**Statement of the Problem**

We are expected to solve the displacement problem for the given eight storied industrial structure using Gauss elimination with pivoting.

**Algorithm**

**Gauss Elimination with pivoting:-**

* Matrix A from the form Ax = b, needs to be factorised into an upper triangular matrix.
* We can use pivoting to achieve the above stated solution as it has higher accuracy
* We then solve for the vector x using back substitution starting from the last independent variable xn.

**Results**

The results presented by the program are as follows:

* *X1 = 0.6999*
* *X2 = 1.2066*
* *X3 = 1.6667*
* *X4 = 2.2861*
* *X5 = 2.4562*
* *X6 = 31.8527*
* *X7 = 32.0093*
* *X8 = 32.2650*

**Comments**

1. ***This method has a time complexity of O(n3)***
2. ***We can solve this system of equations in under a second which is very fast, since it would be a very slow process for 8 equations with hand calculation.***