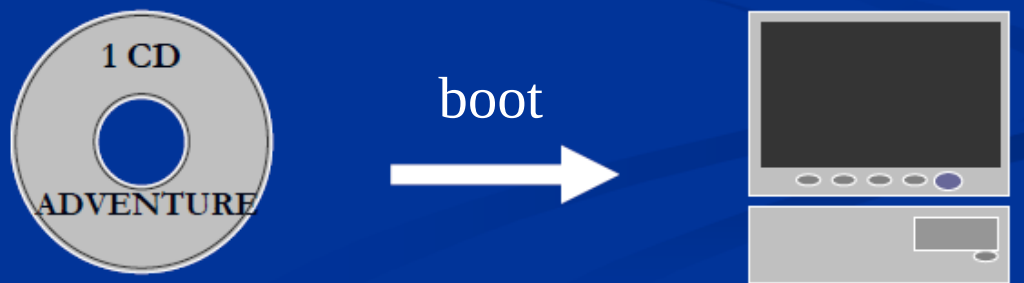
1CD-ADVENTURE User's Manual

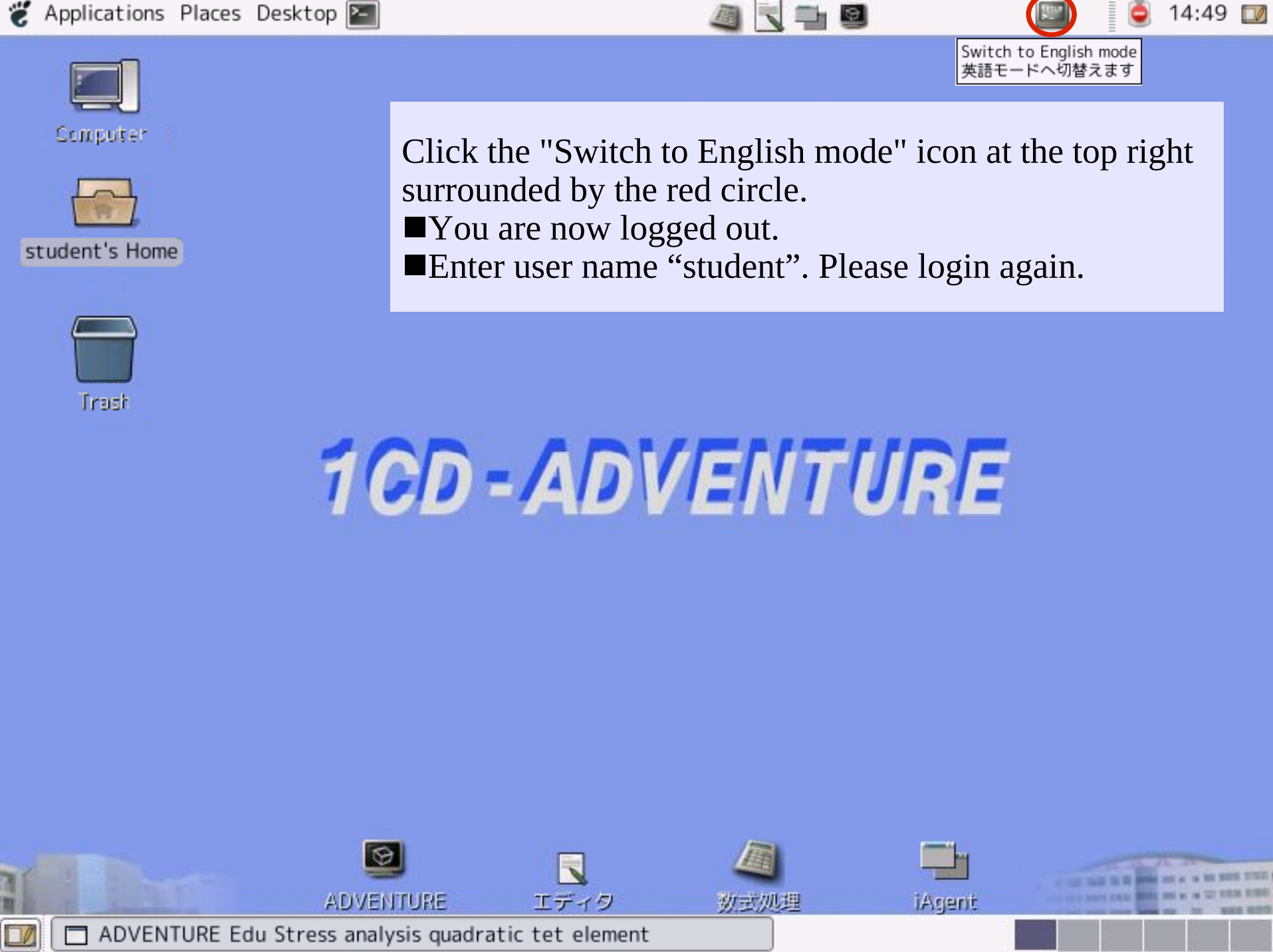
Structural Analysis

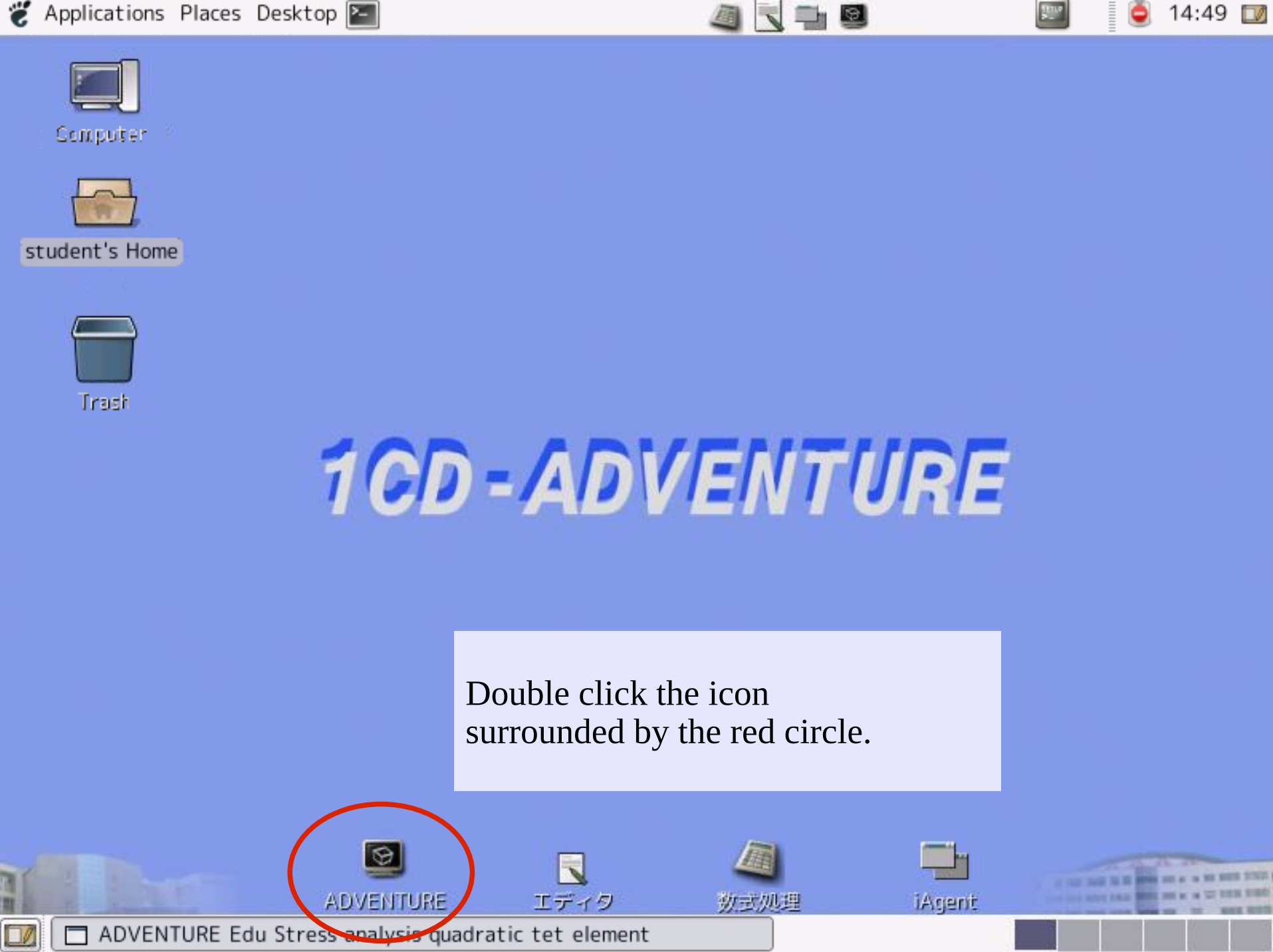
1CD-ADVENTURE

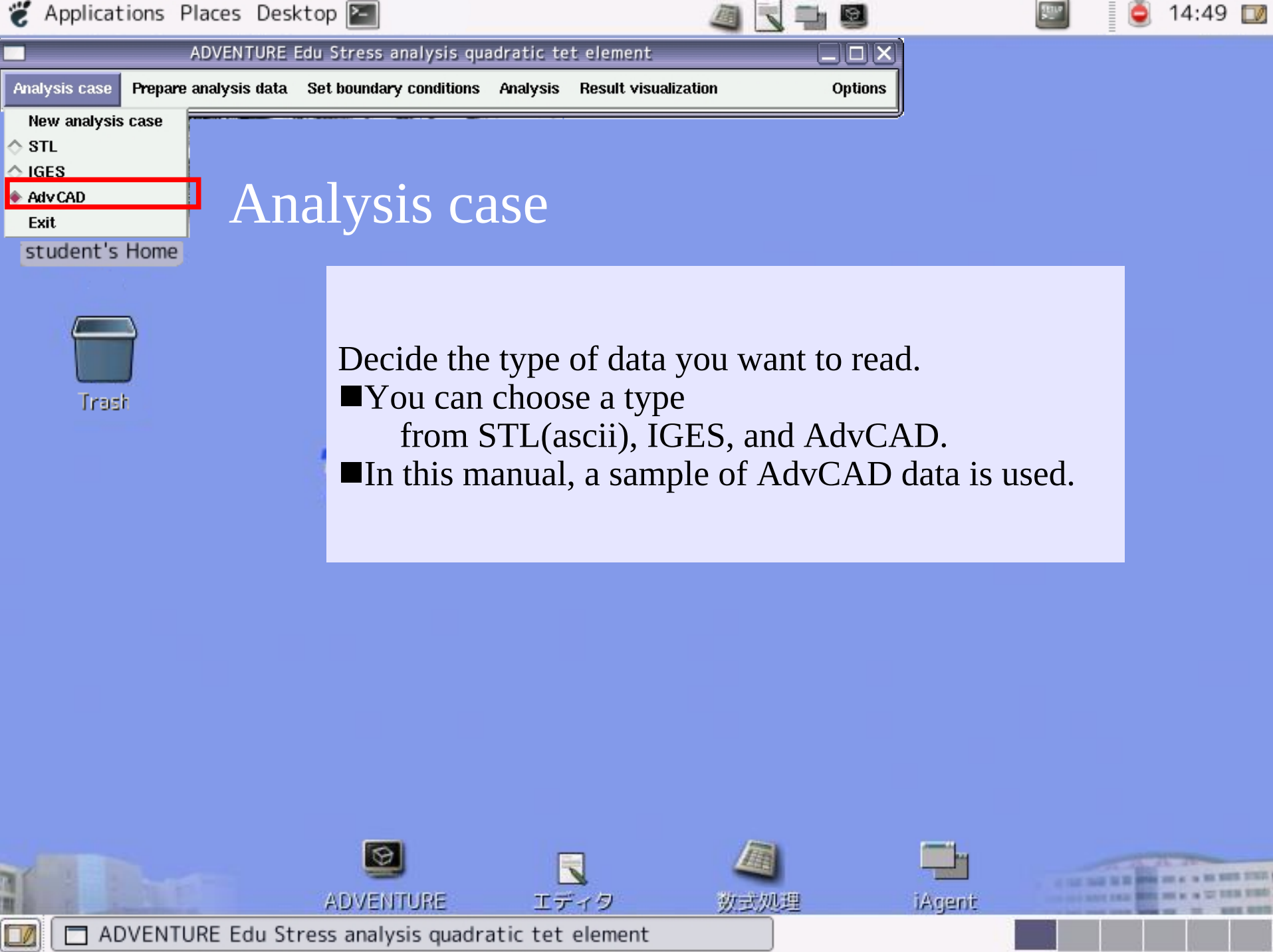
Startup

- Put the CD into the drive, and boot from the CD.
- USB flash memory is useful for back up of your analysis data.




Applications Places Desktop
14:49
Switch to English mode
英語モードへ切替えます
Computer
student's Home
Trash
Click the "Switch to English mode" icon at the top right surrounded by the red circle.
■You are now logged out.
■Enter user name “student”. Please login again.
1CD-ADVENTURE
ADVENTURE
エディタ
数式処理
iAgent
ADVENTURE Edu Stress analysis quadratic tet element


Applications Places Desktop
14:49
Computer
student's Home
Trash
1CD-ADVENTURE
Double click the icon
surrounded by the red circle.
ADVENTURE
エディタ
数式処理
iAgent
ADVENTURE Edu Stress analysis quadratic tet element


Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
New analysis case
STL
IGES
AdvCAD
Exit
student's Home
Trash
Analysis case
Decide the type of data you want to read.
■You can choose a type
from STL(ascii), IGES, and AdvCAD.
■In this manual, a sample of AdvCAD data is used.
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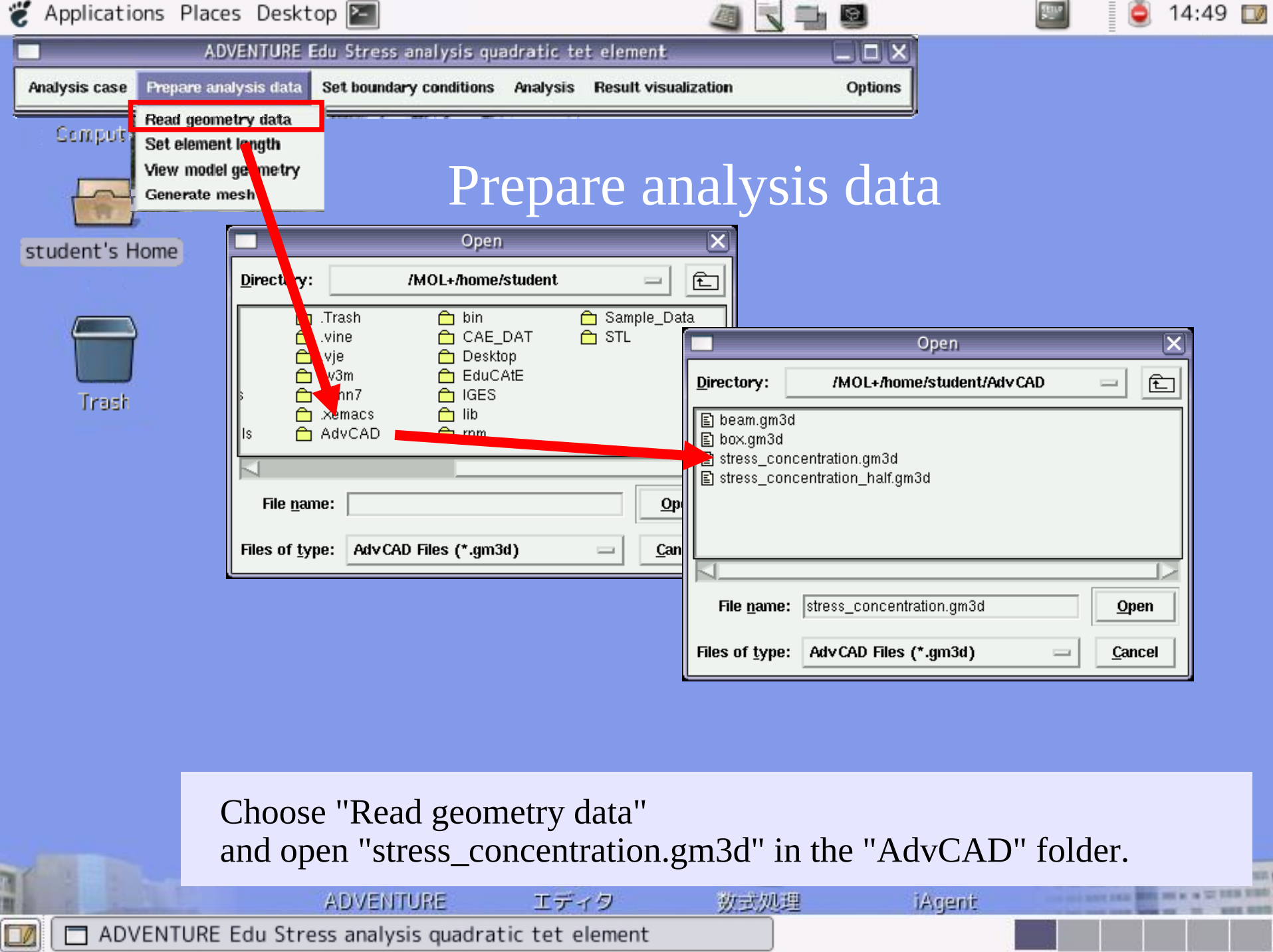
数式処理
iAgent
ADVENTURE Edu Stress analysis quadratic tet element


Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Read geometry data
Set element length
View model geometry
Generate mesh
student's Home
Trash
Prepare analysis data
Open
Directory: /MOL+/home/student
.Trash
.vine
.vje
.v3m
.xemacs
AdvCAD
bin
CAE_DAT
Desktop
EduCAtE
IGES
lib
Sample_Data
STL
File name:
Files of type: AdvCAD Files (*.gm3d)
Open
Directory: /MOL+/home/student/AdvCAD
beam.gm3d
box.gm3d
stress_concentration.gm3d
stress_concentration_half.gm3d
File name: stress_concentration.gm3d
Open
Files of type: AdvCAD Files (*.gm3d)
Cancel
Choose "Read geometry data"
and open "stress_concentration.gm3d" in the "AdvCAD" folder.
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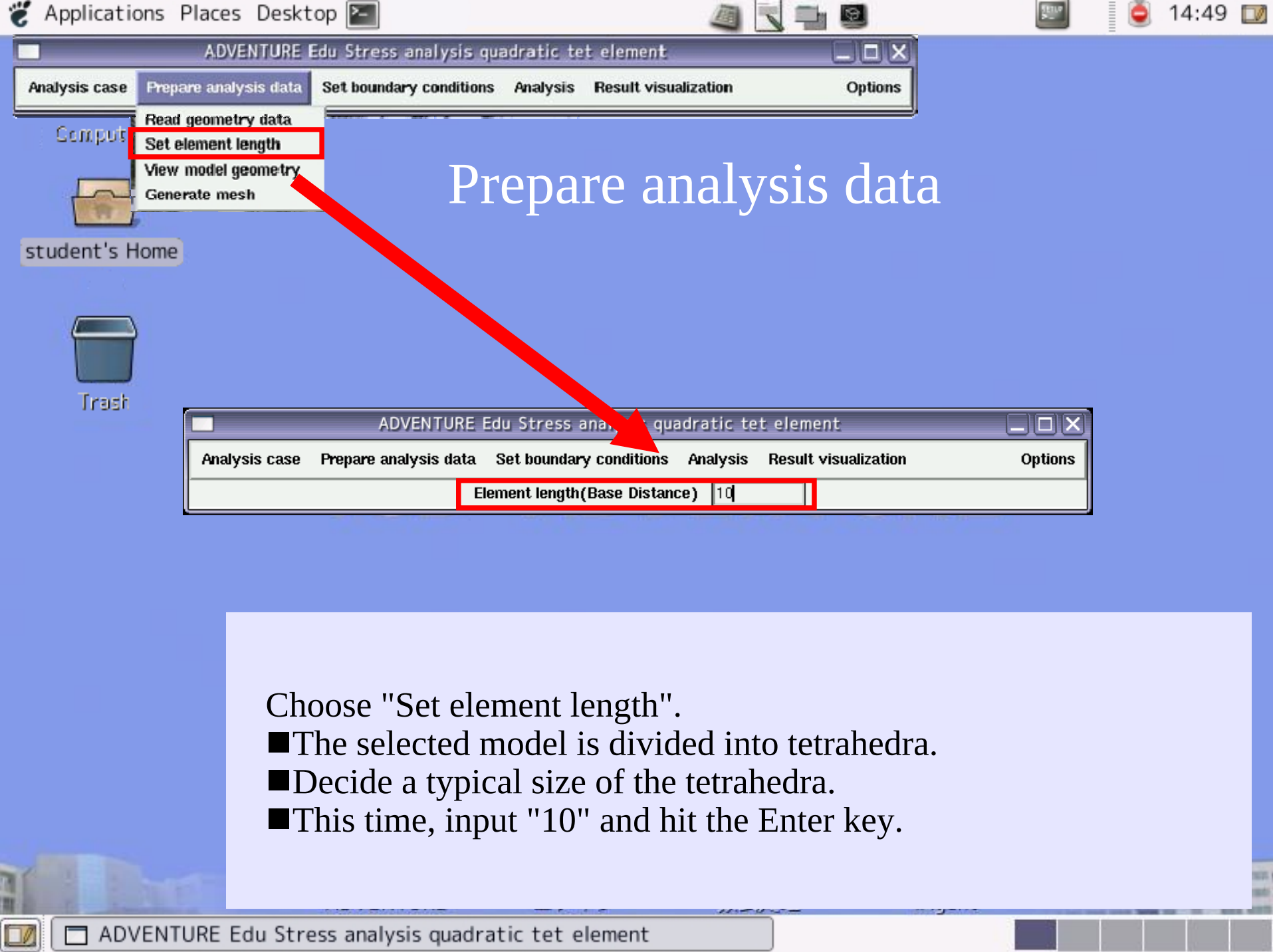
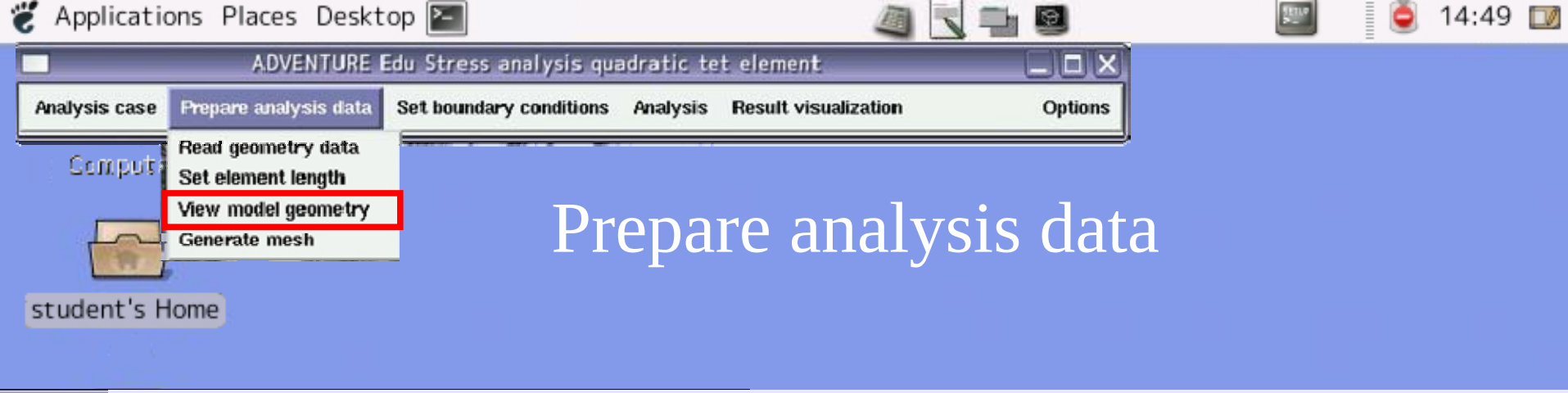
iAgent
ADVENTURE Edu Stress analysis quadratic tet element

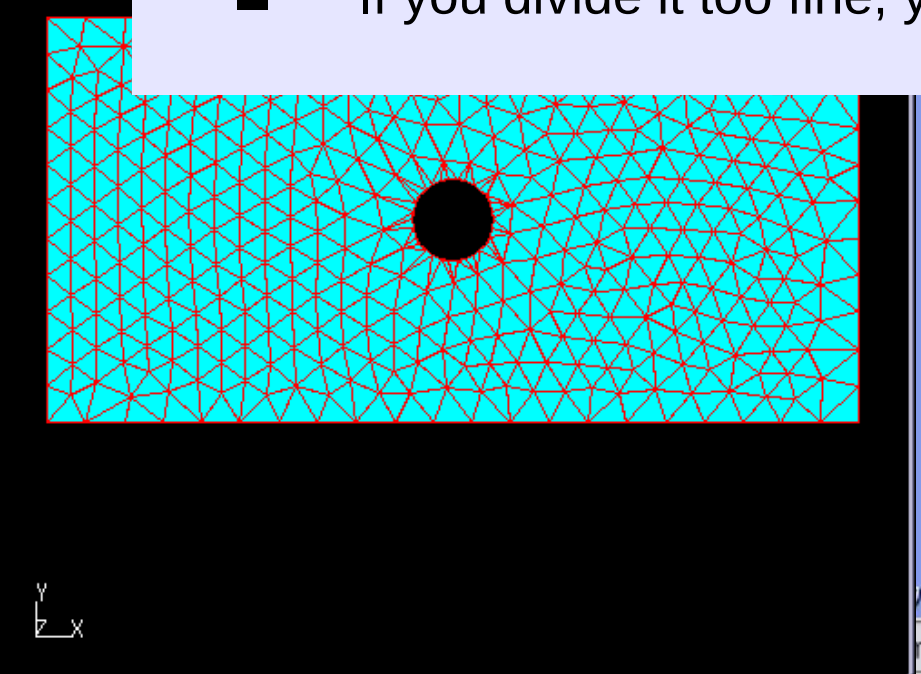

Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Read geometry data
Set element length
View model geometry
Generate mesh
student's Home
Trash
Prepare analysis data
ADVENTURE Edu Stress ana quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Element length(Base Distance)
10
Choose "Set element length".
■The selected model is divided into tetrahedra.
■Decide a typical size of the tetrahedra.
■This time, input "10" and hit the Enter key.
ADVENTURE Edu Stress analysis quadratic tet element

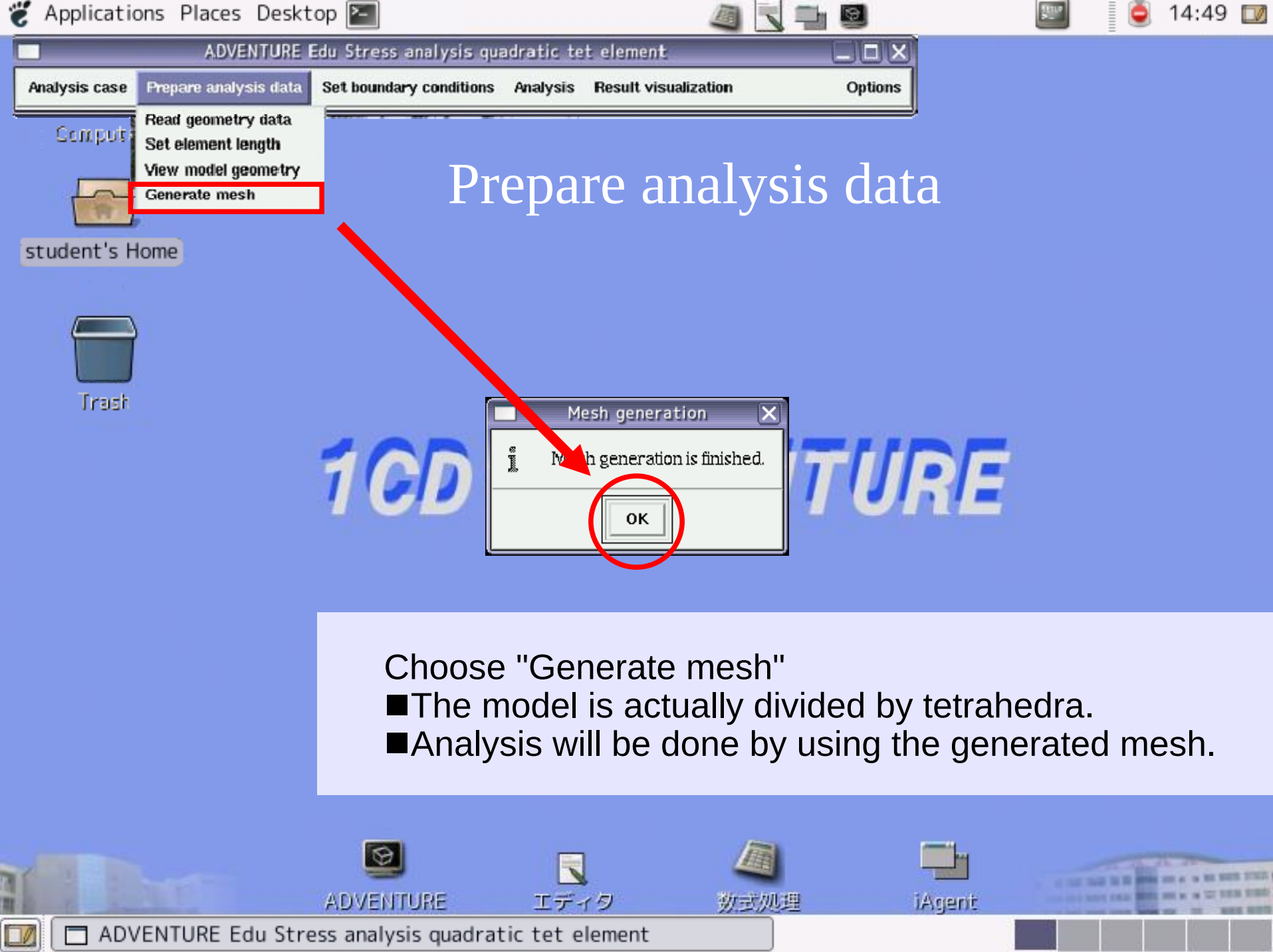


Prepare analysis data

Choose "View model geometry"

- The model divided by tetrahedra will be shown.
- At first, do not divide it too fine.
- If you divide it too fine, your computer may be out of memory.




Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Read geometry data
Set element length
View model geometry
Generate mesh
student's Home
Trash
Prepare analysis data
Mesh generation
generation is finished.
OK
Choose "Generate mesh"
■The model is actually divided by tetrahedra.
■Analysis will be done by using the generated mesh.
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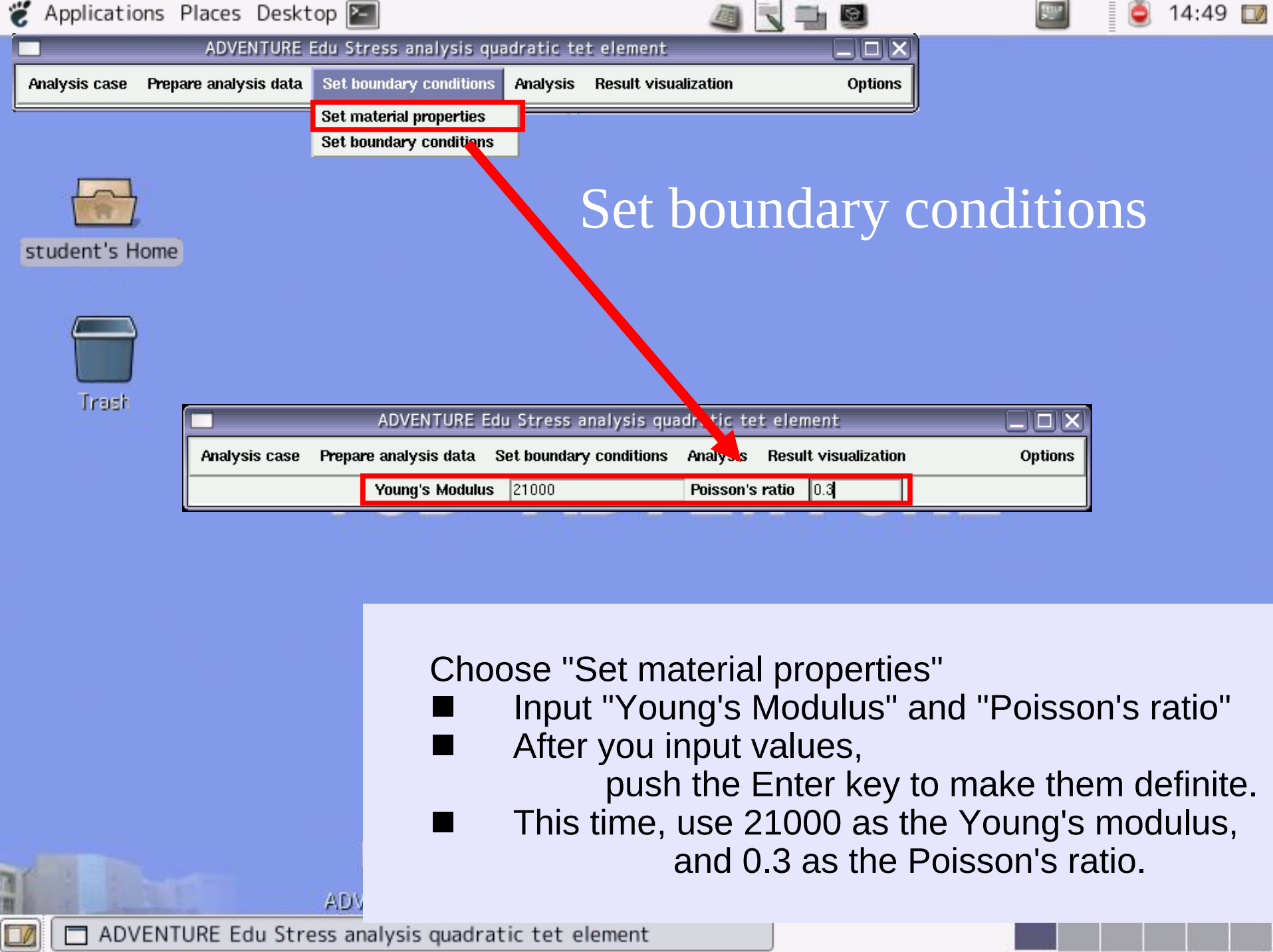
ADVENTURE Edu Stress analysis quadratic tet element


Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Set material properties
Set boundary conditions
student's Home
Trash
Set boundary conditions
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Result visualization
Options
Young's Modulus
21000
Poisson's ratio
0.3
Choose "Set material properties"
Input "Young's Modulus" and "Poisson's ratio"
After you input values,
push the Enter key to make them definite.
This time, use 21000 as the Young's modulus,
and 0.3 as the Poisson's ratio.
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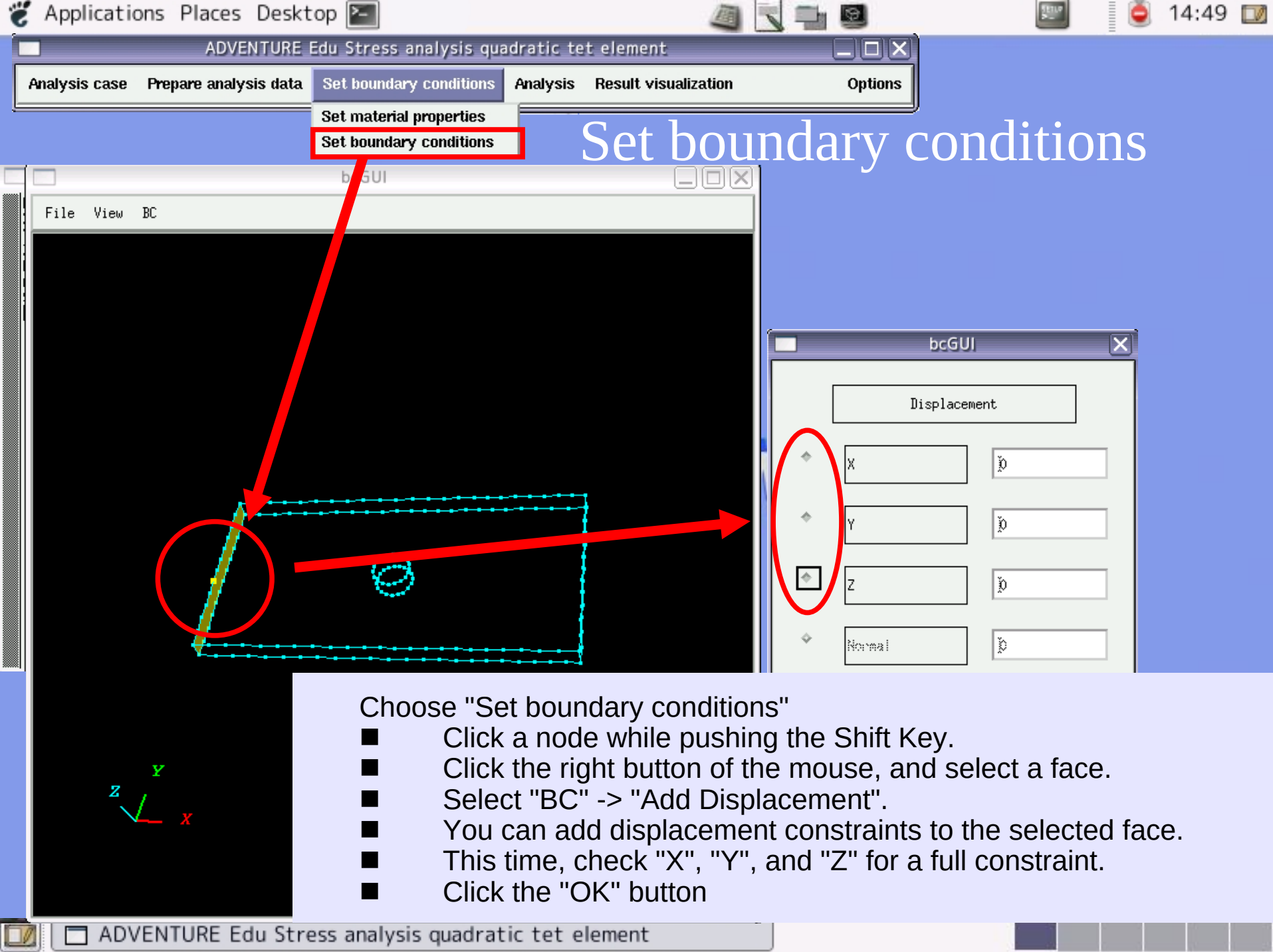
Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Set material properties
Set boundary conditions
Set boundary conditions
bcGUI
File View BC
Y
Z
X
bcGUI
Displacement
X
Y
Z
Normal
Choose "Set boundary conditions"
Click a node while pushing the Shift Key.
Click the right button of the mouse, and select a face.
Select "BC" -> "Add Displacement".
You can add displacement constraints to the selected face.
This time, check "X", "Y", and "Z" for a full constraint.
Click the "OK" button
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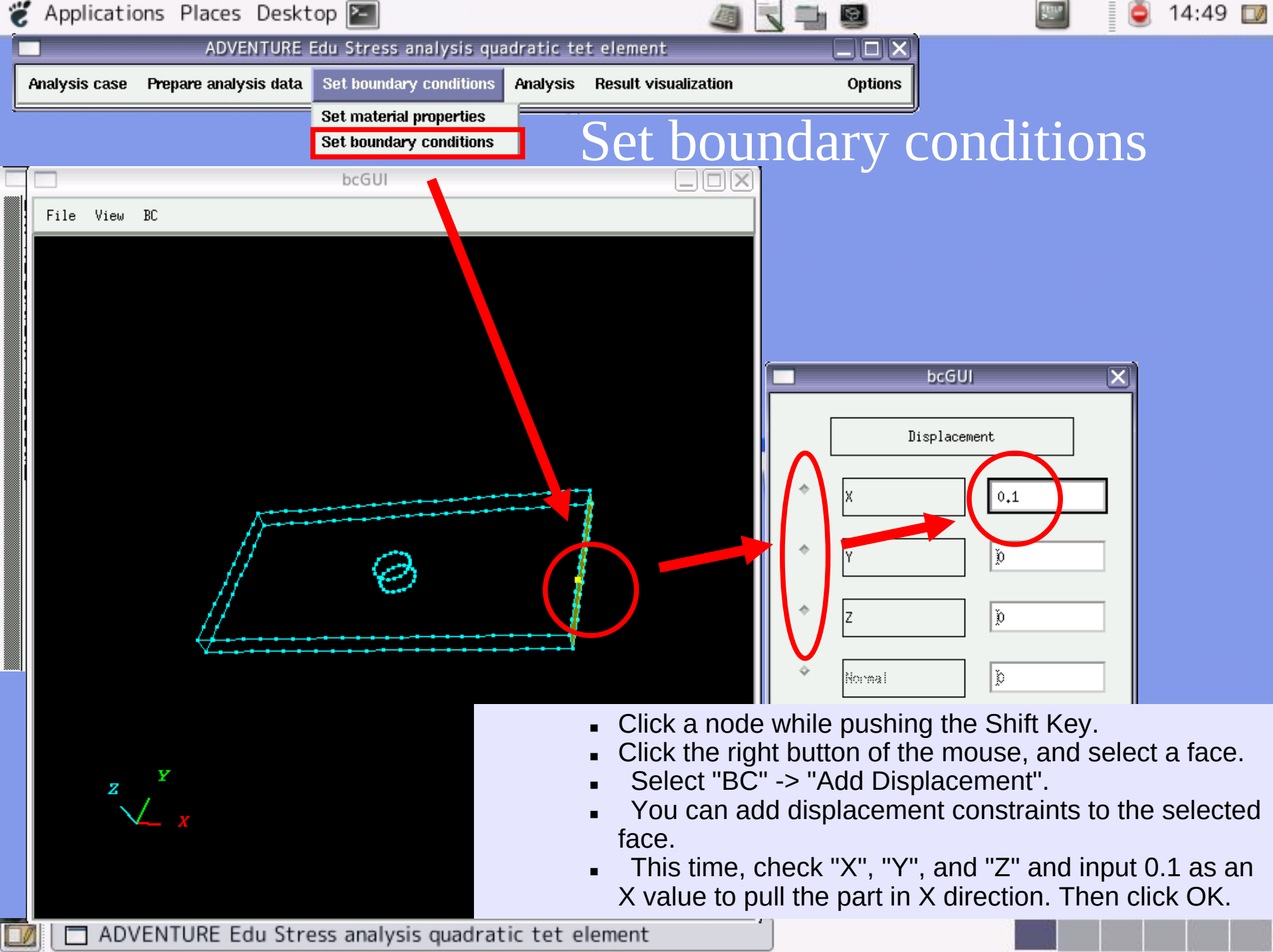
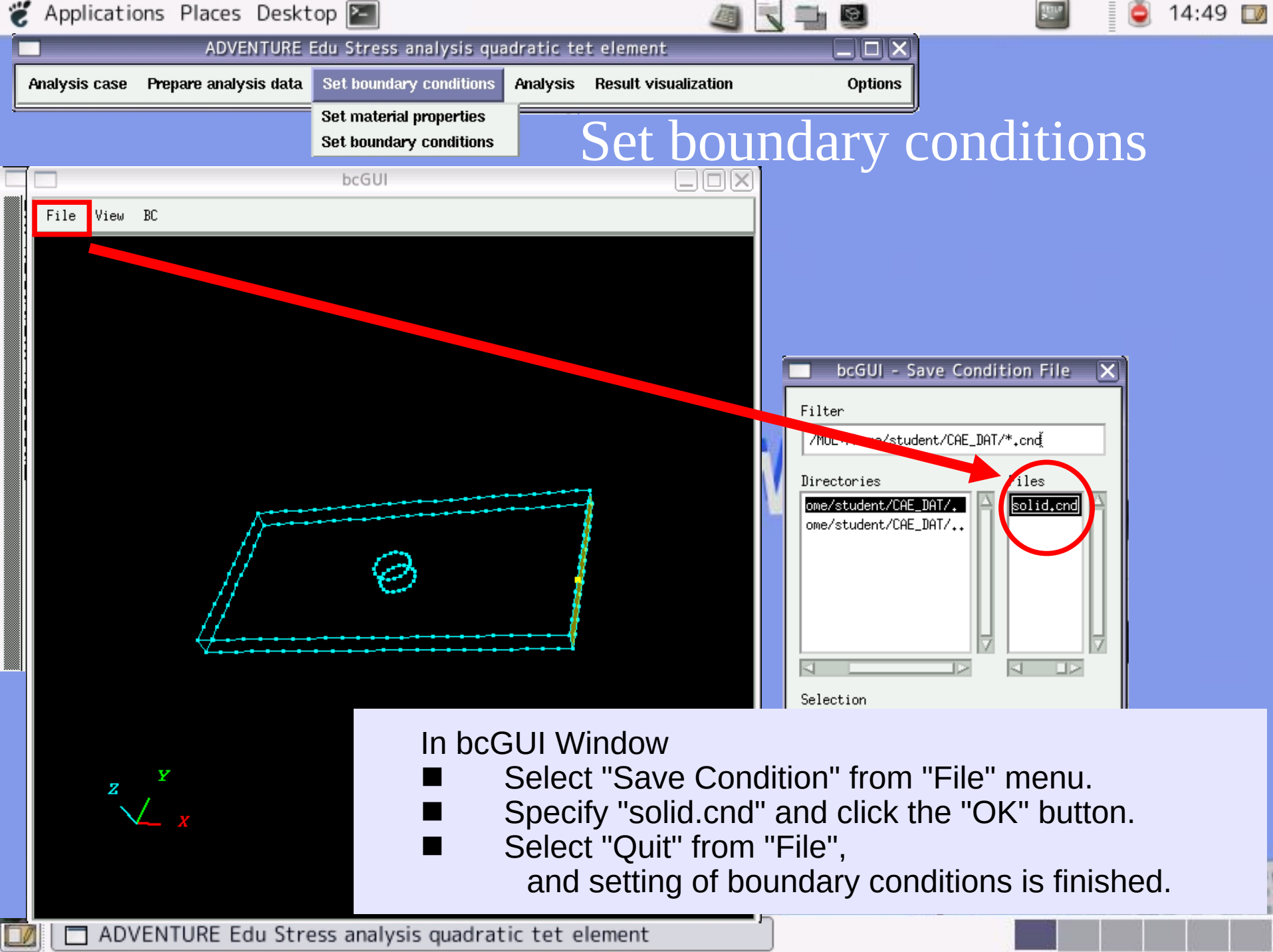


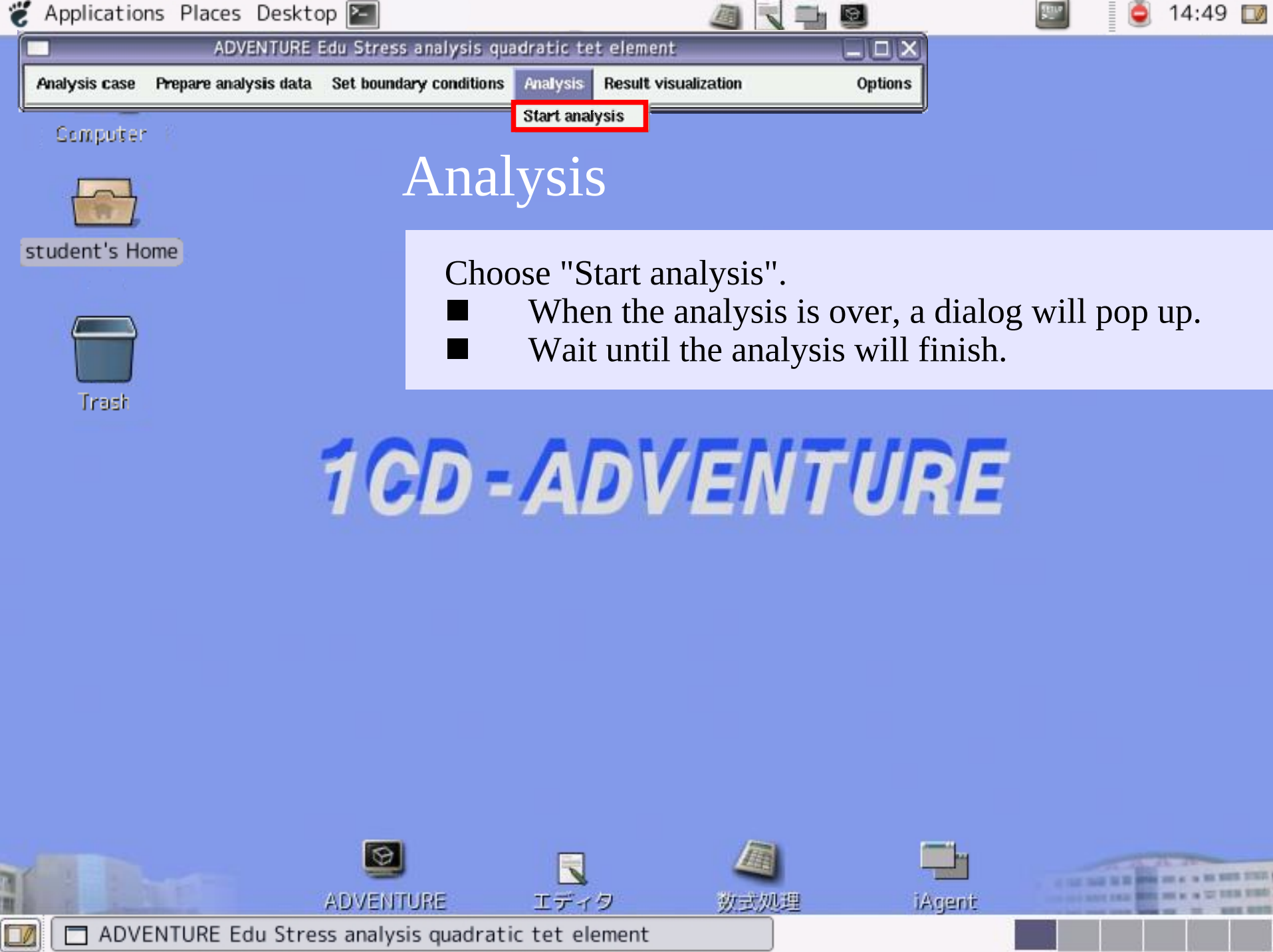
- Click a node while pushing the Shift Key.
- Click the right button of the mouse, and select a face.
- Select "BC" -> "Add Displacement".
- You can add displacement constraints to the selected face.
- This time, check "X", "Y", and "Z" and input 0.1 as an X value to pull the part in X direction. Then click OK.

Set boundary conditions



In bcGUI Window

- Select "Save Condition" from "File" menu.
- Specify "solid.cnd" and click the "OK" button.
- Select "Quit" from "File",
  and setting of boundary conditions is finished.


Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Start analysis
Computer
student's Home
Trash
Analysis
Choose "Start analysis".
When the analysis is over, a dialog will pop up.
Wait until the analysis will finish.
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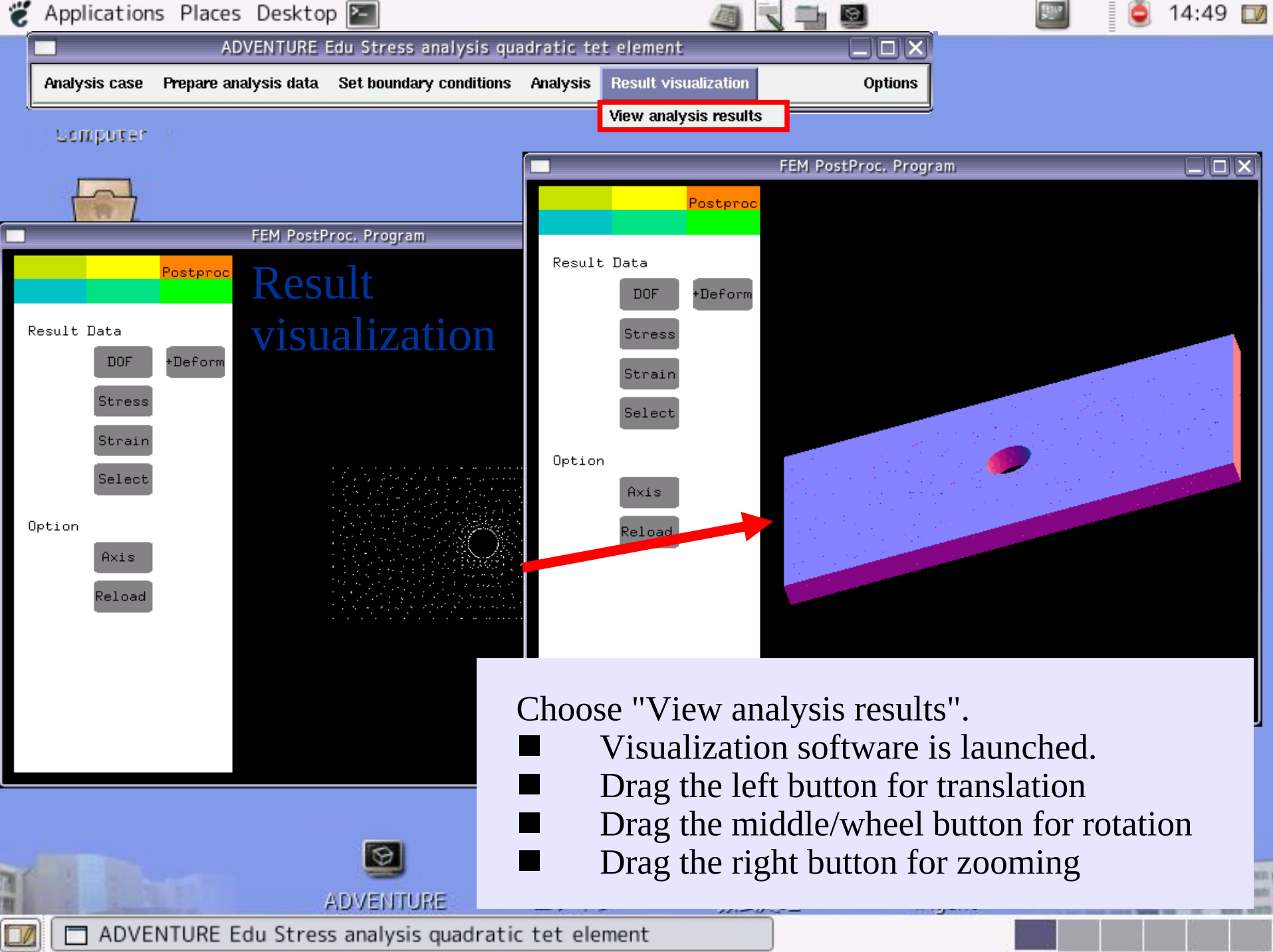
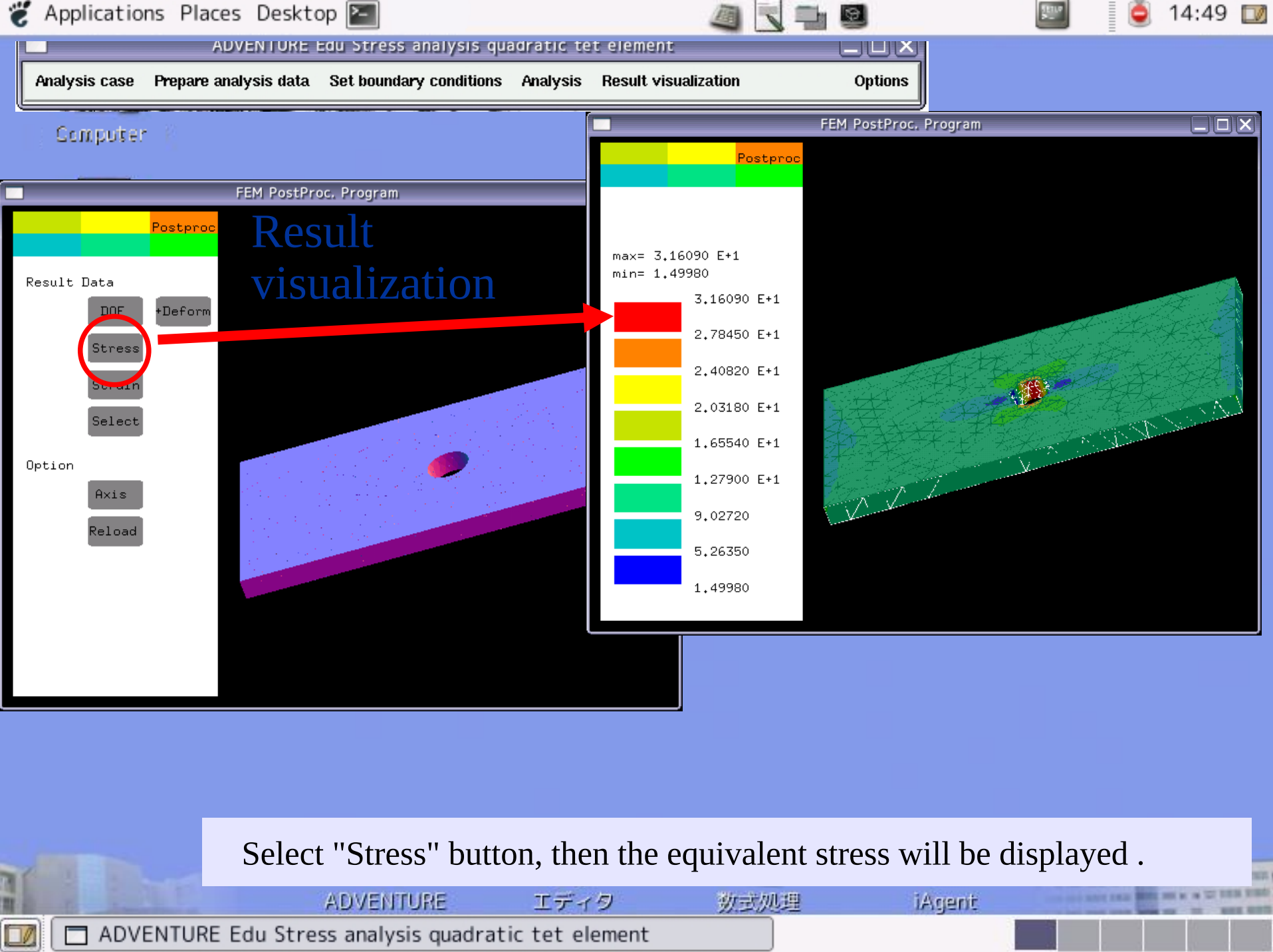


Choose "View analysis results".

- Visualization software is launched.
- Drag the left button for translation
- Drag the middle/wheel button for rotation
- Drag the right button for zooming


Applications Places Desktop
14:49
ADVENTURE Edu Stress analysis quadratic tet element
Analysis case
Prepare analysis data
Set boundary conditions
Analysis
Result visualization
Options
Computer
FEM PostProc. Program
Postproc
Result Data
DOF
+Deform
Stress
Strain
Select
Option
Axis
Reload
Result visualization
FEM PostProc. Program
Postproc
max= 3.16090 E+1
min= 1.49980
3.16090 E+1
2.78450 E+1
2.40820 E+1
2.03180 E+1
1.65540 E+1
1.27900 E+1
9.02720
5.26350
1.49980
Select "Stress" button, then the equivalent stress will be displayed .
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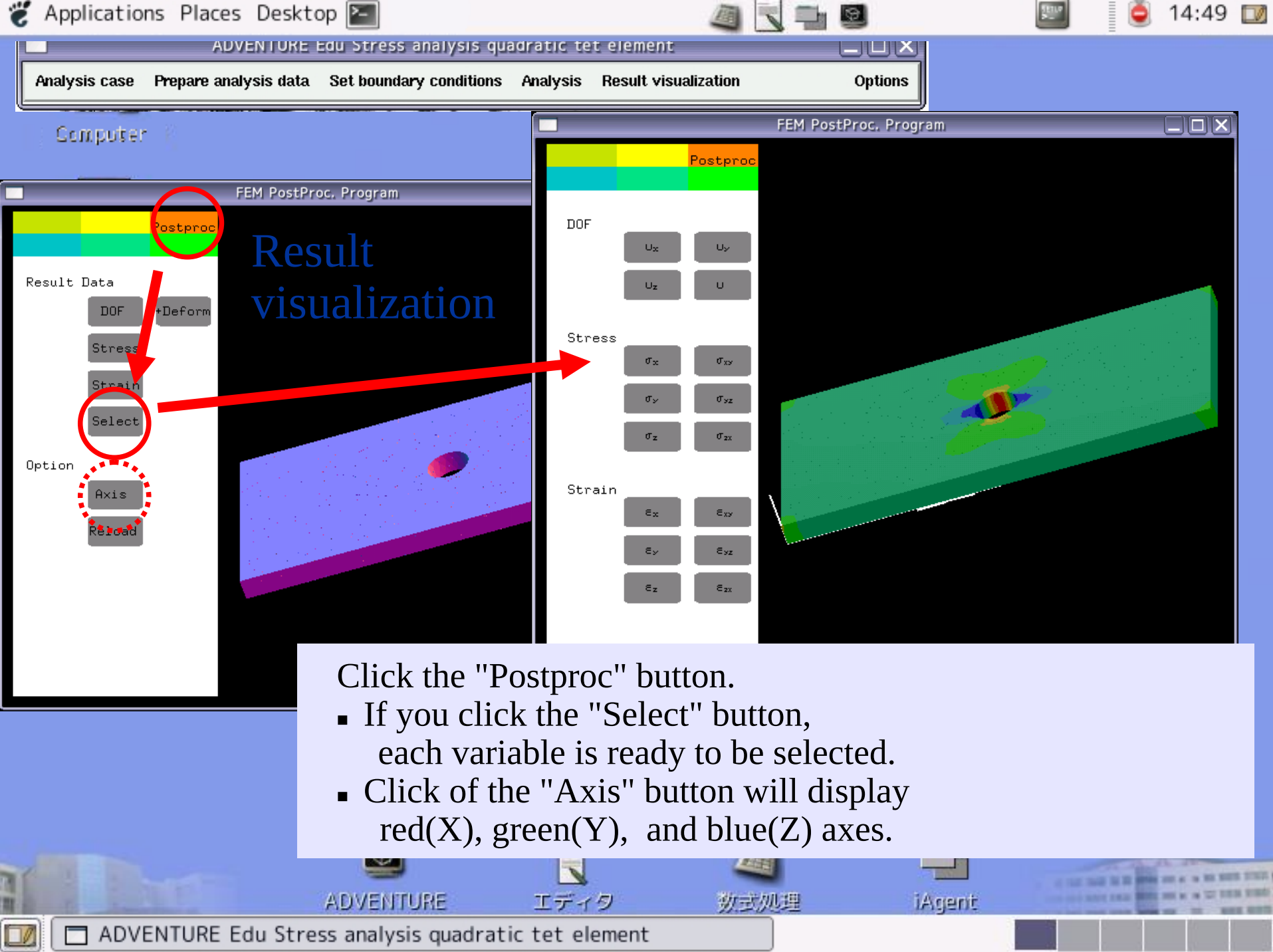
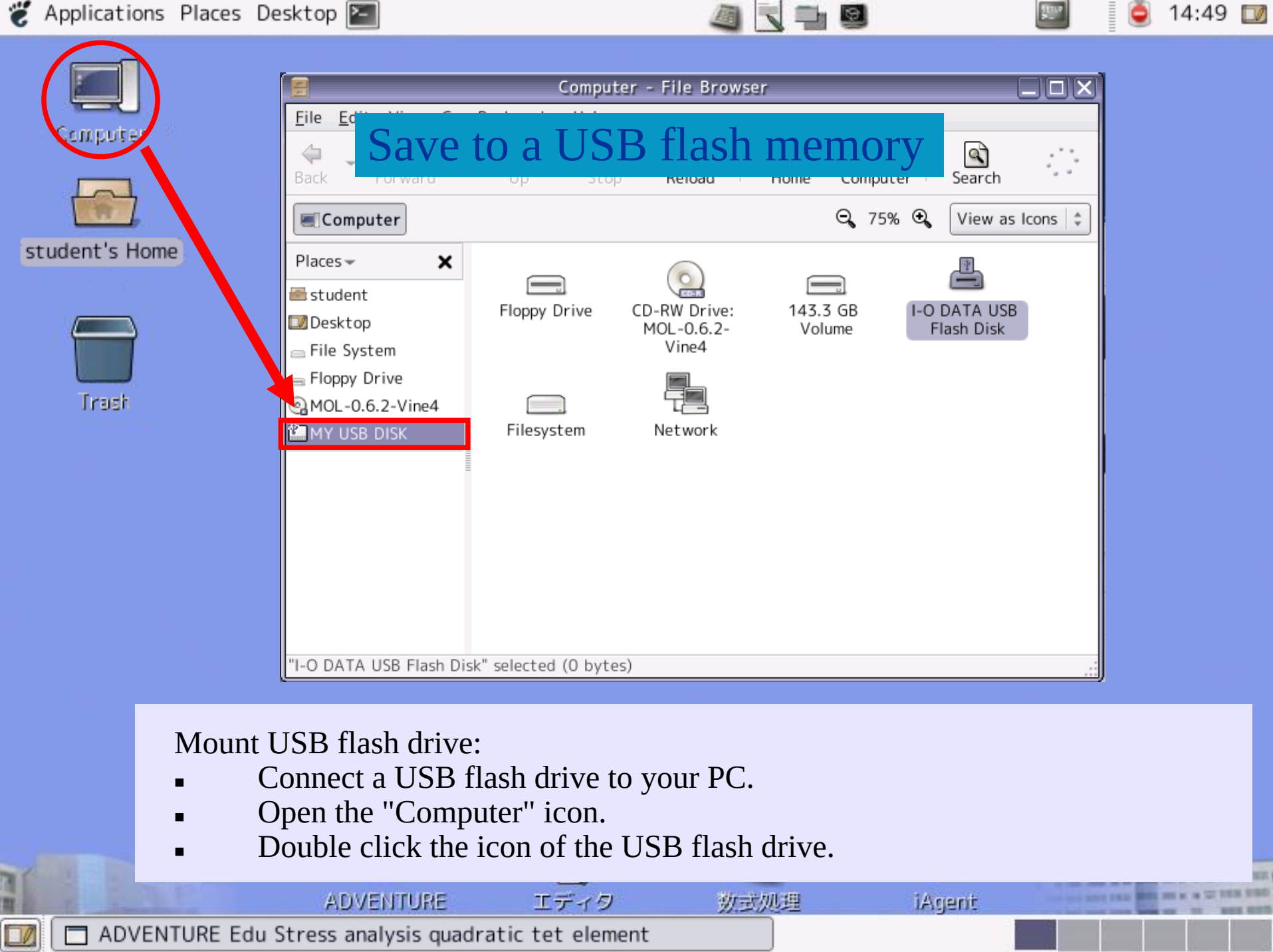


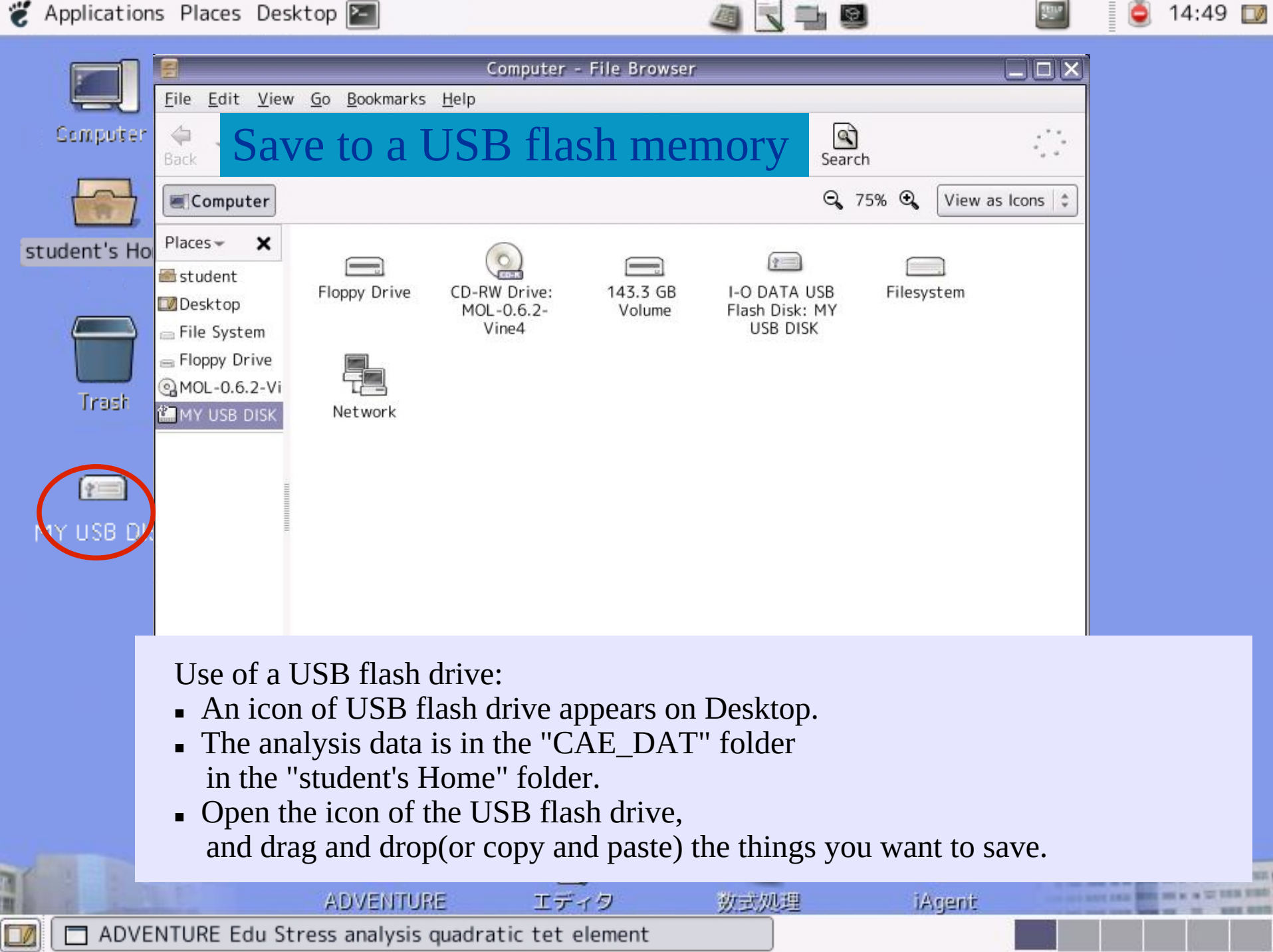
Click the "Postproc" button.

- If you click the "Select" button, each variable is ready to be selected.
- Click of the "Axis" button will display red(X), green(Y), and blue(Z) axes.



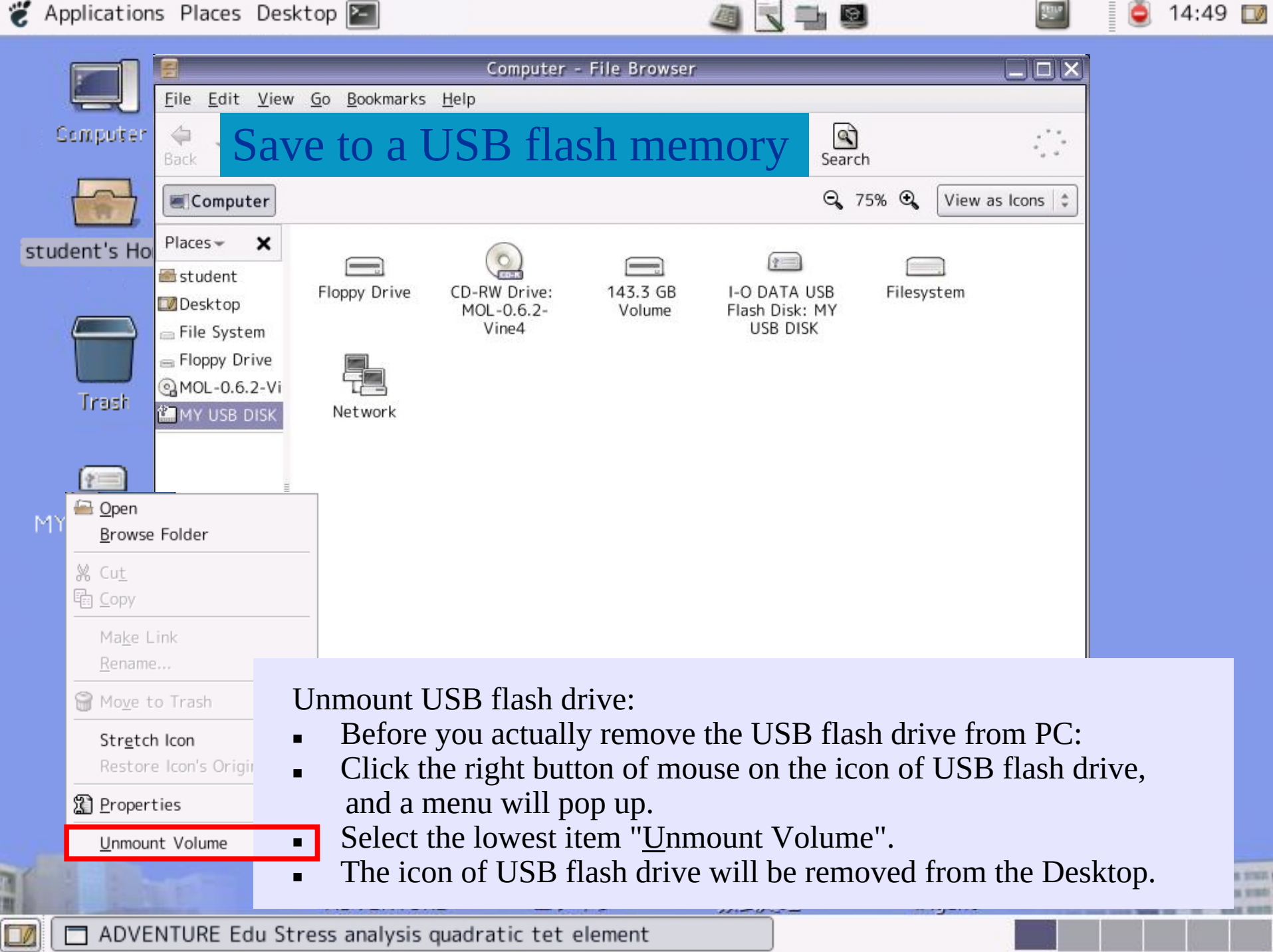
Mount USB flash drive:

- Connect a USB flash drive to your PC.
- Open the "Computer" icon.
- Double click the icon of the USB flash drive.



Use of a USB flash drive:

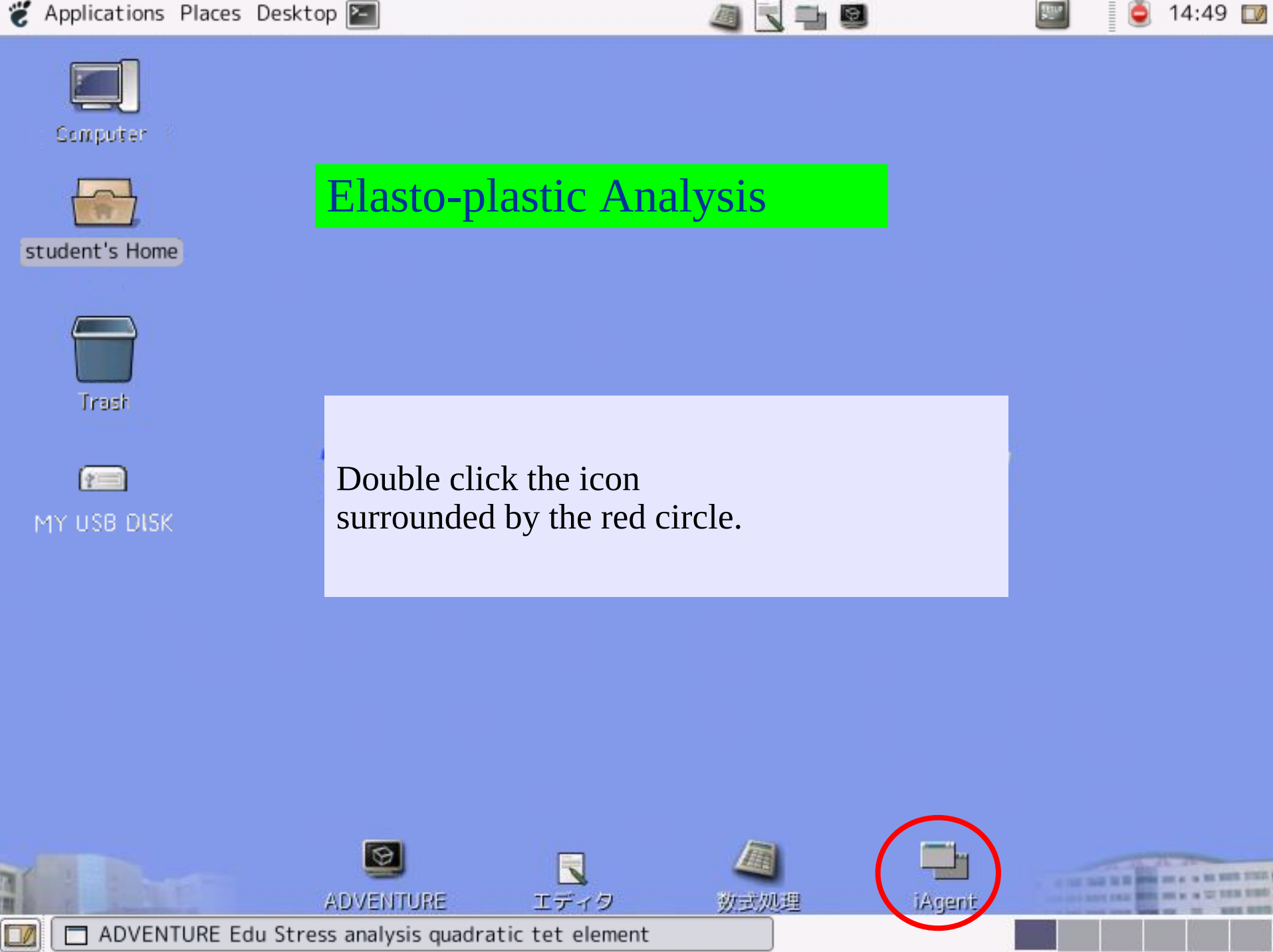
- An icon of USB flash drive appears on Desktop.
- The analysis data is in the "CAE_DAT" folder in the "student's Home" folder.
- Open the icon of the USB flash drive, and drag and drop(or copy and paste) the things you want to save.

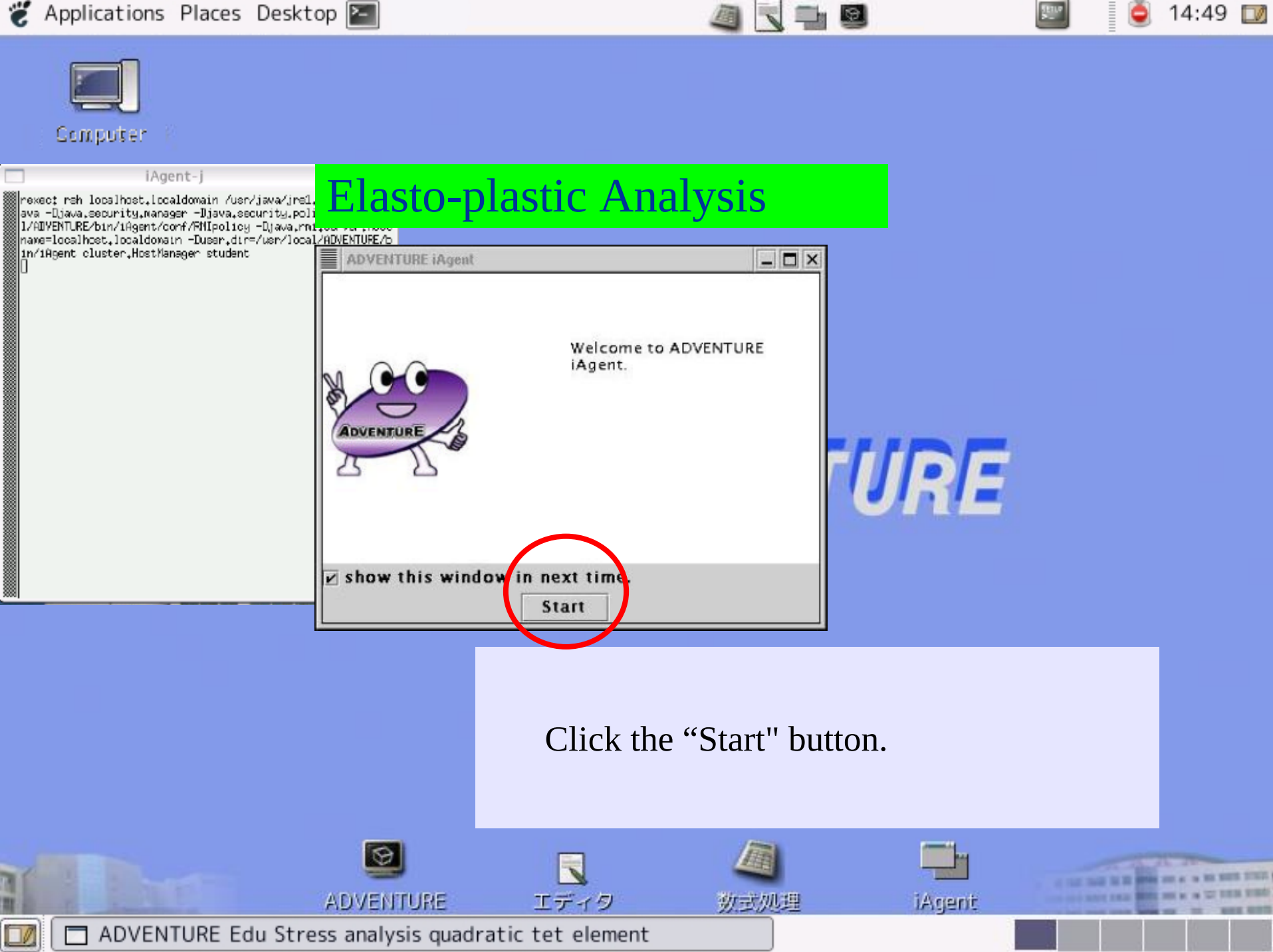


Save to a USB flash memory

Unmount USB flash drive:

- Before you actually remove the USB flash drive from PC:
- Click the right button of mouse on the icon of USB flash drive, and a menu will pop up.
- Select the lowest item "Unmount Volume".
- The icon of USB flash drive will be removed from the Desktop.


Applications Places Desktop
14:49
Computer
student's Home
Trash
MY USB DISK
Elasto-plastic Analysis
Double click the icon
surrounded by the red circle.
ADVENTURE
エディタ
数式処理
iAgent
ADVENTURE Edu Stress analysis quadratic tet element


Applications Places Desktop
14:49
Computer
iAgent-j
rexec rsh localhost.localdomain /usr/java/jre1.
ava -Djava.security.manager -Djava.security.poli
l/ADVENTURE/bin/iAgent/conf/RMIpolicy -Djava.rmi
name=localhost.localdomain -Duser.dir=/usr/local/ADVENTURE/b
in/iAgent cluster.HostManager student
Elasto-plastic Analysis
ADVENTURE iAgent
Welcome to ADVENTURE iAgent.
ADVENTURE
show this window in next time.
Start
Click the “Start" button.
ADVENTURE
エディタ
数式処理
iAgent
ADVENTURE Edu Stress analysis quadratic tet element