CO21BTECH11002

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Assignment 1

Algorithm :-

1. Given matrices, m (a x b), p (b x c), r (a x c) where m & p are input matrices and r is an empty matrix that will store the value of m multiplied with r.
2. Multiply the elements of first row of m with the elements of first column of p and put the value as first element of r.
3. Repeat the above step for next columns of p.
4. Repeat from step 2 for next rows of m.
5. Time Complexity :- O(n3)

Input Matrices For 10 X 10:-

m = 1 7 0 7 5 7 1 3 6 1

5 4 5 7 5 4 6 0 7 1

8 8 6 6 8 8 8 4 1 1

5 0 0 3 5 3 1 7 4 7

6 0 0 2 5 4 5 2 2 3

2 1 1 8 8 0 5 5 4 4

6 0 5 6 2 8 7 3 4 2

0 0 0 0 2 6 2 5 6 5

7 6 6 8 5 3 6 2 8 1

6 6 8 0 1 1 7 0 3 2

p = 0 1 2 1 8 3 5 2 6 0

7 2 7 2 8 1 6 5 1 5

4 6 0 4 6 2 3 2 0 4

3 7 5 3 6 5 4 2 5 2

1 3 2 8 3 2 0 0 7 2

4 3 6 2 5 1 2 6 4 2

2 7 8 5 1 5 1 4 8 4

6 7 5 8 6 0 8 4 0 7

4 2 8 1 5 2 3 7 8 7

8 1 3 7 5 2 3 6 6 0

Output Matrix For 10 X 10:-

r = 155 141 212 132 210 81 135 157 173 140

138 176 214 146 225 124 130 157 230 145

190 237 261 226 306 142 192 189 252 175

142 121 149 174 186 70 133 136 174 103

81 103 131 124 137 77 82 100 171 70

131 172 176 193 177 106 120 119 205 124

136 188 203 153 215 117 134 162 212 129

124 90 144 119 123 42 87 136 132 101

171 208 249 174 281 140 176 184 253 180

121 129 148 112 184 88 114 125 145 115

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| Dimensions | Time Taken |
| 10 x 10 | 0.002 s |
| 50 x 50 | 0.005 s |
| 100 x 100 | 0.014 s |
| 200 x 200 | 0.060 s |
| 500 x 500 | 0.759 s |
| 1000 x 1000 | 8.886 s |