OpenSees: Output/Recorders
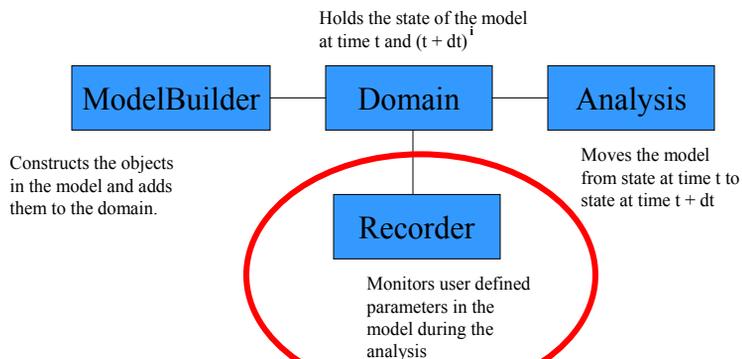
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Main Abstractions in OpenSees

Holds the state of the model
at time t and $(t + dt)^i$

| ModelBuilder | — | Domain | — | Analysis |

Constructs the objects
in the model and adds
them to the domain.

Moves the model
from state at time t to
state at time t + dt

Recorder

Monitors user defined
parameters in the
model during the
analysis

Focus of this presentation

print:

To print information from the Domain at any time t

print <$fileName>

To print just nodal information

print <$fileName> -node <$node1 $node2 ...>

To print just element information

print <$fileName> -ele <-flag $flag> <$ele1 $ele2 ...>

logging:

To echo what is being printed on the screen to a file

logFile $fileName

node recorder:

To monitor what's happening at the nodes during the analysis

recorder Node <-file $fileName> <-time> <-node ($node1 $node2 ...)> <-nodeRange $startNode $endNode> <-node all> -dof ($dof1 $dof2 ...) $respType

*valid respType are: **disp, vel,** or **accel**

If you want to see max, min & absolute max values

recorder EnvelopeNode …

Or the drift between 2 nodes

recorder Drift $fileName <-time> $node1 $node2 $dof $perpDirn

element recorder:

To monitor what's happening at the elements, sections or materials during the analysis

recorder Element <-file $fileName> <-time> <-ele ($ele1 $ele2 ...)> <-eleRange $startEle $endEle> <-ele all> ($arg1 $arg2 ...)

*valid $arg **depend on the element***

Common to all beam-column elements: nonlinearBeamColumn, dispBeamColumn, beamWithHinges elements:

•globalForce – element resisting force in global coordinates (does not include inertial forces)

•localForce – element resisting force in local coodinates (does not include inertial forces)

•section $secNum – to request response quantities from a specific section along the element length, where secNum is between 1 and the number of sections

If you want to see max, min & absolute max values

recorder EnvelopeElement ...

plot recorder:

To monitor what's being recorder in a file by a recorder!

recorder plot $fileName $windowTitle $xLoc $yLoc $xPixels $yPixels -columns $xCol0 $yCol0 <-columns $xCol1 $yCol1><-columns $xCol2 $yCol2> ...

database:

To save the state of the model at time t for restarts

```
database databaseType $databaseName
```

This now adds commands to save & restore to a database:

```
save  $commitTag
```

```
restore $commitTag
```