

```
%% Psuedo Code for Assignment 5
```

```
% Name - Manav kothari
```

```
% UIN - 133008008
```

```
Define all Inputs
```

```
Call MeshR function to construct the mesh
```

```
Define DOF_NOD for Assembly of Global Stiffness and Force  
matrices
```

```
Initialize GLK and GLF
```

```
for NL = 1:NLS % Load Step Loop
```

```
    calculate load for this particular step
```

```
    while iter<=ITERMAX && convergence == 0 % Initiate  
iterative loop
```

```
        Define ELU and ELXY from GCU, GPU and ELXY
```

```
        Call FSDTPLTS for ELK and ELF
```

```
        Assemble ELK and ELF matrix in GLK and GLF
```

```
        Apply Boundary conditions using BNDRYUNSYM function
```

```
        Calculate displacement array.
```

```
        update GPU (previous iteration solution)
```

```
        Calculate error
```

```
    end
```

```
    Calculate Stresses using POSTPROC2D function
```

```
end
```

```
% -----%
```

```
function FSDTPLTS
```

Define all required constants A11, A66, D11, etc.

```
for NI = 1:NGPF
```

```
    for NJ = 1:NGPF % Full integration loop
```

```
        Completely calculate ELF
```

```
        Partially calculate ELK
```

```
    end
```

```
end
```

```
for NI = 1:NGPS
```

```
    for NJ = 1:NGPS % Reduced integral to calculate the shear✓  
stiffness terms in ELK
```

```
        Partially calculate ELK matrix and add it to the✓  
existing ELK terms
```

```
    end
```

```
end
```

```
for NI = 1:NGPR
```

```
    for NJ = 1:NGPR % Reduced integration for nonlinear terms✓  
in ELK and TANGENT matrix
```

```
        Calculate remaining terms of ELK matrix
```

```
        Calculate required terms of TANGENT matrix (TANG)
```

```
    end
```

```
end
```

```
completely calculate the residual and tangent matrix for NI
```

```
end
```

```
% -----%
```

```
function POSTPROC2D
```

```
Compute the coordinates (XC and YC) of the selected elements✓
```

using ELXY

Compute the differential terms like DUX, DUY, DVX, DSXX, etc.

using the calculated differential terms, calculate the stresses ✓
using the formula in the textbook.

end