DESIGN AND ANALYSIS OF ALGORITHMS – 2CS503

Practical 8

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1. Matrix Chain Multiplication

Code:

```
// Matrix Multiplication
#include <stdio.h>

int MatrixChainOrder(int p[], int i, int j)
{
   if (i == j)
      return 0;
   int k;
   int min = 99999;
   int count;
   for (k = i; k < j; k++)
   {
      count = MatrixChainOrder(p, i, k)
```

```
            + MatrixChainOrder(p, k + 1, j)
            + p[i - 1] * p[k] * p[j];

      if (count < min)
         min = count;
   }
   return min;
}

void main()
{
   int arr[] = { 1, 2, 3, 4, 3 };
   int n = sizeof(arr) / sizeof(arr[0]);

   printf("Minimum number of multiplications is %d",MatrixChainOrder(arr,
1, n - 1));
}

/*
Output:
Minimum number of multiplications is 30
*/
```