VIDHI ROHIRA

S.Y B.TECH

SEM III

COMPUTER ENGINEERING

DAA LAB 6
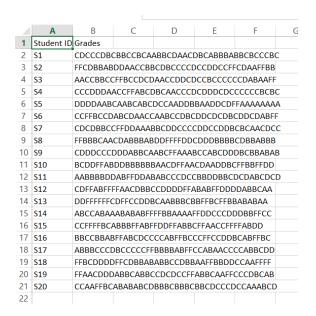
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BATCH – C

LABORATORY 6

LONGEST COMMON SUBSEQEUNCE:

INPUT:

POSITIVE TEST CASE 1:

	A	B	C	D	E	F	G
1	Student ID	Grades					
2	S1	CDCCCDBCBBCCBCAABBCDAACDBCABBBABBCBCCCBC					
3	S2	FFCDBBABDDAACCBBCDBCCCCDCCDDCCFFCDAAFFBB					
4	S3	AACCBBCCFFBCCDCDAACCDDCDCCBCCCCCCDABAAFF					
5	S4	CCCDDDAACCFFABCDBCAACCCDCDDDCDCCCCCCBCBC					
6	S5	DDDDAABCAABCABCDCCAADDBBAADDCDFFAAAAAAAA					
7	S6	CCFFBCCDABCDAACCAABCCDBCDDCDCDBCDDCDABFF					
8	S7	CDCDBBCCFFDDAAABBCDDCCCCDDCCDDBCBCAACDCC					
9	S8	FFBBBCAACDABBBABDDFFFFDDCDDDBBBBCDBBABBB					
10	S9	CDDDCCCDDDABBCAABCFFAAABCCABCDDDBCBBABAB					
11	S10	BCDDFFABDDBBBBBBAACDFFAACDAADDBCFFBBFFDD					
12	S11	AABBBBDDABFFDDABABCCCDCCBBDDBBCDCDABCDCD					
13	S12	CDFFABFFFFAACDBBCCDDDDFFABABFFDDDDABBCAA					
14	S13	DDFFFFFFCDFFCCDDBCAABBBCBBFFBCFFBBABABAA					
15	S14	ABCCABAAABABABFFFFBBAAAAFFDDCCCDDDBBFFCC					
16	S15	CCFFFFBCABBBFFABFFDDFFABBCFFAACCFFFFABDD					
17	S16	BBCCBBABFFABCDCCCCABFFBCCCFFCCDDBCABFFBC					
18	S17	ABBBCCCDBCCCCCFFBBBBABFFCCABAACCCCABBCDD					
19	S18	FFBCDDDDFFCDBBABABBCCDBBAAFFBBDDCCAAFFFF					
20	S19	FFAACDDDABBCABBCCDCDCCFFABBCAAFFCCCDBCAB					
21	S20	CCAAFFBCABABABCDBBBCBBBCBBCDCCCDCCAAABCD					
22							

POSITIVE TEST CASE 2:

	A	B
1	Student ID	Grades
2	S1	CCBCBBFFABAAAADDDDFFABCCFFABABBBFFBCFFFF
3	S2	BCABDDAAFFABBCBBFFFFFFCDFFBCBCAACCCDCDBB
4	S3	BCDDABCCBBCCFFABFFBBCCDDDDCDFFAABBFFBCAA
5	S4	BBCDFFAACDAAAADDBBAACCCCDDABBCBCCCBBBCFF
6	S5	CCABBBBCDDCDBBCCFFAABBAACCCCAACCDDBCCCCD
7	S6	BCABBCFFABAAABDDABABBBBCFFBBCDBBCDBBCCAA
8	S7	CCFFABABFFBBBCBBBBABAAAABABFFCDCCDDDDDDAB
9	S8	ABABBBCDBBAAABCDBBBCDDDDFFBBABCDFFBCCCCC
10	S9	ABDDFFABABFFCDDDAABCBCCCBBFFCCAABBDDFFCC
11	S10	FFCCFFBCCCCDDDBCCCBBCDCCCDCDBBAABCBBDDAA
12	S11	CDCCBBABDDAACCABCDFFAABBBBDDDDABCDBCDDCD
13	S12	CDDDFFAAABAAFFBCAABBBBABCDAAFFCCAABCBCCD
14	S13	AAFFCCBCFFBBBCABDDBBDDCCAACDDDDDBBBCCCAA
15	S14	DDCDBCCCABBBBBCDCCDDDDAAAAAAFFABFFDDFFAB
16	S15	BBCDABCCABDDBBCCAADDCDBCBBDDDDDCCBCAADDAA
17	S16	CCABDDCDCDBBCDAABBBBCDFFFFBCCDABCCCDBCBB
18	S17	FFDDFFAAFFABFFDDDDFFFFDDFFFFCDAABCCDABCD
19	S18	AADDAACDBBDDAADDAACDCCCDBCDDCCFFCDCDAACC
20	S19	BCBBCDBCDDDDDDCCFFDDFFCCCCFFABDDCDFFDDFF
21	S20	AABBDDCDFFDDBCBCCCBCCCCDABABDDBBCCCDABAB
22		

POSITIVE TEST CASE 3:

	A	B
1	Student ID	Grades
2	S1	ABBBCCFFBBCDBCCDCCAADDAACCCCAABCAABCCCBB
3	S2	CCBBABFFCDCDCDBCCDABCCAAAADDCCBCCCBBBBCC
4	S3	CDBCCDDDDDCCDDBCFFBBDDDDCCAACCDDCCDDCDBB
5	S4	ABCDDDDDAAAACDDDBBBCFFDDCCABDDCCCDAAAACD
6	S5	FFFFDDDDBCFFBBCDBCCCBBBBBCFFDDAACCBBCCDD
7	S6	AADDCCFFDDCCFFBBBBBCBCAACCCDCDAACCCCAAAA
8	S7	AACCCDFFCDABABBCFFCCBCCDDDFFABABCCBBFFBB
9	S8	ABBCAACCBCDDCCBCABBCFFBBCDCDDDBCCDABDDCD
10	S9	FFBCDDCCCCBCCCCCBBBBCDCCCCBCFFABBBAAABDD
11	S10	CDCDCCAAAAFFBCCCFFCCCDFFCCCDFFCCABAABCAB
12	S11	AABBCCDDDDAABBCDCCBBFFCDFFAAFFCCCCAACDFF
13	S12	CDFFBBCDAABBBBABFFCDBCCDBCAAABCCCDDDBBBB
14	S13	FFABDDBCBCABBBDDABDDDDAABBBBBCAAAADDCCDD
15	S14	AADDCDCCBBBCBBBCBBDDAAABAAFFFFFFFFBCBBBB
16	S15	FFDDAACDABBCBCDDFFFFDDDDCDBBBBCDBBBCAAFF
17	S16	BCFFBBBBBCBCAABCBBCCABDDCDABBCABABFFDDCC
18	S17	FFCCBBBBDDCCABABCDCCBCAAFFABABDDFFAABBDD
19	S18	DDBCBCABBBCCAAFFCDDDDDCCFFCCFFDDAABBAAAA
20	S19	ABAAABCDBCDDAACDABBCCDBBDDBBABAAAAFFCCDD
21	S20	CCCCCDBBDDABAAFFAAABCDBCBBAABCCCFFBCBCBC
22		

POSITIVE TEST CASE 4:

	A	B
1	Student ID	Grades
2	S1	FFCCAABBBCAAAACDBCBCAAABABAAABDDABCDCDBC
3	S2	DDCDCDABCCABBCFFFFCDABCDBCAAABCCCCBCCCFF
4	S3	CCCDBBDDBBBBBBCCAABBDDBCCCBBCCAADDABCDFF
5	S4	FFBBABBBCCABCDBBBCCDDDAADDAACCCDBBFFBCDD
6	S5	BCFFAACCBCBBBBBCABBCCCBCDDBBAAAACDFFAABC
7	S6	CDDDCDCDAABBABAAFFBCAABCCCFFCCCDDDAABCDD
8	S7	DDBBFFDDDDBCAABCBCDDAAAABBFFFFDDCCCCCDCC
9	S8	ABCCDDABBCFFAABBCCFFCDBBBBCDCDAABBDDBBBB
10	S9	ABCCAAAABCDDAAFFDDFFDDAAABBCFFBCBBDDDDAA
11	S10	DDAACCDDABBCCDDDFFCCBBABCCABCDCDBBBCCDBB
12	S11	BCCDBBBBABAABBCDFFAAAACCDDABCDCDAACCAAAA
13	S12	DDABCCDDFFBCDDFFFFBCCCDDDDCDABABCDFFCDDD
14	S13	DDABABFFABCDBBDDBCBCBBBCAADDBCCDDDCDBCBB
15	S14	FFABDDBCDDBCBBAAABFFCCAACDDDCDCCBCCCFFBB
16	S15	BBCCABBCDDBCBCCDBCCDCCFFABFFCCABABBCBBFF
17	S16	CDCDBCFFBCDDBBABCDDDCDCCDDDDDDDDAAABCDAA
18	S17	AAABBBDDCDBCDDCDFFDDCDBCBCFFDDCCBCAAAAFF
19	S18	BCFFFFABBCBCFFDDAACCBCBBCCBCCDCCABDDABAB
20	S19	CDFFBCABDDABCDAAFFBCABABABBCCDAACCAABCCC
21	S20	DDABDDBCBCFFDCDCCDDAAAABBBBFFABABCCBCDD
22		

NEGATIVE TEST CASE 1:

	A	B	C
1	Student ID	Grades	
2	S1	BBCDABFFCDFFDDCDDDAB	
3	S2	ABDDABFFAACCDDFFAACC	
4	S3	AACDDDDDBBCDABAAABAABCBCBBDDBBBCCCFFBB$@	
5	S4	DDAAFFABFFFFCCDDDDCD	
6	S5	BBCDBBFFBCBBCDAABBAB	
7	S6	DDDDBBCDCCAAAADDBBDD	
8	S7	CCCDCDBBFFCDAACCCCBC	
9	S8	DDAABCCCCCAAABBCFFCD	
10	S9	BCDDBBDDBBCCCDDDABCCBBDDCCBCFFABAADDCD1A	
11	S10	FFFFBCBCAACCBBABCDABABCCABABBCCCCCCCFF1A	
12	S11	ABBBDDDDBCFFCCFFCCDD	
13	S12	BCFFBCCDBBFFCCCCCCBBFFFFBCABABCCBBCDCC1A	
14	S13	DDDDBBFFBBFFCDDDBBCCDDAADDFFDDCCCCCCDD1A	
15	S14	BBAADDBCABBCBBBBAACCABBBBDDDDBCCCCCBBBB$@	
16	S15	AAAAFFAADDCDCCDDDDBCAAAABBAAFFCCBBBCAA$@	
17	S16	FFAACDAABBCCABAABBAA	
18	S17	AADDBCBCCCABABDDBCAB	
19	S18	FFCDABCDFFAABCCDAABBFFBCFFABFFFFBBCDCC1A	
20	S19	BCCCABAACCBBFFCDFFAB	
21	S20	FFCCCCABBBBBBBCDFFCCAAAABBDDCDABCCABFF1A	
22			

NEGATIVE TEST CASE 2:

	A	B
1	Student ID	Grades
2	S1	CDCCAABBBCBBBBCCBBCC
3	S2	CCAADDBCCDABFFAAFFCC
4	S3	CCBBFFABCDBBDDCDABBCDDBCCDABBBDDBBAAAB1A
5	S4	AABCBBCDCCBCABCCDDBBBCABBBCDDDBBCDDDAB$@
6	S5	ABDDCDAAABABCDFFFFAB
7	S6	BCBBDDCDCCCDAACCDDCC
8	S7	FFBCCCCDFFDDCCBCFFDDBCBBBCBCCDABCCAACC$@
9	S8	CDCCAAAABBBCAAABBCCDAADDCDCDDDAADDABAB$@
10	S9	DDDDCDDDABBCAAFFCCFF
11	S10	FFCCCDBCCCDDBCAACDBC
12	S11	CDABAACDFFCCBCFFCCCCDDFFDDAABCAACCCCFF1A
13	S12	ABABBCFFCCAADDAABBAABBDDBBBCBBCDBCDDCD$@
14	S13	CCBCCDFFCCABFFAAFFFF
15	S14	CDAAABAADDABFFCDDDDCDBCCCBCABDDBBAAFFCD1A
16	S15	BBBCBBFFAAABDDFFAACC
17	S16	BCFFCCABCCCCBCBCBBCCFFBBABBBCDCCABBCBB$@
18	S17	AACCDDDDFFAACCFFDDBBBDDBCCCFFAAAAFFDDAA1A
19	S18	CCBBDDCCCDCDABCDCDCDBBAACDAABCAABBBCCC$@
20	S19	FFDDAAAAAABBABCDFFCD
21	S20	CDCDBBBCFFCCCDABFFCCFFBCABDDFFFFDDAABB1A
22		
23		

NEGATIVE TEST CASE 3:

	A	B	C
1	Student ID	Grades	
2	S1	BBAAABBCBCABBCDDCCDD	
3	S2	CCABFFBBCDBCCCBBAACCBBBCAACDBBCCAAFFAB1A	
4	S3	CDDDCDCCCDABBBCCBCAA	
5	S4	ABCDBCAACDAABBBBCCFF	
6	S5	CCBCDDFFFFABDDCCDDAACCAACCCCFFBCDDCDAB1A	
7	S6	CCFFCCBBCDCCBBFFCCCDCDDDBCCDBCBCDDCCCD$@	
8	S7	ABABABAABCCDDDFFBBBB	
9	S8	BCAACDBCFFCCABFFABBBAAABDDCDFFAABBAABB$@	
10	S9	BBBBCDCCAADDBBABFFAA	
11	S10	ABABDDDDDDABCDBBCCCCCDCCABBBBCCDCDABCD$@	
12	S11	FFCDBCBCFFCCCCBBCCBC	
13	S12	BBDDAAABCCABFFBCBCDDCDBCDDCCDDCDCCBBFF$@	
14	S13	BBBBCCBCDDBCBCBBFFCDBCCCCCFFFFCCABAACC1A	
15	S14	CCFFCCAACCBCCCABFFBBABCCDDFFAACCDDCCCC1A	
16	S15	CDABAAFFAACCFFFFABBCABFFBBBCDDABBCCCCD1A	
17	S16	FFCCFFCDABBBCCAACDCCABBCABBBABFFDDDDDD1A	
18	S17	CCAADDABABCCCCABCDCC	
19	S18	CDDDAAABBCBCCCDDCDBB	
20	S19	BBBCAAFFBCFFABBCBCFFCDBCCCCDDDFFCCABAA$@	
21	S20	CCAAAACDCDAACCFFCDBCBCDDDDBCBBCCCDAAFF1A	
22			

NEGATIVE TEST CASE 4:

	A	B	C
1	Student ID	Grades	
2	S1	FFFFCCAAAAFFBCBCCDCDFFABCDFFFFCCBBBBFF$@	
3	S2	BCABBBDDBCCCFFBCAACCABBBBBFFAADDBCBCBC1A	
4	S3	FFABCCBBCCCDCCCDBCBC	
5	S4	BBAACCAAABCDCCCDFFBC	
6	S5	ABCCAABCBCAAABABFFBB	
7	S6	BCFFAAAABBCCFFABAABCAACCFFFFCCAADDFFAA1A	
8	S7	CCBCFFFFAAABFFCCFFFFFFABBCCCCDFFDDCCBC1A	
9	S8	CDBCAAAABCCDCDCCCCDDBBBCBCFFABCCBBABBB1A	
10	S9	CDDDABABAAAABBCBCBBCDCCDDBBFFAACDAAFFBC$@	
11	S10	FFAACCFFFFBCAACDCDAACDCCCCABFFBBDDCDCC1A	
12	S11	ABFFCCDDABDDCCBCCCCD	
13	S12	BBBBDDFFBCDDAACDBBAABCBCFFBBAADDAADDAA1A	
14	S13	BCCCABABBCCCDDBBBBBFFDDCCAABCAACCFFCDBB$@	
15	S14	CDABCDDDDDAADDBCABCCCDBBCCAABCAAFFCDDD1A	
16	S15	CCBBABDDDDCCBCBBDDFFABABDDFFDDCDBBDDDD1A	
17	S16	ABDDBBCCBCCDBCCDAACD	
18	S17	DDAAAAABBBABAADDDDCDDDBBCCAAABFFBBAAAB$@	
19	S18	BBCCABCCAAFFCCDDBBAABCBCABBBBCABBBAABC$@	
20	S19	BBBCCCABABCCFFAACCFF	
21	S20	CDCCAACCCDCDCCBBCCBBCCBCBCAAAABCCCCDBC1A	
22			
23			

OUTPUT:

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**   PORTS

PS F:\VIDHI ROHIRA SY BTECH CE\SEMESTER 3\DAA_LAB_6> & C:/Users/DELL/AppData/Local/Microsoft/WindowsApps/python3.11.exe "f:/VIDHI ROHIRA SY
 BTECH CE/SEMESTER 3/DAA_LAB_6/lcs.py"
Positive Test Cases:
Longest Common Subsequence of Grades for All Students in Test Case 19: AACC
Longest Common Subsequence of Grades for All Students in Test Case 19: BBB
Longest Common Subsequence of Grades for All Students in Test Case 19: CCCAA
Longest Common Subsequence of Grades for All Students in Test Case 19: CCBCBC

Negative Test Cases:
Error for student S2: Invalid grade sequence length: ABDDABFFAACCDDFFAACC. Expected length is 40 characters.
Error detected in Test Case 1. Skipping LCS calculation.
Error for student S2: Invalid grade sequence length: CCAADDBCCDABFFAAFFCC. Expected length is 40 characters.
Error detected in Test Case 1. Skipping LCS calculation.
Error for student S2: Invalid grade sequence: CCABFFBBCDBCCCBBAACCBBBCAACDBBCCAAFFAB1A. Numbers found in the sequence.
Error detected in Test Case 1. Skipping LCS calculation.
Error for student S2: Invalid grade sequence: BCABBBDDBCCCFFBCAACCABBBBBFFAADDBCBCBC1A. Numbers found in the sequence.
Error detected in Test Case 1. Skipping LCS calculation.
PS F:\VIDHI ROHIRA SY BTECH CE\SEMESTER 3\DAA_LAB_6>

MATRIX CHAIN MULTIPLICATION

INPUT:

```python
def tests():
    test_cases = [
        # Valid test cases (positive test cases) for meteorological data (assuming 5 cities)
        ([7, 5, 4, 6, 7, 8], 5),  # Example with matrix dimensions: 7x5, 5x4, 4x6, 6x7, 7x8
        ([3, 7, 5, 10, 15], 4),  # Example with matrix dimensions: 3x7, 7x5, 5x10, 10x15
        ([2, 4, 5, 6, 8], 4),    # Example with matrix dimensions: 2x4, 4x5, 5x6, 6x8
        ([4, 8, 6, 7, 9], 4),    # Example with matrix dimensions: 4x8, 8x6, 6x7, 7x9
        ([7, 3, 6, 4, 8], 4),    # Example with matrix dimensions: 7x3, 3x6, 6x4, 4x8

        # Invalid test cases (negative test cases)
        ([3, 7, 4, 7, 5], 5),    # Invalid: Missing one dimension for multiplication (4 matrices)
        ([2, 5, 6], 1),          # Invalid: Not enough matrices for multiplication
        ([10, 20, 30], 2),       # Invalid: Matrix dimensions array length doesn't match the number of matrices
        ([10, 20], 1),           # Invalid: One matrix (should have 2 for multiplication)
        ([10, -20, 10], 2),      # Invalid: Negative dimension value
        ([0, 20, 10], 2),        # Invalid: Zero dimension value
    ]
```

OUTPUT:

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

PS F:\VIDHI ROHIRA SY BTECH CE\SEMESTER 3\DAA_LAB_6> & C:/Users/DELL/AppData/Local/Microsoft/WindowsApps/python3.11.exe "f:/VIDHI ROHIRA SY BT
ECH CE/SEMESTER 3/DAA_LAB_6/mcm.py"
Test case with N=5 and arr=[7, 5, 4, 6, 7, 8]: 504
Test case with N=4 and arr=[3, 7, 5, 10, 15]: 255
Test case with N=4 and arr=[2, 4, 5, 6, 8]: 100
Test case with N=4 and arr=[4, 8, 6, 7, 9]: 360
Test case with N=4 and arr=[7, 3, 6, 4, 8]: 156
Test case with N=5 and arr=[3, 7, 4, 7, 5]: Error: The dimensions array length must be N+1
Test case with N=1 and arr=[2, 5, 6]: Error: There must be at least two matrices for multiplication
Test case with N=2 and arr=[10, 20, 30]: 0
Test case with N=1 and arr=[10, 20]: Error: There must be at least two matrices for multiplication
Test case with N=2 and arr=[10, -20, 10]: Error: Matrix dimensions must be positive values
Test case with N=2 and arr=[0, 20, 10]: Error: Matrix dimensions must be positive values
PS F:\VIDHI ROHIRA SY BTECH CE\SEMESTER 3\DAA_LAB_6>
```