

```

c-----Usable columns for a Fortran 77 program (1-72)-----
c
c Declare the variables
c
c-----
c
c      implicit integer (a,b,c,d,e,f,g,h,i,j,k,l,m,n,o)
c
c      implicit real*8  (p,q,r,s,t,u,v,w,x,y,z)
c
c      integer EN(1:200000,1:9)
c
c EN -> (n1,n2,...,n8,Mat)
c
c      real*8  EVar(1:200000,1:3)
c
c EVar -> (Mat,ps,p)
c
c      real*8  NVar(1:200000,1:7)
c
c NVar -> (x,y,z,Mat,ps,p,vmag)
c
c      real*8  NPos(1:200000,1:3)
c
c NPos -> (xo,yo,zo)
c
c-----
c
c Format statements
c
c-----
c
100  format ()
101  format (F20.10)
102  format (I8,I5,E20.12,E20.12,E20.12,I5)
104  format (I8,I5,8(I8))
106  format (8X,I8)
108  format (A40)
109  format (A7,I8,A4,I8,A21)
110  format (A7,F13.6,A15)
111  format (6(E20.10,X),E20.12)
112  format (I8,7(X,I8))
c
c-----
c
c Read the list information
c
c-----
c
c      open(51,file='__input',status='old')
c
c      read(51,100)k
c      read(51,100)k
c      read(51,106)NumN
c      read(51,106)NumE
c      read(51,106)BeginN
c      read(51,106)BeginE
c
c      rewind(51)
c
c      if (NumN.gt.200000) then

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        write(*,*)' '
        write(*,*)'Too many nodes - increase the array sizes.'
    end if
c
c-----
c
c Set the number of steps to check
c
c-----
c
c      NumStep=1
c
c-----
c
c Write undeformed node locations and the element connectivity/mat array
c
c-----
c
    do i=1,BeginN-1
        read(51,100)k
    end do
    do i=1,NumN
        read(51,102)n1,D,x,y,z,B
        NPos(i,1)=x
        NPos(i,2)=y
        NPos(i,3)=z
    end do
    do i=(BeginN+NumN),BeginE-1
        read(51,100)k
    end do
    do i=1,NumE
        read(51,104)e1,Mat,n1,n2,n3,n4,n5,n6,n7,n8
        EN(i,1)=n1
        EN(i,2)=n2
        EN(i,3)=n3
        EN(i,4)=n4
        EN(i,5)=n5
        EN(i,6)=n6
        EN(i,7)=n7
        EN(i,8)=n8
        EN(i,9)=Mat
    end do
c
c      close(51)
c
c-----
c
c Open and skip the unwanted steps in the dyna files
c
c-----
c
    open(52,file='disp_th',status='old',form='unformatted')
    open(54,file='ps_temp',status='old',form='unformatted')
    open(55,file='stress_th',status='old',form='unformatted')
c
    read(52)
    read(54)
    read(55)
c
    do i=1,NumStep-1
        read(52)

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```

        read(54)
        read(55)
        do j=1,NumN
            read(52)
        end do
        do j=1,NumE
            read(54)
            read(55)
        end do
    end do
c
c-----
c
c Read data at the time step and begin filling arrays
c
c-----
c
    read(52)t
    read(54)
    read(55)
c
    do i=1,NumN
        read(52)n2,ux,uy,uz,v1,v2,v3
        NVar(i,1)=NPos(i,1)+ux
        NVar(i,2)=NPos(i,2)+uy
        NVar(i,3)=NPos(i,3)+uz
        NVar(i,4)=0.0
        NVar(i,5)=0.0
        NVar(i,6)=0.0
        vmag=SQRT(0.000001+(v1)**2+(v2)**2+(v3)**2)
        NVar(i,7)=vmag
    end do
c
    do i=1,NumE
        read(54)e2,ps,temp,sq
        read(55)e3,s1,s2,s3,s4,s5,s6,seff
        EVar(i,1)=EN(i,9)*1.0
        EVar(i,2)=ps
        EVar(i,3)=- (s1+s2+s3)/3
    end do
c
c-----
c
c Fill the node-variable array NVar with the element variables
c
c-----
c
    do i=1,NumE
        rMatE=EVar(i,1)
        psE=EVar(i,2)
        pE=abs(EVar(i,3))
c
        do j=1,8
            n=EN(i,j)
c
            rMatN=NVar(n,4)
            if (rMatN.eq.0.0.or.rMatE.lt.rMatN) then
                NVar(n,4)=rMatE
            end if
c
            psN=NVar(n,5)

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        if (psE.gt.psN) then
            NVar(n,5)=psE
        end if
c
        pN=abs(NVar(n,6))
        if (pE.gt.pN) then
            NVar(n,6)=EVar(i,3)
        end if
    end do
end do
c
c-----
c
c Beging writting the Tecplot file
c-----
c
    open(3,file='T9 _ _.dat')
c
    write(3,110)'TITLE="',t,' microseconds"'
    write(3,108)'VARIABLES="X","Y","Z","Mat","PS","P","V"'
    write(3,109)'ZONE N=',NumN,', E=',NumE,', F=FEPOINT, ET=BRICK'
c
    do j=1,NumN
        x=NVar(j,1)
        y=NVar(j,2)
        z=NVar(j,3)
        rMat=NVar(j,4)
        ps=NVar(j,5)
        p=NVar(j,6)
        vmag=NVar(j,7)
        write(3,111)x,y,z,rMat,ps,p,vmag
    end do
c
    write(3,*)' '
c
    do i=1,NumE
        write(3,112)EN(i,1),EN(i,2),EN(i,3),EN(i,4),EN(i,5),EN(i,6),EN(
1i,7),EN(i,8)
    end do
c
    close(3)
c
    write(*,*)' '
    write(*,*)"T9 _ _.dat" has been written.'
    write(*,*)' '
c
c-----
c
c End of Program
c-----
c
    end

```