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COURSE NAME: DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS

COURSE CODE: CSA0302

Experiment 3: 3D Matrix Add

Code:

```
#include <stdio.h>
int main() {
    int a[3][3][3] = {
        {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}},
        {{10, 11, 12}, {13, 14, 15}, {16, 17, 18}},
        {{19, 20, 21}, {22, 23, 24}, {25, 26, 27}}
    };
    int b[3][3][3] = {
        {{1, 1, 1}, {2, 2, 2}, {3, 3, 3}},
        {{4, 4, 4}, {5, 5, 5}, {6, 6, 6}},
        {{7, 7, 7}, {8, 8, 8}, {9, 9, 9}}
    };

    int sum[3][3][3];
    int i, j, k;
    for (i = 0; i < 3; i++) {
        for (j = 0; j < 3; j++) {
            for (k = 0; k < 3; k++) {
                sum[i][j][k] = a[i][j][k] + b[i][j][k];
            }
        }
    }
    printf("Result of 3D Array Addition:\n");
    for (i = 0; i < 3; i++) {
        printf("\nLayer %d:\n", i);
```

```
        for (j = 0; j < 3; j++) {
            for (k = 0; k < 3; k++) {
                printf("%d\t", sum[i][j][k]);
            }
printf("\n");
}
}
return 0;
}
```

Output:

```
Result of 3D Array Addition:

Layer 0:
2   3   4
6   7   8
10  11  12

Layer 1:
14  15  16
18  19  20
22  23  24

Layer 2:
26  27  28
30  31  32
34  35  36


=== Code Execution Successful ===
```