

Assignment #2

Consider the following 20x20 grid of integers:

8	2	22	97	38	15	0	40	0	75	4	5	7	78	52	12	50	77	91	8
49	49	99	40	17	81	18	57	60	87	17	40	98	43	69	48	4	56	62	0
81	49	31	73	55	79	14	29	93	71	40	67	53	88	30	3	49	13	36	65
52	70	95	23	4	60	11	42	69	24	68	56	1	32	56	71	37	2	36	91
22	31	16	71	51	67	63	89	41	92	36	54	22	40	40	28	66	33	13	80
24	47	32	60	99	3	45	2	44	75	33	53	78	36	84	20	35	17	12	50
32	98	81	28	64	23	67	10	26	38	40	67	59	54	70	66	18	38	64	70
67	26	20	68	2	62	12	20	95	63	94	39	63	8	40	91	66	49	94	21
24	55	58	5	66	73	99	26	97	17	78	78	96	83	14	88	34	89	63	72
21	36	23	9	75	0	76	44	20	45	35	14	0	61	33	97	34	31	33	95
78	17	53	28	22	75	31	67	15	94	3	80	4	62	16	14	9	53	56	92
16	39	5	42	96	35	31	47	55	58	88	24	0	17	54	24	36	29	85	57
86	56	0	48	35	71	89	7	5	44	44	37	44	60	21	58	51	54	17	58
19	80	81	68	5	94	47	69	28	73	92	13	86	52	17	77	4	89	55	40
4	52	8	83	97	35	99	16	7	97	57	32	16	26	26	79	33	27	98	66
88	36	68	87	57	62	20	72	3	46	33	67	46	55	12	32	63	93	53	69
4	42	16	73	38	25	39	11	24	94	72	18	8	46	29	32	40	62	76	36
20	69	36	41	72	30	23	88	34	62	99	69	82	67	59	85	74	4	36	16
20	73	35	29	78	31	90	1	74	31	49	71	48	86	81	16	23	57	5	54
1	70	54	71	83	51	54	69	16	92	33	48	61	43	52	1	89	19	67	48

Note that four of the integers in a single row are marked in red. The sum of these four integers is: $20 + 95 + 63 + 94 = 272$. What is the greatest sum of four adjacent integers in the horizontal direction in the 20x20 grid?

Your task:

Write a Java program that answers the question asked above. Your program should only display the greatest sum; that is, the output generated by your program should be a single integer (on its own line) representing the greatest sum.

Requirements:

- (1) Submit a **single .java source file**.
- (2) You must read the input from standard input (`stdin`). The format of the input will be a single line of 400 integers, each separated by a space. You must store the integers in an array.
- (3) Display only the greatest sum (to `stdout` on its own line).
- (4) Even though the input is provided as a single line, consider the integers in a 20x20 grid as described above. Calculate the greatest sum in the entire grid of four adjacent integers in the horizontal direction **without wrapping around** to the next row! Note that the four integers marked in blue in the grid above **do not constitute a valid sum** because they are not in the same row.

Hints:

- (1) Use a `Scanner`.
- (2) The method `nextInt()` of the class `Scanner` will help a lot.
- (3) Consider calculating the row and column (in the grid) of the integers as they are being processed.