

#In the name of Allah

- **Introduction to TecPlot 360**
- **A bit of Matlab :)**

CFD I

16/2/96

#Tecplot

- Tecplot is the name of a family of visualization & analysis software tools developed by Tecplot, inc.
- <http://www.tecplot.com/>



U.S. export law prevents us from doing business in your country. We apologize for this inconvenience.



#Tecplot



360™

Tecplot 360

Tecplot Chorus is included in Tecplot 360 2017!

Quickly plot and animate your CFD, simulations and test data exactly the way you want. Analyze complex data, arrange multiple layouts, and communicate your results with professional images and animations.

[Learn more >>](#)

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focus™

Tecplot Focus

Plotting Software for Engineering Systems

Tecplot Focus increases your productivity by automating routine data analyses, XY and 2D plotting tasks, and 3D visualizations. You can communicate your results with brilliant, high-quality output.

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rs™

Tecplot RS

Oil & Gas Reservoir Visualization & Analysis

Tecplot RS gives engineers the ability to manage and analyze reservoir simulation data, uncover knowledge about reservoir model behavior, and gain confidence in making crucial decisions.

[Learn more >>](#)

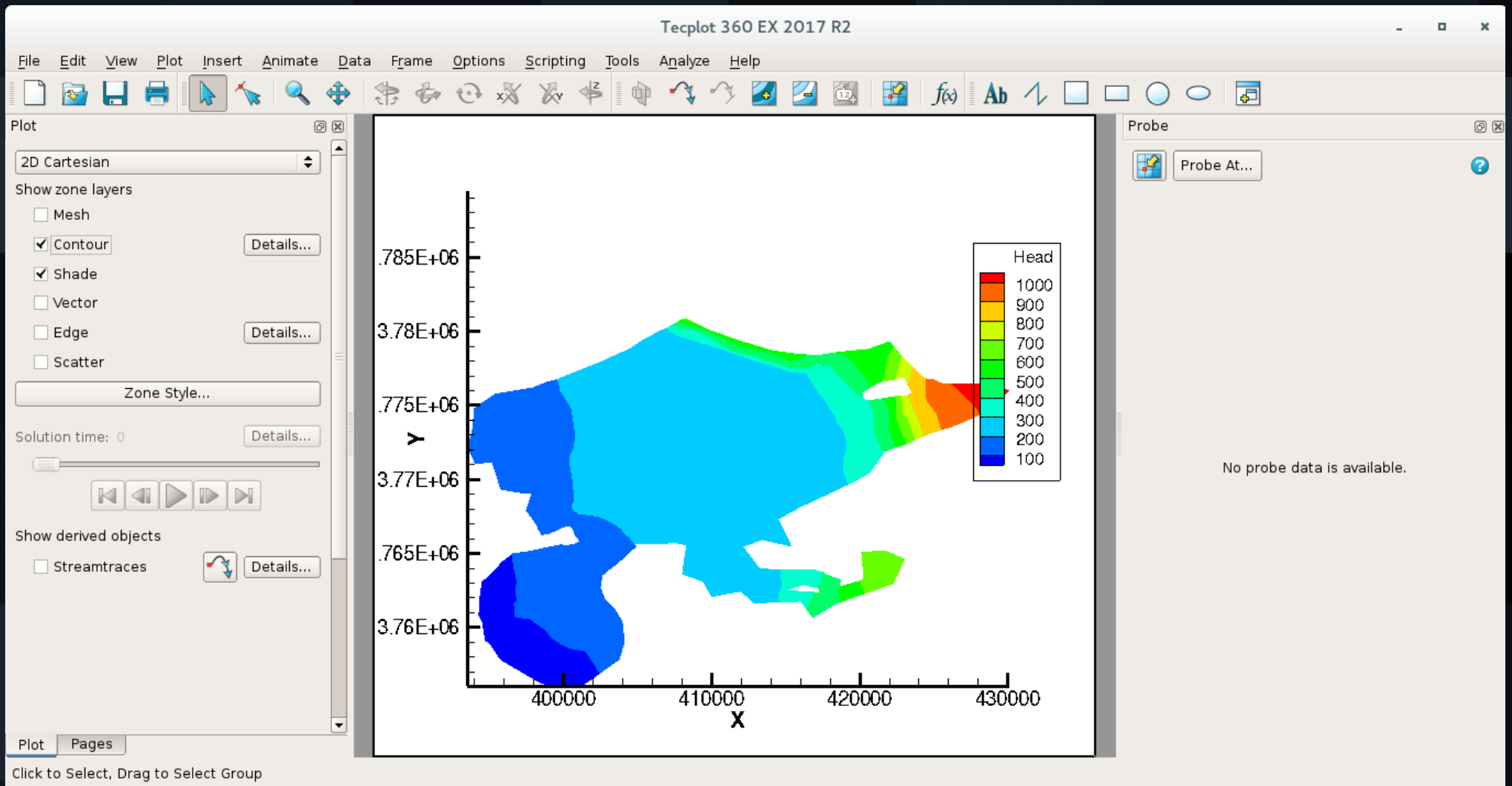
[Try Tecplot RS for Free](#)

#Tecplot 360

- We work with two versions!
- Ver2017. The latest version.
- You should be up to date!

- Ver2006!
- Maybe helpfull in CFD II :)

#Tecplot 360 - Screenshot



#Tecplot 360 - download

- Tecplot license is trialware.
- Trialware means you can try out the fully featured program until the trial period is up.
- Just for 5 days!
- Windows 64bit:
http://download.tecplot.com/360/current/tecplot360ex2017r2_win64.exe
- Linux 64bit:
http://download.tecplot.com/360/current/tecplot360ex2017r2_linux64.sh
- Mac 64bit:
http://download.tecplot.com/360/current/tecplot360ex2017r2_mac64.dmg

#Tecplot 360 - download

- We need tecplot for more than 5 days, but:



U.S. export law prevents us from doing this in your country.

- So, we use cracked version.

We apologize for this inconvenience.



#Tecplot 360 - download

- Version 2017:
- yon.ir/0sKo2

- Version 2006:
- I'll give you later.

#ASCII File Structure

- An ASCII data file begins with a file header defining a title for the data file and the names of the variables.
- The header is followed by optional zone records containing the plot data.

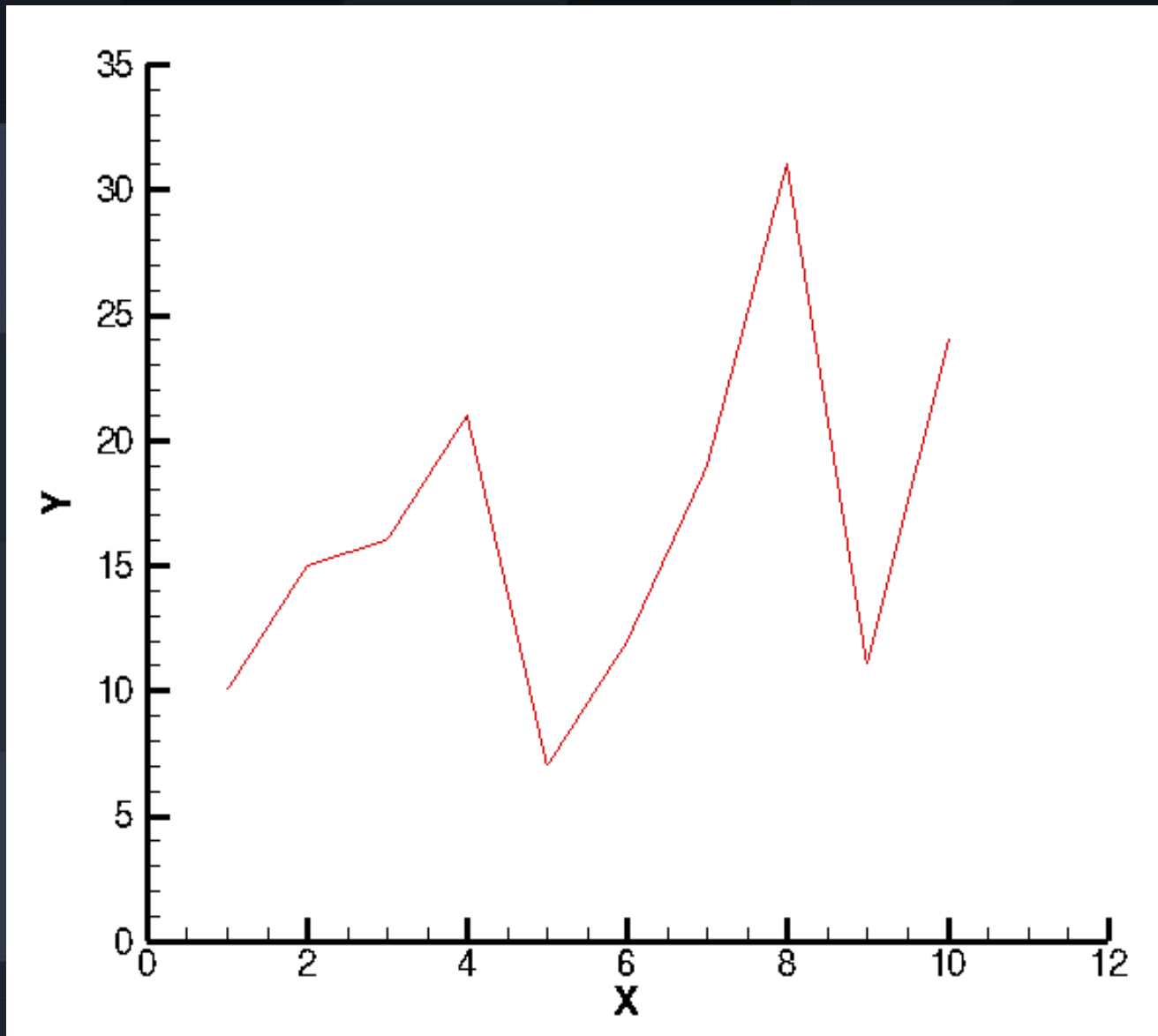
#File Header Components

- TITLE = "<string>"
- VARIABLES = "VARNAME1", "VARNAME2", "VARNAME3", ..., "VARNAMEN"

#Example1

- TITLE = "First Example"
- VARIABLES = "X", "Y"
- 1 10
- 2 15
- 3 16
- 4 21
- 5 7
- ...

#Example1

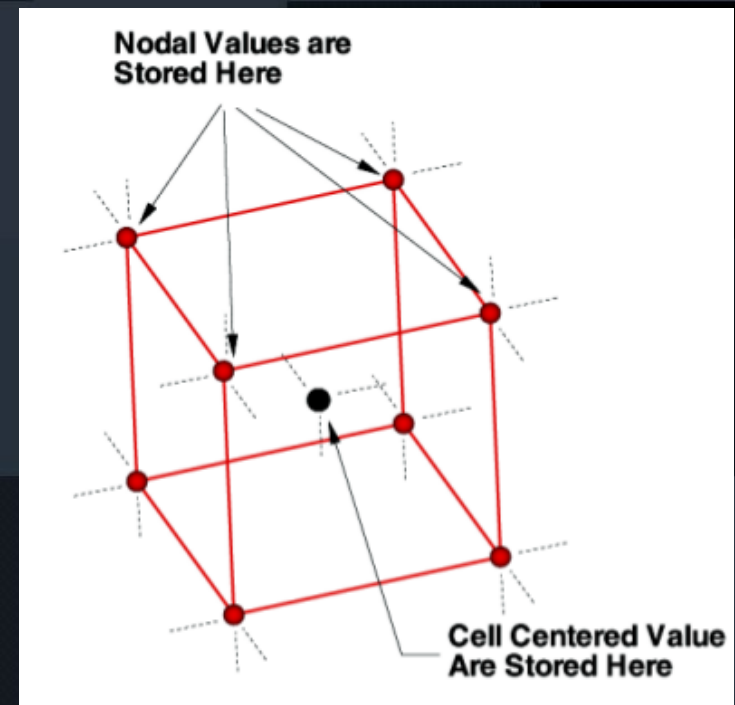
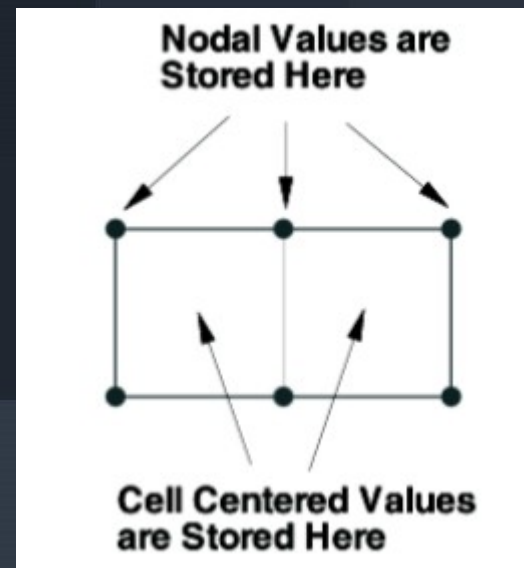
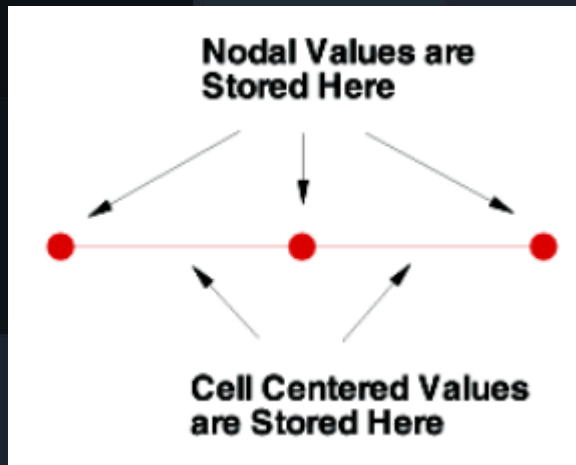


#Zone Records

- A zone record consists of a control line that begins with the keyword ZONE , followed by the zone header, followed by a set of numerical data called the zone data.
- Zone records may contain either **ordered data** or **finite-element data**. You may also include text, geometry, and custom-label records that create text, geometries, and/or custom labels on plots.

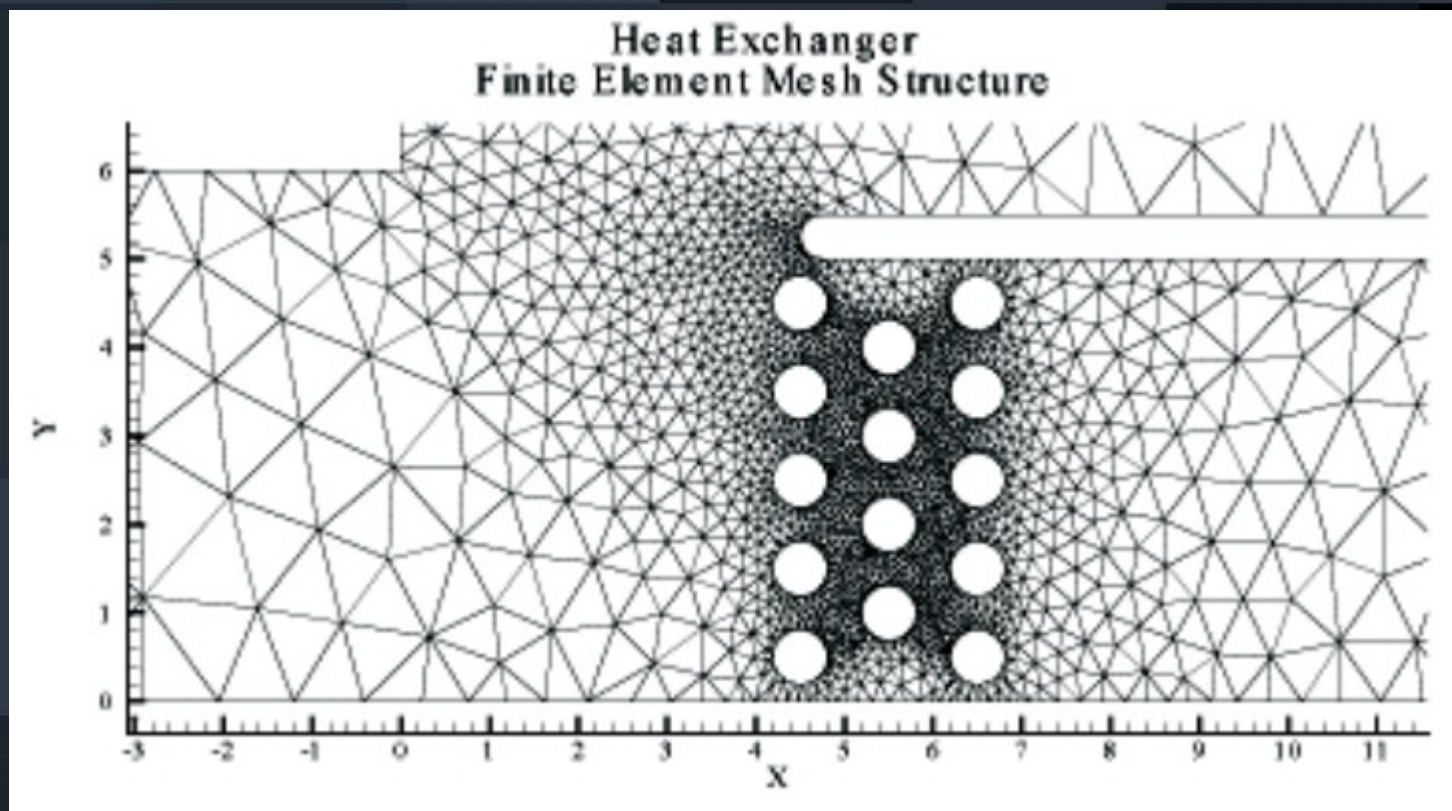
#Ordered data

- Ordered data is defined by one, two, or three-dimensional logical arrays, dimensioned by IMAX, JMAX, and KMAX.



#Finite Element Data

- While finite element data is usually associated with numerical analysis for modeling complex problems in 3D structures.



#Ordered Zone Record

ZONE

T=*"zonetitle"*

I=*I*Max

J=*J*Max

K=*K*Max

C=*color*

F=*orderedformat*

D=*(duplist)*

DT=*(datatype list)*

Title for zone.

Number of points in I-direction.

Number of points in J-direction.

Number of points in K-direction.

One of the following: **BLACK**, **RED**, **GREEN**, **BLUE**, **CYAN**, **YELLOW**, **PURPLE**, **WHITE**, **CUST1**, . . . , **CUST8**.

Either **POINT** or **BLOCK**.

List of variables to duplicate from previous zone.

List specifying data type for each variable, from among the following: **SINGLE**, **DOUBLE**, **LONGINT**, **SHORTINT**, **BYTE**, **BIT**.

#Finite element Zone Record

ZONE

T=*"zonetitle"*

N=*numnodes*

E=*numelements*

ET=*elementtype*

C=*color*

F=*feformat*

D=(*feduplist*)

NV=*nodevariable*

DT=(*datatypelist*)

Title for zone.

Number of nodes.

Number of elements.

One of the following: **TRIANGLE**,
QUADRILATERAL, **TETRAHEDRON**,
BRICK.

See description above.

Either **FEPOINT** or **FEBLOCK**.

List of variables to duplicate from previous zone, and/or the keyword **FECONNECT**.

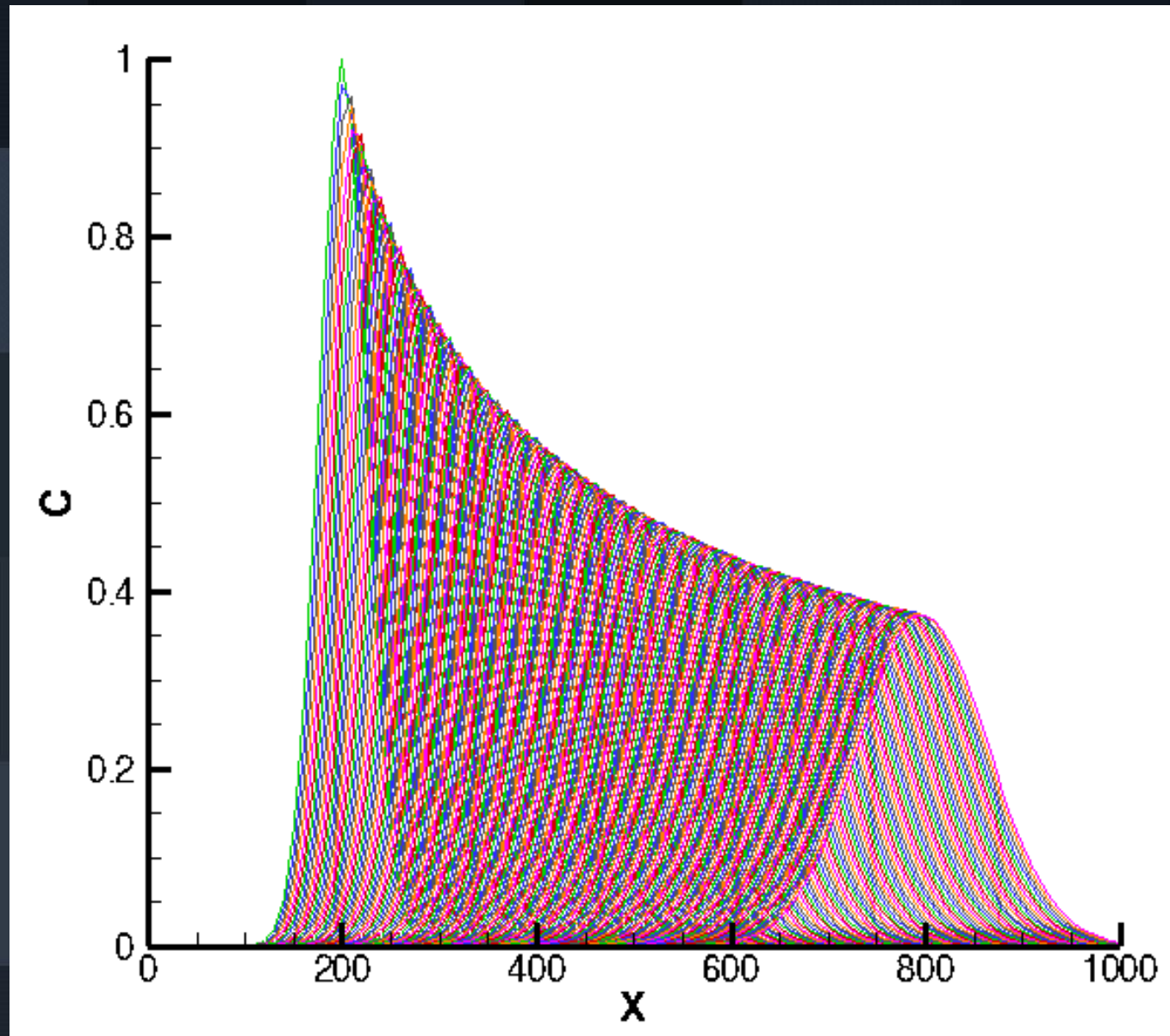
Which variable represents the Node value.

See description above.

#Example2

- VARIABLES=X C
- ZONE T=" 0.00"
- 0.0000 5.0000
- 10.0000 8.0000
- ...
- VARIABLES=X C
- ZONE T=" 0.00"
- 0.0000 4.0000
- 10.0000 9.0000
- ...

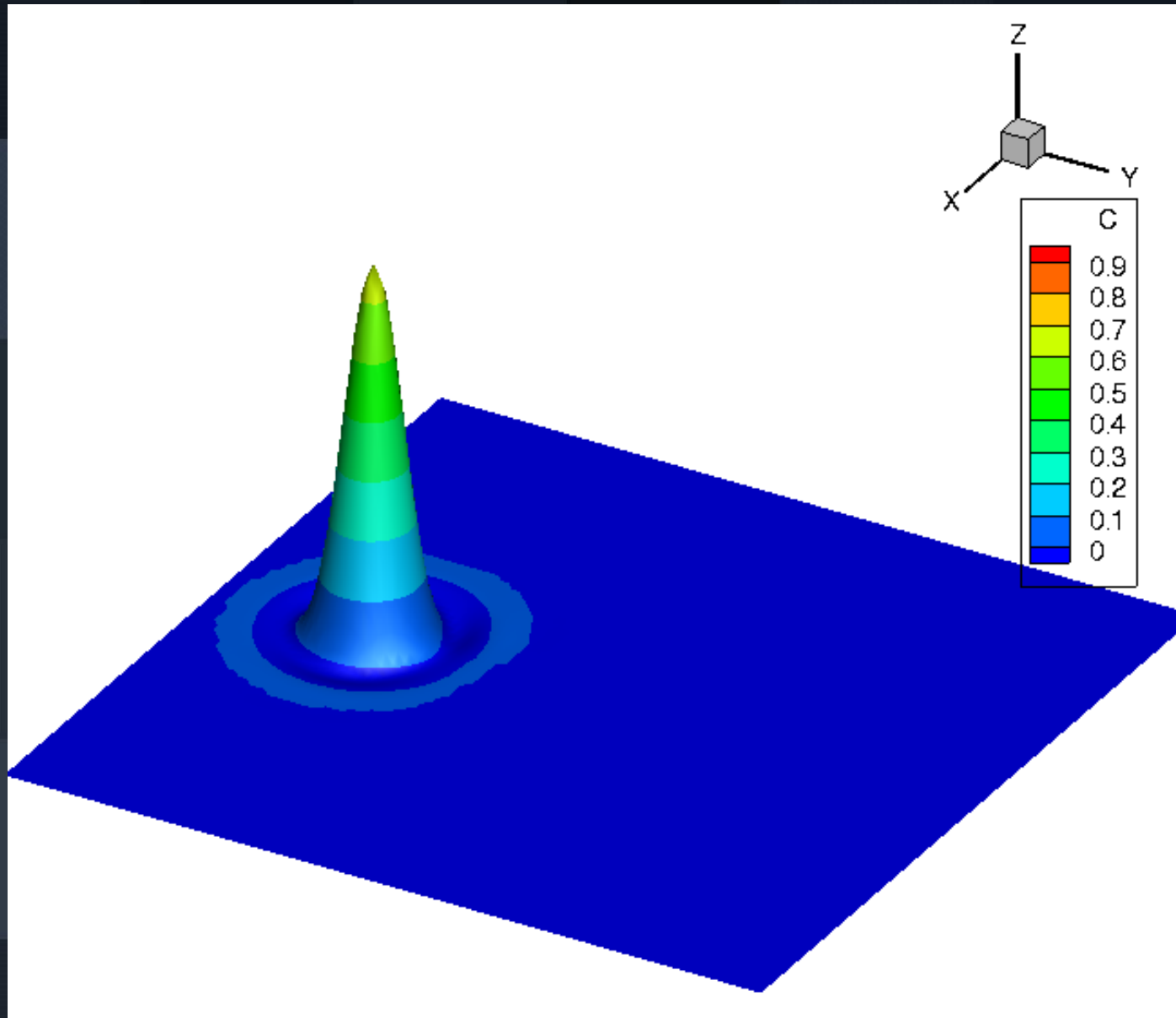
#Example2



#Example3

- VARIABLES=X Y C
- ZONE T=" 0.00" I= 101 J= 101 F=POINT
- 0.0000 0.0000 1.0000
- 10.0000 0.0000 5.0000
-
- VARIABLES=X Y C
- ZONE T=" 3.00" I= 101 J= 101 F=POINT
- 0.0000 0.0000 2.0000
- 10.0000 0.0000 7.0000
- ...

#Example3



#A bit of Matlab

- Write data to text file!
- fprintf
- Syntax:
 - fprintf(fileID,formatSpec,A1,...,An)

#A bit of Matlab

- `fileID = fopen(filename,permission)`
- Permission:

'r'	Open file for reading.
'w'	Open or create new file for writing. Discard existing contents, if any.
'a'	Open or create new file for writing. Append data to the end of the file.
'r+'	Open file for reading and writing.
'w+'	Open or create new file for reading and writing. Discard existing contents, if any.
'a+'	Open or create new file for reading and writing. Append data to the end of the file.
'A'	Open file for appending without automatic flushing of the current output buffer.
'W'	Open file for writing without automatic flushing of the current output buffer.

#A bit of Matlab

- Some useful formatSpec:
- %d → Integer
- %f → Float
- %s → String
- ...

#A bit of Matlab

```
fid = fopen('/tmp/output.plt','w');

for t=1:tMax
    time = (t-1)*deltat;
    fprintf(fid,'%14s\n','VARIABLES=X C');
    fprintf(fid,'%8s %6.2f %1s\n','ZONE T=""',time,'');
    tmp = [xi; f(t,:)];
    fprintf(fid,'%6.2f %12.8f\n',tmp);
end
```

ANY
QUESTIONS

