

|    |        |       |   |           |            |           |           |    |    |           |           |    |    |
|----|--------|-------|---|-----------|------------|-----------|-----------|----|----|-----------|-----------|----|----|
| 1  |        |       |   |           |            |           |           |    |    |           | 1         |    |    |
| 2  |        |       |   |           |            |           |           |    |    |           | 2         |    |    |
| 3  |        |       |   |           |            |           |           |    |    |           | 3         |    |    |
| 4  | MATMUL | COBOL | FILE NAME/TYPE= /COBOL/MATH/MATMUL.COB    |           |            |           |           |    |    |           | 4         |    |    |
| 5  | MATMUL | COBOL |   |           |            |           |           |    |    |           | 5         |    |    |
| 6  | MATMUL | COBOL | CREATION DATE/TIME= 2025-11-15 21:24:06   |           |            |           |           |    |    |           | 6         |    |    |
| 7  | MATMUL | COBOL |   |           |            |           |           |    |    |           | 7         |    |    |
| 8  | MATMUL | COBOL | FILE= 001    PAGES= 0002    LINES= 000104 |           |            |           |           |    |    |           | 8         |    |    |
| 9  | MATMUL | COBOL |   |           |            |           |           |    |    |           | 9         |    |    |
| 10 | MATMUL | COBOL | SYSTEM= LINUX(6.16.8+KALI-AMD64)          |           |            |           |           |    |    |           | 10        |    |    |
| 11 | MATMUL | COBOL |   |           |            |           |           |    |    |           | 11        |    |    |
| 12 | MATMUL | COBOL | SYSID= ACID    SYSUSER= ACID              |           |            |           |           |    |    |           | 12        |    |    |
| 13 | MATMUL | COBOL |   |           |            |           |           |    |    |           | 13        |    |    |
| 14 | MATMUL | COBOL | FORM= SMALL                               |           |            |           |           |    |    |           | 14        |    |    |
| 15 | MATMUL | COBOL |   |           |            |           |           |    |    |           | 15        |    |    |
| 16 | MATMUL | COBOL | CHAR= FONTMONO                            |           |            |           |           |    |    |           | 16        |    |    |
| 17 | MATMUL | COBOL |   |           |            |           |           |    |    |           | 17        |    |    |
| 18 | MATMUL | COBOL | PRT1403 VERSION= 1.5.PRE-RELEASE          |           |            |           |           |    |    |           | 18        |    |    |
| 19 |        |       |   |           |            |           |           |    |    |           | 19        |    |    |
| 20 |        |       |   |           |            |           |           |    |    |           | 20        |    |    |
| 21 |        |       |   |           |            |           |           |    |    |           | 21        |    |    |
| 22 |        |       | CCCCCCC                                   | 0000000   | BBBBBBBBB  | 0000000   | LL        |    |    |           | 22        |    |    |
| 23 |        |       | CCCCCCCCC                                 | 000000000 | BBBBBBBBBB | 000000000 | LL        |    |    |           | 23        |    |    |
| 24 |        |       | CC    CC                                  | 00    00  | BB    BB   | 00    00  | LL        |    |    |           | 24        |    |    |
| 25 |        |       | CC    00                                  | 00    00  | BB    BB   | 00    00  | LL        |    |    |           | 25        |    |    |
| 26 |        |       | CC    00                                  | 00    00  | BBBBBBBBB  | 00    00  | LL        |    |    |           | 26        |    |    |
| 27 |        |       | CC    00                                  | 00    00  | BBBBBBBBB  | 00    00  | LL        |    |    |           | 27        |    |    |
| 28 |        |       | CC    00                                  | 00    00  | BB    BB   | 00    00  | LL        |    |    |           | 28        |    |    |
| 29 |        |       | CC    CC                                  | 00    00  | BB    BB   | 00    00  | LL        |    |    |           | 29        |    |    |
| 30 |        |       | CCCCCCCCC                                 | 000000000 | BBBBBBBBBB | 000000000 | LLLLLLLLL |    |    |           | 30        |    |    |
| 31 |        |       | CCCCCCC                                   | 0000000   | BBBBBBBBB  | 0000000   | LLLLLLLLL |    |    |           | 31        |    |    |
| 32 |        |       |   |           |            |           |           |    |    |           | 32        |    |    |
| 33 |        |       |   |           |            |           |           |    |    |           | 33        |    |    |
| 34 |        | M     | M   | AAA       | TTTTTTTTT  | M         | M         | UU | UU | LL        | 34        |    |    |
| 35 |        | MM    | MM  | AAAAA     | TTTTTTTTT  | MM        | MM        | UU | UU | LL        | 35        |    |    |
| 36 |        | MMM   | MMM                                       | AA    AA  | TT         | MMM       | MMM       | UU | UU | LL        | 36        |    |    |
| 37 |        | MMMM  | MMMM                                      | AA    AA  | TT         | MMMM      | MMMM      | UU | UU | LL        | 37        |    |    |
| 38 |        | MM    | MMM                                       | MM        | AA    AA   | MM        | MMM       | MM | UU | UU        | LL        | 38 |    |
| 39 |        | MM    | M   | MM        | AAAAAAAAA  | TT        | MM        | M  | MM | UU        | UU        | LL | 39 |
| 40 |        | MM    |   | MM        | AAAAAAAAA  | TT        | MM        |    | MM | UU        | UU        | LL | 40 |
| 41 |        | MM    |   | MM        | AA    AA   | TT        | MM        |    | MM | UU        | UU        | LL | 41 |
| 42 |        | MM    |   | MM        | AA    AA   | TT        | MM        |    | MM | UUUUUUUUU | LLLLLLLLL |    | 42 |
| 43 |        | MM    |   | MM        | AA    AA   | TT        | MM        |    | MM | UUUUUUU   | LLLLLLLLL |    | 43 |
| 44 |        |       |   |           |            |           |           |    |    |           | 44        |    |    |
| 45 |        |       |   |           |            |           |           |    |    |           | 45        |    |    |
| 46 |        |       |   | 00000     | 00000      |           | 1         |    |    |           | 46        |    |    |
| 47 |        |       |   | 0000000   | 0000000    |           | 11        |    |    |           | 47        |    |    |
| 48 |        |       |   | 00    00  | 00    00   |           | 111       |    |    |           | 48        |    |    |
| 49 |        |       |   | 00    00  | 00    00   |           | 11        |    |    |           | 49        |    |    |
| 50 |        |       |   | 00    00  | 00    00   |           | 11        |    |    |           | 50        |    |    |
| 51 |        |       |   | 00    00  | 00    00   |           | 11        |    |    |           | 51        |    |    |
| 52 |        |       |   | 00    00  | 00    00   |           | 11        |    |    |           | 52        |    |    |
| 53 |        |       |   | 00    00  | 00    00   |           | 11        |    |    |           | 53        |    |    |
| 54 |        |       |   | 0000000   | 0000000    |           | 111111    |    |    |           | 54        |    |    |
| 55 |        |       |   | 00000     | 00000      |           | 111111    |    |    |           | 55        |    |    |
| 56 |        |       |   |           |            |           |           |    |    |           | 56        |    |    |
| 57 |        |       |   |           |            |           |           |    |    |           | 57        |    |    |
| 58 | *****  |       |   |           |            |           |           |    |    |           | 58        |    |    |
| 59 | *****  |       |   |           |            |           |           |    |    |           | 59        |    |    |
| 60 | *****  |       |   |           |            |           |           |    |    |           | 60        |    |    |

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1 000001 IDENTIFICATION DIVISION.
2 000002 PROGRAM-ID. MatrixCalculation.
3 000003
4 000004 ENVIRONMENT DIVISION.
5 000005 DATA DIVISION.
6 000006
7 000007 WORKING-STORAGE SECTION.
8 000008
9 000009 01 M-SIZE PIC 9(4) COMP VALUE 400.
10 000010
11 000011 01 RESULT1 PIC S9(14) COMP VALUE 0.
12 000012 01 RESULT2 PIC S9(14) COMP VALUE 0.
13 000013
14 000014 01 TIME1 COMP-2 VALUE 0.
15 000015 01 TIME2 COMP-2 VALUE 0.
16 000016
17 000017 01 M1.
18 000018 05 M1-ROW OCCURS 400 TIMES.
19 000019 10 M1-ELEMENTS OCCURS 400 TIMES PIC S9(10) COMP.
20 000020 01 M2.
21 000021 05 M2-ROW OCCURS 400 TIMES.
22 000022 10 M2-ELEMENTS OCCURS 400 TIMES PIC S9(10) COMP.
23 000023 01 M3.
24 000024 05 M3-ROW OCCURS 400 TIMES.
25 000025 10 M3-ELEMENTS OCCURS 400 TIMES PIC S9(10) COMP.
26 000026
27 000027 01 I PIC S9(10) COMP.
28 000028 01 J PIC S9(10) COMP.
29 000029 01 K PIC S9(10) COMP.
30 000030
31 000031 01 START-TIME PIC S9(10) COMP.
32 000032 01 END-TIME PIC S9(10) COMP.
33 000033
34 000034 01 TEMP PIC S9(10) COMP.
35 000035
36 000036 01 RESULT1_TXT PIC 9(14).
37 000037 01 RESULT2_TXT PIC 9(14).
38 000038 01 TIME1_TXT PIC 9(3).9(6).
39 000039 01 TIME2_TXT PIC 9(3).9(6).
40 000040
41 000041 PROCEDURE DIVISION.
42 000042
43 000043 * -----
44 000044
45 000045 ACCEPT START-TIME FROM TIME.
46 000046
47 000047 MOVE 0 TO RESULT1.
48 000048
49 000049 PERFORM VARYING I FROM 1 BY 1 UNTIL 100 < I
50 000050 PERFORM VARYING J FROM 1 BY 1 UNTIL 1000000 < J
51 000051 ADD J TO RESULT1
52 000052 END-PERFORM
53 000053 END-PERFORM.
54 000054
55 000055 ACCEPT END-TIME FROM TIME.
56 000056 COMPUTE TIME1 = (END-TIME - START-TIME) / 100.
57 000057
58 000058 * -----
59 000059
60 000060 ACCEPT START-TIME FROM TIME.
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1 000061
2 000062      PERFORM VARYING I FROM 1 BY 1 UNTIL M-SIZE < I
3 000063          PERFORM VARYING J FROM 1 BY 1 UNTIL M-SIZE < J
4 000064              ADD I TO J GIVING M1-ELEMENTS(I, J)
5 000065              ADD I TO J GIVING M2-ELEMENTS(I, J)
6 000066          END-PERFORM
7 000067      END-PERFORM.
8 000068
9 000069      PERFORM VARYING I FROM 1 BY 1 UNTIL M-SIZE < I
10 000070          PERFORM VARYING J FROM 1 BY 1 UNTIL M-SIZE < J
11 000071              MOVE 0 TO M3-ELEMENTS(I, J)
12 000072              PERFORM VARYING K FROM 1 BY 1 UNTIL M-SIZE < K
13 000073                  MULTIPLY M1-ELEMENTS(I, K) BY M2-ELEMENTS(K, J)
14 000074                  GIVING TEMP
15 000075                  ADD TEMP TO M3-ELEMENTS(I, J)
16 000076              END-PERFORM
17 000077          END-PERFORM
18 000078      END-PERFORM.
19 000079
20 000080      MOVE 0 TO RESULT2.
21 000081
22 000082      PERFORM VARYING I FROM 1 BY 1 UNTIL M-SIZE < I
23 000083          PERFORM VARYING J FROM 1 BY 1 UNTIL M-SIZE < J
24 000084              ADD M3-ELEMENTS(I, J) TO RESULT2
25 000085          END-PERFORM
26 000086      END-PERFORM.
27 000087
28 000088      ACCEPT END-TIME FROM TIME.
29 000089      COMPUTE TIME2 = (END-TIME - START-TIME) / 100.
30 000090
31 000091      * -----
32 000092
33 000093      MOVE RESULT1 TO RESULT1_TXT
34 000094      MOVE RESULT2 TO RESULT2_TXT
35 000095      MOVE TIME1    TO TIME1_TXT
36 000096      MOVE TIME2    TO TIME2_TXT
37 000097
38 000098      DISPLAY 'COBOL      : Result= ' RESULT1_TXT
39 000099              ', Time= ' TIME1_TXT ' sec'
40 000100              ', Result= ' RESULT2_TXT
41 000101              ', Time= ' TIME2_TXT ' sec'.
42 000102
43 000103      STOP RUN.
44 000104
```