Lab 9:
Matrix Chain Multiplication :

```
#include <stdio.h>
int mcm(int arr[], int n)
{
    int minMul[n][n];
    int j, q;
    for (int i = 1; i <= n; i++)
        minMul[i][i] = 0;
    for (int L = 2; L <= n; L++)
    {
        for (int i = 1; i <= n - L + 1; i++)
        {
            j = i + L - 1;
            minMul[i][j] = 999999;
            for (int k = i; k <= j - 1; k++)
            {
       q = minMul[i][k] + minMul[k + 1][j] + arr[i - 1] * arr[k] * arr[j];
                if (q < minMul[i][j])
                    minMul[i][j] = q;
            }
        }
    }
    return minMul[1][n - 1];
}
int main()
{
    printf("\n\n\tNaveen Malhotra 209303050\n\n");
    int n;
    printf("Enter the number of matrices: ");
    scanf("%d", &n);
    int n2 = n + 1;
    int arr[n2];
    printf("Enter the dimensions of the matrices: ");
    // take input of the dimensions of the matrices in mxn format

    for (int i = 0; i < n2; i++)
    {
        scanf("%d", &arr[i]);
    }

    printf("Minimum number of multiplications is %d\n ", mcm(arr, n2));
    return 0;
}
```

OUTPUT:

```
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Enter the number of matrices: 3
Enter the dimensions of the matrices: 2
3
3
4
Minimum number of multiplications is 42
```