | result5=(var1 && var2) && (result3 || var1); |
| 18 | result6=((var3 || var2) && !(result5)) || true; |
| 19 | result7=(var4 && result1) && ((result1 && false) || true); |
| 20 | result8=((var1 && result3) && (var5 || var6)) && true; |
| 21 | result9=((result2 && var2) || (result7 && var1)) && false; |
| 22 | result10=!(var1 && true); |
| 23 | } |
| 24 | } |

Show the values of the result variables in the above program:

|  |  |
| --- | --- |
| result1 |  |
| result2 |  |
| result3 |  |
| result4 |  |
| result5 |  |
| result6 |  |
| result7 |  |
| result8 |  |
| result9 |  |
| result10 |  |

**Task 20**

|  |  |
| --- | --- |
| 1 | public class Q20 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, y =0; |
| 4 | int sum = 0; |
| 5 | while (x < 10) { |
| 6 | y = x - 3; |
| 7 | while (y < 3) { |
| 8 | sum = x - y \* 2 ; |
| 9 | System.out.println(sum); |
| 10 | y = y + 1; |
| 11 | } |
| 12 | if (x > 7) { |
| 13 | x++; |
| 14 | } else { |
| 15 | x += 3; |
| 16 | } |
| 17 | } |
| 18 | sum = x - y \* 2 ; |
| 19 | System.out.println(sum); |
| 20 | } |
| 21 | } |

**Task 21**

|  |  |
| --- | --- |
| 1 | public class Q21 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, y =0; |
| 4 | int sum = 0; |
| 5 | while (x < 10) { |
| 6 | y = x - 3; |
| 7 | while (y < 3) { |
| 8 | sum = x - y \* 3 ; |
| 9 | System.out.println(sum); |
| 10 | y = y + 1; |
| 11 | } |
| 12 | if (x > 7) { |
| 13 | x++; |
| 14 | } else { |
| 15 | x += 3; |
| 16 | } |
| 17 | } |
| 18 | sum = x - y \* 3 ; |
| 19 | System.out.println(sum); |
| 20 | } |
| 21 | } |

**Task 22**

|  |  |
| --- | --- |
| 1 | public class Q22 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, y =0; |
| 4 | int sum = 0; |
| 5 | while (x < 10) { |
| 6 | y = x - 3; |
| 7 | y = 40; |
| 8 | while (y > 22) { |
| 9 | if ((sum > 30) && (sum < 40)) |
| 10 | sum = sum + x \* 2 ; |
| 11 | else if ((sum > 40) && (sum < 50)) |
| 12 | sum = sum + x \* 3; |
| 13 | else |
| 14 | sum = sum + 23; |
| 15 | System.out.println(sum); |
| 16 | y = y - 10; |
| 17 | } |
| 18 | x += 2; |
| 19 | } |
| 20 | } |
| 21 | } |

**Task 23**

|  |  |
| --- | --- |
| 1 | public class Q23 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, y = 0; |
| 4 | int sum = 0; |
| 5 | while (x < 10) { |
| 6 | y = x - 3; |
| 7 | y = 40; |
| 8 | while (y > 22) { |
| 9 | if ((sum > 30) && (sum < 40)) |
| 10 | sum = sum + x \* 3 ; |
| 11 | else if ((sum > 40) && (sum < 50)) |
| 12 | sum = sum + x \* 4; |
| 13 | else |
| 14 | sum = sum + 24; |
| 15 | System.out.println(sum); |
| 16 | y = y - 10; |
| 17 | } |
| 18 | x += 2; |
| 19 | } |
| 20 | } |
| 21 | } |

**Task 24**

|  |  |
| --- | --- |
| 1 | public class Q24 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, p = 0, sum = 0; |
| 4 | p = 1; |
| 5 | x = 2; |
| 6 | double q; |
| 7 | sum = 0; |
| 8 | while (p < 12){ |
| 9 | q = x + p-(sum+5/3)/3.0%2 ; |
| 10 | sum = sum + (x++) + (int)q; |
| 11 | System.out.println(sum); |
| 12 | if (x > 5) |
| 13 | p += 4/2; |
| 14 | else |
| 15 | p += 3%1; |
| 16 | } |
| 17 | sum = sum + p; |
| 18 | System.out.println(sum); |
| 19 | } |
| 20 | } |

**Task 25**

|  |  |
| --- | --- |
| 1 | public class Q25 { |
| 2 | public static void main(String[] args) { |
| 3 | int test = 1; |
| 4 | int j = 0, k = 100; |
| 5 | while (k > 0) { |
| 6 | while (j < k ) { |
| 7 | test = k + j - 21; |
| 8 | System.out.println(1 + test / 2 +"32"); |
| 9 | j+=10; |
| 10 | } |
| 11 | k-=10; |
| 12 | } |
| 13 | } |
| 14 | } |

**Task 26**

|  |  |
| --- | --- |
| 1 | public class Q26 { |
| 2 | public static void main(String[] args) { |
| 3 | String test = ""; |
| 4 | int i = 5, j = 0, k = 15; |
| 5 | while (i< 10){ |
| 6 | k -= 1; |
| 7 | j = k; |
| 8 | while (j > 10 ) { |
| 9 | if (j % 2 == 0) { |
| 10 | test = "<--"; |
| 11 | test = test + i + 2 + "-->" + (j / 2); |
| 12 | } else { |
| 13 | test = "-->"; |
| 14 | test = "-->" + (i / 2) + test + j; |
| 15 | } |
| 16 | System.out.println(test); |
| 17 | --j; |
| 18 | } |
| 19 | i++; |
| 20 | } |
| 21 | } |
| 22 | } |

**Task 27**

|  |  |
| --- | --- |
| 1 | public class Q27 { |
| 2 | public static void main(String[] args) { |
| 3 | int x = 0, p = 0, sum = 0; |
| 4 | p = 1; |
| 5 | x = 2; |
| 6 | double q; |
| 7 | sum = 0; |
| 8 | while (p < 12) { |
| 9 | q = x + p-(sum+7/3)/3.0%2 ; |
| 10 | sum = sum + (x++) + (int)q; |
| 11 | System.out.println(sum); |
| 12 | if (x > 5) |
| 13 | p += 4/2; |
| 14 | else |
| 15 | p += 3%1; |
| 16 | } |
| 17 | sum = sum + p; |
| 18 | System.out.println(sum); |
| 19 | } |
| 20 | } |

**Task 28**

|  |
| --- |
| public class Q28 { |
| public static void main(String[] args) { |
| int test = 1; |
| int j = 0, k = 100; |
| while (k > 0){ |
| while (j < k ){ |
| test = k - j + 21; |
| System.out.println(1 + test / 2 +"11"); |
| j+=10; |
| } |
| k-=10; |
| } |
| } |
| } |

**Task 29**

|  |
| --- |
| public class Q29 { |
| public static void main(String[] args) { |
| String test = ""; |
| int i = 5, j = 0, k = 15; |
| while (i< 10){ |
| k -= 1; |
| j = k; |
| while (j > 10 ){ |
| if (j % 2 == 0){ |
| test = "<--"; |
| test = test + i + 3 + "-->" + (j / 3); |
| }else{ |
| test = "-->"; |
| test = "-->" + (i / 3) + test + j ; |
| } |
| System.out.println(test); |
| --j; |
| } |
| i++; |
| } |
| } |
| } |

**Task 30**

|  |
| --- |
| public class Q30 { |
| public static void main(String[] args) { |
| String test = ""; |
| int i = 0, j = 0, k = 15; |
| test = "<--cat"; |
| while (i< 5){ |
| k-=1; |
| j = k; |
| while (j > 10 ){ |
| if (j % 2 == 0){ |
| test += "-->"; |
| test = test + i + (j / 2); |
| }else{ |
| test += "<--"; |
| test = test + (i / 2) + j; |
| } |
| System.out.println(test); |
| --j; |
| } |
| i++; |
| } |
| } |
| } |

**Task 31**

|  |
| --- |
| public class Quiz31 { |
| public static void main(String[] args) { |
| String test = ""; |
| int i = 2, j = 0, k = 17; |
| test = "-->dog"; |
| while (i< 7){ |
| k-=1; |
| j = k; |
| while (j > 12 ){ |
| if (j % 2 == 0){ |
| test += "<--"; |
| test = test + i + (j / 2); |
| }else{ |
| test += "-->"; |
| test = test + (i / 2) + j; |
| } |
| System.out.println(test); |
| --j; |
| } |
| i++; |
| } |
| } |
| } |

**Task 32**

|  |
| --- |
| public class Q32 { |
| public static void main(String[] args) { |
| int x = 0, y = 0; |
| int sum = 0; |
| double p; |
| while (x < 10) { |
| y = x / 2; |
| while (y < x) { |
| p = (x + 10.0) / 2; |
| sum = (sum % 2) + x - y \* 2 + (int) p ; |
| System.out.println(sum); |
| y = y + 2; |
| } |
| if (x > 5) { |
| x++; |
| } else { |
| x += 2; |
| } |
| } |
| } |
| } |

**Task 33**

|  |
| --- |
| public class Q33 { |
| public static void main(String[] args) { |
| int x = 0, y =0; |
| int sum = 0; |
| double p; |
| while (x < 10) { |
| y = x / 2; |
| while (y < x) { |
| p = (x + 5.0) / 2; |
| sum = (sum % 2) + x - y \* 2 + (int) p ; |
| System.out.println(sum); |
| y = y + 2; |
| } |
| if (x > 5) { |
| x++; |
| } else { |
| x += 2; |
| } |
| } |
| } |
| } |

**Task 34**

|  |
| --- |
| public class Q34 { |
| public static void main(String[] args) { |
| int x = 0, p = 0, sum = 0; |
| p = 1; |
| x = 2; |
| double q; |
| sum = 0; |
| while (p < 12){ |
| q = x + p-(sum+5/3)/3.0%2 ; |
| sum = sum + (x++) + (int)q; |
| System.out.println(sum); |
| if (x > 5) |
| p += 4/2; |
| else |
| p += 3%1; |
| } |
| sum = sum + p; |
| System.out.println(sum); |
| } |
| } |

**Task 35**

|  |
| --- |
| public class Q35 { |
| public static void main(String[] args) { |
| int test = 1; |
| int j = 0, k = 100; |
| while (k > 0){ |
| while (j < k ){ |
| test = k + j - 21; |
| System.out.println(1 + test / 2 +"32"); |
| j+=10; |
| } |
| k-=10; |
| } |
| } |
| } |

**Task 36**

|  |
| --- |
| public class Q36 { |
| public static void main(String[] args) { |
| String test = ""; |
| int i = 5, j = 0, k = 15; |
| while (i< 10) { |
| k-=1; |
| j = k; |
| while (j > 10 ) { |
| if (j % 2 == 0) { |
| test = "<--"; |
| test = test + i + 2 + "-->" + (j / 2); |
| } else { |
| test = "-->"; |
| test = "-->" + (i / 2) + test + j; |
| } |
| System.out.println(test); |
| --j; |
| } |
| i++; |
| } |
| } |
| } |

**Task 37**

|  |
| --- |
| public class Q37 { |
| public static void main(String[] args) { |
| boolean var1=false, var2=false, var3=false, var4=false,var5=false; |
| boolean var6=false, result1=false, result2=false, result3=false, result4=false; |
| boolean result5=false, result6=false, result7=false, result8=false; |
| boolean result9=false, result10=false; |
| var1=(!true || true) && false; |
| var2=var1 && false; |
| var3=true && !false; |
| var4=false; |
| var5=true; |
| var6=var3 && false; |
| result1=(var1 && var2) && ( 40 % 3 > 45) || (var5 && var6); |
| result2=(var1 || var2) || (result1 && false); |
| result3=(var1 && result1) || result2 || var5; |
| result4=(var1 || var2) || ((var3 && var1) && false); |
| result5=(var1 && var2) && (result3 || var1); |
| result6=((var3 || !var2) && (result5)) || true; |
| result7=(var4 && result1) && ((result1 && false) || true); |
| result8=((var1 && result3) && (!var5 || var6)) && true; |
| result9=((result2 && var2) || (!result7 && var1)) && !false; |
| result10=!(var1 && true); |
| } |
| } |

Show the values of the result variables in the above program:

|  |  |
| --- | --- |
| result1 |  |
| result2 |  |
| result3 |  |
| result4 |  |
| result5 |  |
| result6 |  |
| result7 |  |
| result8 |  |
| result9 |  |
| result10 |  |

**Task 38**

|  |
| --- |
| public class Q38 { |
| public static void main(String[] args) { |
| int x = 0, p =0, sum = 0; |
| p = 1; |
| x = 2; |
| double q; |
| sum = 0; |
| while (p < 12) { |
| q = x + p-(sum+7/3)/3.0%2 ; |
| sum = sum + (x++) + (int)q; |
| System.out.println(sum); |
| if (x > 5) |
| p += 4/2; |
| else |
| p += 3%1; |
| } |
| sum = sum + p; |
| System.out.println(sum); |
| } |
| } |

**Task 39**

|  |
| --- |
| public class Q39 { |
| public static void main(String[] args) { |
| int test = 1; |
| int j = 0, k = 100; |
| while (k > 0) { |
| while (j < k ) { |
| test = k - j + 21; |
| System.out.println(1 + test / 2 +"11"); |
| j+=10; |
| } |
| k-=10; |
| } |
| } |
| } |

**Task 40**

|  |
| --- |
| public class Q40 { |
| public static void main(String[] args) { |
| String test = ""; |
| int i = 5, j = 0, k = 15; |
| while (i< 10) { |
| k-=1; |
| j = k; |
| while (j > 10 ) { |
| if (j % 2 == 0) { |
| test = "<--"; |
| test = test + i + 3 + "-->" + (j / 3); |
| } else { |
| test = "-->"; |
| test = "-->" + (i / 3) + test + j ; |
| } |
| System.out.println(test); |
| --j; |
| } |
| i++; |
| } |
| } |
| } |

**Task 41**

|  |
| --- |
| public class Q41 { |
| public static void main(String[] args) { |
| boolean var1=false, var2=false, var3=false, var4=false,var5=false; |
| boolean var6=false, result1=false, result2=false, result3=false, result4=false; |
| boolean result5=false, result6=false, result7=false, result8=false; |
| boolean result9=false, result10=false; |
| var1=(!false || false) && true; |
| var2=var1 && true; |
| var3=false && !true; |
| var4=true; |
| var5=false; |
| var6=var3 && true; |
| result1=(var1 && var2) && ( 40 % 3 > 45) || (var5 && var6); |
| result2=(var1 || var2) || (result1 && false); |
| result3=(var1 && result1) || result2 || var5; |
| result4=(var1 || var2) || ((var3 && var1) && false); |
| result5=(var1 && var2) && (result3 || var1); |
| result6=((var3 || !var2) && (result5)) || true; |
| result7=(var4 && result1) && ((result1 && false) || true); |
| result8=((var1 && result3) && (!var5 || var6)) && true; |
| result9=((result2 && var2) || (!result7 && var1)) && !false; |
| result10=!(var1 && true); |
| } |
| } |

Show the values of the result variables in the above program:

|  |  |
| --- | --- |
| result1 |  |
| result2 |  |
| result3 |  |
| result4 |  |
| result5 |  |
| result6 |  |
| result7 |  |
| result8 |  |
| result9 |  |
| result10 |  |

**Task 42**

|  |
| --- |
| public class Q42 { |
| public static void main(String[] args) { |
| String test = ""; |
| int i = 0, j = 0, k = 15; |
| test = "<--cat"; |
| while (i< 5){ |
| k-=1; |
| j = k; |
| while (j > 10 ) { |
| if (j % 2 == 0) { |
| test += "-->"; |
| test = test + i + (j / 2); |
| } else { |
| test += "<--"; |
| test = test + (i / 2) + j; |
| } |
| System.out.println(test); |
| if (j == 12) { |
| test = "<--cat"; |
| } |
| --j; |
| } |
| i++; |
| } |
| } |
| } |

**Task 43**

|  |
| --- |
| public class Q43 { |
| public static void main(String[] args) { |
| String test = ""; |
| int i = 2, j = 0, k = 17; |
| test = "-->dog"; |
| while (i< 7) { |
| k-=1; |
| j = k; |
| while (j > 12 ) { |
| if (j % 2 == 0) { |
| test += "<--"; |
| test = test + i + (j / 2); |
| } else { |
| test += "-->"; |
| test = test + (i / 2) + j; |
| } |
| System.out.println(test); |
| if (j == 14) { |
| test = "-->dog"; |
| } |
| --j; |
| } |
| i++; |
| } |
| } |
| } |

|  |
| --- |
| public class Q44 { |
| public static void main(String[] args) { |
| int x = 0, y =0; |
| int sum = 0; |
| double p; |
| while (x < 10) { |
| y = x / 2; |
| while (y < x) { |
| p = (x + 10.0) / 2; |
| sum = (sum % 2) + x - y \* 2 + (int) p ; |
| System.out.println(sum); |
| y = y + 2; |
| } |
| if (x > 5) { |
| x++; |
| } else { |
| x += 2; |
| } |
| } |
| } |
| } |

**Task 45**

|  |
| --- |
| public class Q45 { |
| public static void main(String[] args) { |
| int x = 0, y =0; |
| int sum = 0; |
| double p; |
| while (x < 10) { |
| y = x / 2; |
| while (y < x) { |
| p = (x + 5.0) / 2; |
| sum = (sum % 2) + x - y \* 2 + (int) p ; |
| System.out.println(sum); |
| y = y + 2; |
| } |
| if (x > 5) { |
| x++; |
| } else { |
| x += 2; |
| } |
| } |
| } |
| } |