Results and Discussion of Almost-Increasing Sub-sequences

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For Run #1, n=20, Range=1 to 20
Input:
12 14 9 12 17 15 7 9 14 9 11 5 20 17 15 10 12 18 6 2

Zi

Iteration 1	12						
Iteration 2	12	14					
Iteration 3	9	14					
Iteration 4	9	12					
Iteration 5	9	12	17				
Iteration 6	9	12	15				
Iteration 7	7	12	15				
Iteration 8	7	9	15				
Iteration 9	7	9	14	15			
Iteration 10	7	9	15				
Iteration 11	7	9	11				
Iteration 12	5	9	11				
Iteration 13	5	9	11	20			
Iteration 14	5	9	11	17			
Iteration 15	5	9	11	15			
Iteration 16	5	9	10	11			
Iteration 17	5	9	10	11	12		
Iteration 18	5	9	10	11	12	18	
Iteration 19	5	6	9	10	11	12	18
Iteration 20	2	6	9	10	11	12	18

Pi

Iteration 1	1																			
Iteration 2	1	1																		
Iteration 3	1	1	3																	
Iteration 4	1	1	3	3																
Iteration 5	1	1	3	3	4															
Iteration 6	1	1	3	3	4	4														
Iteration 7	1	1	3	3	4	4	7													
Iteration 8	1	1	3	3	4	4	7	7												
Iteration 9	1	1	3	3	4	4	7	7	8											
Iteration 10	1	1	3	3	4	4	7	7	8	7										
Iteration 11	1	1	3	3	4	4	7	7	8	7	8									
Iteration 12	1	1	3	3	4	4	7	7	8	7	8	12								
Iteration 13	1	1	3	3	4	4	7	7	8	7	8	12	11							
Iteration 14	1	1	3	3	4	4	7	7	8	7	8	12	11	11						
Iteration 15	1	1	3	3	4	4	7	7	8	7	8	12	11	11	11					
Iteration 16	1	1	3	3	4	4	7	7	8	7	8	12	11	11	11	8				
Iteration 17	1	1	3	3	4	4	7	7	8	7	8	12	11	11	11	8	11			
Iteration 18	1	1	3	3	4	4	7	7	8	7	8	12	11	11	11	8	11	17		
Iteration 19	1	1	3	3	4	4	7	7	8	7	8	12	11	11	11	8	11	17	12	
Iteration 20	1	1	3	3	4	4	7	7	8	7	8	12	11	11	11	8	11	17	12	20

For Run #2, n=20, Range=1 to 20

Input2:
8 19 3 14 10 2 5 15 15 19 20 11 13 8 16 15 10 6 6 16

Zi

Iteration 1	8						
Iteration 2	8	19					
Iteration 3	3	19					
Iteration 4	3	14					
Iteration 5	3	10					
Iteration 6	2	3					
Iteration 7	2	3	5				
Iteration 8	2	3	5	15			
Iteration 9	2	3	5	15			
Iteration 10	2	3	5	15	19		
Iteration 11	2	3	5	15	19	20	
Iteration 12	2	3	5	11	15	19	20
Iteration 13	2	3	5	11	13	19	20
Iteration 14	2	3	5	8	13	19	20
Iteration 15	2	3	5	8	13	16	20
Iteration 16	2	3	5	8	13	15	16
Iteration 17	2	3	5	8	10	15	16
Iteration 18	2	3	5	6	10	15	16
Iteration 19	2	3	5	6	15	16	
Iteration 20	2	3	5	6	15	16	

Pi

Iteration 1		1																			
Iteration 2		1		1																	
Iteration 3		1		1	3																
Iteration 4		1		1	3	3															
Iteration 5		1		1	3	3	3														
Iteration 6		1		1	3	3	3	6													
Iteration 7		1		1	3	3	3	6	3												
Iteration 8		1		1	3	3	3	6	3	7											
Iteration 9		1		1	3	3	3	6	3	7	7										
Iteration 10		1		1	3	3	3	6	3	7	7	8									
Iteration 11		1		1	3	3	3	6	3	7	7	8	10								
Iteration 12		1		1	3	3	3	6	3	7	7	8	10	7							
Iteration 13		1		1	3	3	3	6	3	7	7	8	10	7	12						
Iteration 14		1		1	3	3	3	6	3	7	7	8	10	7	12	7					
Iteration 15		1		1	3	3	3	6	3	7	7	8	10	7	12	7	13				
Iteration 16		1		1	3	3	3	6	3	7	7	8	10	7	12	7	13	13			
Iteration		1		1	3	3	3	6	3	7	7	8	10	7	12	7	13	13	14		

17																						
Iteration 18		1		1	3	3	3	6	3	7	7	8	10	7	12	7	13	13	14	7		
Iteration 19		1		1	3	3	3	6	3	7	7	8	10	7	12	7	13	13	14	7	7	
Iteration 20		1		1	3	3	3	6	3	7	7	8	10	7	12	7	13	13	14	7	7	16

Steps to run (required java set to environment variable):

1) Open terminal in the folder
2) run the command:

    javac *.java

3) run command:

    java RunLAS

To change run configuration

1) To change the constant value, change the value of the variable ‘c’ on line 16 of file RunLAS.java
2) To change the size of the input, modify the value in the condition of the while loop on line 11 of file RunLAS.java
3) To change the range of the input values, change the value of the arguments if the function randomWithRange on line 12 of file RunLAS.java

Files generated:

Results.txt – contains the lengths and runtime count. (Every run appends an entry)
LongestAlmostIncreasingSS.txt – the longest subsequence