

Practice Set: Loops (11 problems) – v202

SL	Problem statement	Difficulty levels														
1.	<p>Write a program (WAP) that will print the following series up to the Nth term.</p> <p style="text-align: center;">1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31</p> <table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>2</td><td>1, 3</td></tr><tr><td>5</td><td>1, 3, 5, 7, 9</td></tr><tr><td>11</td><td>1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21</td></tr></table>	Sample input	Sample output	2	1, 3	5	1, 3, 5, 7, 9	11	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21	*						
Sample input	Sample output															
2	1, 3															
5	1, 3, 5, 7, 9															
11	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21															
2.	<p>Write a program (WAP) that will print following series up to Nth term.</p> <p style="text-align: center;">1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, </p> <table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>1</td><td>1</td></tr><tr><td>2</td><td>1, 0</td></tr><tr><td>3</td><td>1, 0, 1</td></tr><tr><td>4</td><td>1, 0, 1, 0</td></tr><tr><td>7</td><td>1, 0, 1, 0, 1, 0, 1</td></tr><tr><td>13</td><td>1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1</td></tr></table>	Sample input	Sample output	1	1	2	1, 0	3	1, 0, 1	4	1, 0, 1, 0	7	1, 0, 1, 0, 1, 0, 1	13	1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1	**
Sample input	Sample output															
1	1															
2	1, 0															
3	1, 0, 1															
4	1, 0, 1, 0															
7	1, 0, 1, 0, 1, 0, 1															
13	1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1															
3.	<p>Write a program (WAP) that will take N numbers as inputs and compute their average.</p> <p>(Restriction: Without using any array)</p> <table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>3 10 20 30.5</td><td>AVG of 3 inputs: 20.166667</td></tr><tr><td>2 22.4 11.1</td><td>AVG of 2 inputs: 16.750000</td></tr></table>	Sample input	Sample output	3 10 20 30.5	AVG of 3 inputs: 20.166667	2 22.4 11.1	AVG of 2 inputs: 16.750000	*								
Sample input	Sample output															
3 10 20 30.5	AVG of 3 inputs: 20.166667															
2 22.4 11.1	AVG of 2 inputs: 16.750000															

4.	<p>Write a program (WAP) that will take two numbers X and Y as inputs. Then it will print the square of X and increment (if X<Y) or decrement (if X>Y) X by 1, until X reaches to Y. If and when X is equal to Y, the program prints “Reached!”</p> <table><tr><th><i>Sample input(X,Y)</i></th><th><i>Sample output</i></th></tr><tr><td>10 5</td><td>100, 81, 64, 49, 36, Reached!</td></tr><tr><td>5 10</td><td>25, 36, 49, 64, 81, Reached!</td></tr><tr><td>10 10</td><td>Reached!</td></tr></table>	<i>Sample input(X,Y)</i>	<i>Sample output</i>	10 5	100, 81, 64, 49, 36, Reached!	5 10	25, 36, 49, 64, 81, Reached!	10 10	Reached!	*		
<i>Sample input(X,Y)</i>	<i>Sample output</i>											
10 5	100, 81, 64, 49, 36, Reached!											
5 10	25, 36, 49, 64, 81, Reached!											
10 10	Reached!											
5.	<p>Write a program (WAP) that will run and show keyboard inputs until the user types an 'A' at the keyboard.</p> <table><tr><th><i>Sample input</i></th><th><i>Sample output</i></th></tr><tr><td>X</td><td>Input 1: X</td></tr><tr><td>1</td><td>Input 2: 1</td></tr><tr><td>a</td><td>Input 3: a</td></tr><tr><td>A</td><td></td></tr></table>	<i>Sample input</i>	<i>Sample output</i>	X	Input 1: X	1	Input 2: 1	a	Input 3: a	A		*
<i>Sample input</i>	<i>Sample output</i>											
X	Input 1: X											
1	Input 2: 1											
a	Input 3: a											
A												
6.	<p>Write a program (WAP) that will give the sum of first Nth terms for the following series.</p> <p>1, -2, 3, -4, 5, -6, 7, -8, 9, -10, 11, -12, 13, -14,</p> <table><tr><th><i>Sample input</i></th><th><i>Sample output</i></th></tr><tr><td>2</td><td>Result: -1</td></tr><tr><td>3</td><td>Result: 2</td></tr><tr><td>4</td><td>Result: -2</td></tr></table>	<i>Sample input</i>	<i>Sample output</i>	2	Result: -1	3	Result: 2	4	Result: -2	**		
<i>Sample input</i>	<i>Sample output</i>											
2	Result: -1											
3	Result: 2											
4	Result: -2											

7.	Write a program (WAP) that will print the Fibonacci series up to the N th term.	**										
	1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89,											
	<table><tr><th><i>Sample input</i></th><th><i>Sample output</i></th></tr><tr><td>1</td><td>1</td></tr><tr><td>2</td><td>1, 1</td></tr><tr><td>4</td><td>1, 1, 2, 3</td></tr><tr><td>7</td><td>1, 1, 2, 3, 5, 8, 13</td></tr></table>	<i>Sample input</i>	<i>Sample output</i>	1	1	2	1, 1	4	1, 1, 2, 3	7	1, 1, 2, 3, 5, 8, 13	
<i>Sample input</i>	<i>Sample output</i>											
1	1											
2	1, 1											
4	1, 1, 2, 3											
7	1, 1, 2, 3, 5, 8, 13											

8.	Write a program (WAP) that will print the factorial (N!) of a given number N. Please see the sample input output.	**												
<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>1</td><td>1! = 1 = 1</td></tr><tr><td>2</td><td>2! = 2 X 1 = 2</td></tr><tr><td>3</td><td>3! = 3 X 2 X 1 = 6</td></tr><tr><td>4</td><td>4! = 4 X 3 X 2 X 1 = 24</td></tr></table>			Sample input	Sample output	1	1! = 1 = 1	2	2! = 2 X 1 = 2	3	3! = 3 X 2 X 1 = 6	4	4! = 4 X 3 X 2 X 1 = 24		
Sample input	Sample output													
1	1! = 1 = 1													
2	2! = 2 X 1 = 2													
3	3! = 3 X 2 X 1 = 6													
4	4! = 4 X 3 X 2 X 1 = 24													
9.	Write a program (WAP) that will find x^y (x to the power y) where x, y are positive integers.	*												
<table><tr><th>Sample input(x,y)</th><th>Sample output</th></tr><tr><td>5 2</td><td>25</td></tr><tr><td>2 0</td><td>1</td></tr><tr><td>6 1</td><td>6</td></tr><tr><td>0 5</td><td>0</td></tr></table>			Sample input(x,y)	Sample output	5 2	25	2 0	1	6 1	6	0 5	0		
Sample input(x,y)	Sample output													
5 2	25													
2 0	1													
6 1	6													
0 5	0													
10.	WAP that will find the GCD (greatest common divisor) and LCM (least common multiple) of two positive integers.	**												
<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>5 7</td><td>GCD: 1 LCM: 35</td></tr><tr><td>12 12</td><td>GCD: 12 LCM: 12</td></tr><tr><td>12 32</td><td>GCD: 4 LCM: 96</td></tr></table>			Sample input	Sample output	5 7	GCD: 1 LCM: 35	12 12	GCD: 12 LCM: 12	12 32	GCD: 4 LCM: 96				
Sample input	Sample output													
5 7	GCD: 1 LCM: 35													
12 12	GCD: 12 LCM: 12													
12 32	GCD: 4 LCM: 96													
11.	WAP that will determine whether a number is prime or not.	**												
<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>1</td><td>Not prime</td></tr><tr><td>2</td><td>Prime</td></tr><tr><td>11</td><td>Prime</td></tr><tr><td>39</td><td>Not prime</td></tr><tr><td>101</td><td>Prime</td></tr></table>			Sample input	Sample output	1	Not prime	2	Prime	11	Prime	39	Not prime	101	Prime
Sample input	Sample output													
1	Not prime													
2	Prime													
11	Prime													
39	Not prime													
101	Prime													