CPSC463 Assignment 6 (Program Slicing Assignment) ©Ning Chen, 2017

Given a program below.

1 DataInputStream d = new DataInputStream (System.in);

2 terminate\_var= Integer.parseInt(d.readLine());

3 product=1;

4 sum=1;

5 for(counter=1; counter<=terminate\_var; counter++)

6 {

7 sum=sum+counter;

8 product=product\*counter;

9 }

10 average=(sum-1)/terminate\_var;

11 System.out.println(“The Sum is : “+sum);

12 System.out.println(“The Product is : “ + product);

13 System.out.println(“The Average is : “ +average);

Assuming that we want to perform a backward slicing on variable sum at line 11, you need to perform the following:

a. Draw its Control Flow Graph

b. Draw its Control Dependence Graph

c. Draw its Data Dependence Graph

d. Draw the combination of the Control and Data Dependence as one graph (use two different colors to represent two different dependences)

e. Draw the graph that shows the first step of backward slicing.

f. Draw the graph that shows the first and the second step of backward slicing.

g. Draw the graph that shows the first, second and third step of backward slicing

(Repeat e if there are more steps)

h. write the resulting sliced program