Alice Johnson

Variables, Operations, and Loops

Write a C program that generates multiplication tables using different loop structures.

## **TASK REQUIREMENTS:**

Name:

- Generate a printed NxN table for values N=1 to 13 using for loops
- Table should have column headers showing each N value
- Create a reversed version(13 at top/left) using while loops
- Include clear code comments and consistent formatting
- · Preserve the included sample text files for testing

## **SAMPLE OUTPUT**

TAB.	LE OF												
N	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1	2	3	4	5	6	7	8	9	10	11	12	13
2	2	4	6	8	10	12	14	16	18	20	22	24	26
3	3	6	9	12	15	18	21	24	27	30	33	36	39
4	4	8	12	16	20	24	28	32	36	40	44	48	52
5	5	10	15	20	25	30	35	40	45	50	55	60	65
б	6	12	18	24	30	36	42	48	54	60	66	72	78
7	7	14	21	28	35	42	49	56	63	70	77	84	91
8	8	16	24	32	40	48	56	64	72	80	88	96	104
9	9	18	27	36	45	54	63	72	81	90	99	108	117
10	10	20	30	40	50	60	70	80	90	100	110	120	130
11	11	22	33	44	55	66	77	88	99	110	121	132	143
12	12	24	36	48	60	72	84	96	108	120	132	144	156
13	13	26	39	52	65	78	91	104	117	130	143	156	169
REVI N	ERSED 13	TABLE	OF P	RODUC	CTS(WH	HILE L	JOOP)	6	5	4	3	2	1
N					-		-	6 78	5 65	4 52	3 39	2 26	1 13
N 13	13	12	11	10	9	8	7						
N 13 12	13 169	12 156	11 143	10 130	9 117	8 104	7 91	78	65	52	39	26	13
N 13 12 11	13 169 156	12 156 144	11 143 132	10 130 120	9 117 108	8 104 96	7 91 84	78 72	65 60	52 48	39 36	26 24	13 12
N 13 12 11	13 169 156 143	12 156 144 132	11 143 132 121	10 130 120 110	9 117 108 99	8 104 96 88	7 91 84 77	78 72 66	65 60 55	52 48 44	39 36 33	26 24 22	13 12 11
N 13 12 11 10	13 169 156 143 130	12 156 144 132 120	11 143 132 121 110	10 130 120 110 100	9 117 108 99 90	8 104 96 88 80	7 91 84 77 70	78 72 66 60	65 60 55 50	52 48 44 40	39 36 33 30	26 24 22 20	13 12 11 10
N 13 12 11 10 9	13 169 156 143 130 117	12 156 144 132 120 108	11 143 132 121 110 99	10 130 120 110 100 90	9 117 108 99 90 81	8 104 96 88 80 72	7 91 84 77 70 63	78 72 66 60 54	65 60 55 50 45	52 48 44 40 36	39 36 33 30 27	26 24 22 20 18	13 12 11 10 9
	13 169 156 143 130 117 104	12 156 144 132 120 108 96	11 143 132 121 110 99 88	10 130 120 110 100 90 80	9 117 108 99 90 81 72	8 104 96 88 80 72 64	7 91 84 77 70 63 56	78 72 66 60 54 48	65 60 55 50 45 40	52 48 44 40 36 32	39 36 33 30 27 24	26 24 22 20 18 16	13 12 11 10 9 8
N 13 12 11 10 9 8	13 169 156 143 130 117 104 91	12 156 144 132 120 108 96 84	11 143 132 121 110 99 88 77	10 130 120 110 100 90 80 70	9 117 108 99 90 81 72 63	8 104 96 88 80 72 64 56	7 91 84 77 70 63 56 49	78 72 66 60 54 48 42	65 60 55 50 45 40 35	52 48 44 40 36 32 28	39 36 33 30 27 24 21	26 24 22 20 18 16 14	13 12 11 10 9 8 7
N 13 12 11 10 9 8 7 6	13 169 156 143 130 117 104 91	12 156 144 132 120 108 96 84 72	11 143 132 121 110 99 88 77 66	10 130 120 110 100 90 80 70 60	9 117 108 99 90 81 72 63 54	8 104 96 88 80 72 64 56 48	7 91 84 77 70 63 56 49 42	78 72 66 60 54 48 42 36	65 60 55 50 45 40 35 30	52 48 44 40 36 32 28 24	39 36 33 30 27 24 21 18	26 24 22 20 18 16 14	13 12 11 10 9 8 7 6
N 13 12 11 10 9 8 7 6 5	13 169 156 143 130 117 104 91 78 65	12 156 144 132 120 108 96 84 72 60	11 143 132 121 110 99 88 77 66 55	10 130 120 110 100 90 80 70 60 50	9 117 108 99 90 81 72 63 54 45	8 104 96 88 80 72 64 56 48	7 91 84 77 70 63 56 49 42 35	78 72 66 60 54 48 42 36 30	65 60 55 50 45 40 35 30 25	52 48 44 40 36 32 28 24 20	39 36 33 30 27 24 21 18 15	26 24 22 20 18 16 14 12	13 12 11 10 9 8 7 6 5
N 13 12 11 10 9 8 7	13 169 156 143 130 117 104 91 78 65 52	12 156 144 132 120 108 96 84 72 60 48	11 143 132 121 110 99 88 77 66 55 44	10 130 120 110 100 90 80 70 60 50 40	9 117 108 99 90 81 72 63 54 45 36	8 104 96 88 80 72 64 56 48 40 32	7 91 84 77 70 63 56 49 42 35 28	78 72 66 60 54 48 42 36 30 24	65 60 55 50 45 40 35 30 25 20	52 48 44 40 36 32 28 24 20 16	39 36 33 30 27 24 21 18 15	26 24 22 20 18 16 14 12 10	13 12 11 10 9 8 7 6 5 4

## **Submission Instructions**

## **Video Recording Submission:**

You will demonstrate the completion of this project via a **video screen-capture recording** of you using CLion, GitBash, and viewing your code to show completion of the **Video Submission Checklist**, which is posted on Brightspace. You will post **either your video file or a link to it**(e.g. a Microsoft Stream recording, make sure to give the instructor permissions to watch it), to the Brightspace Assignment 1 Dropbox prior to the deadline. If you are not sure of how best to capture such a video, seek advice from the instructor prior to the deadline.

**NOTE:** MAKE SURE TO SHOW EVERYTHING IN THE VIDEO SUBMISSION CHECKLIST STEP-BY-STEP. YOU WILL NEED AUDIO IN THE VIDEO FOR AT LEAST THE CODE REVIEW PORTION OF THE CHECKLIST