

## Compiling And Executing the simulation:

In our case , the whole project is write in the **Netbeans IDE** and compiling and run their , so simply open the 4 projects in netbeans and start running one after an other.

(If we want to run our projects with cmd , when need to change how the registry is created and looked up in our code , but simply also we can).

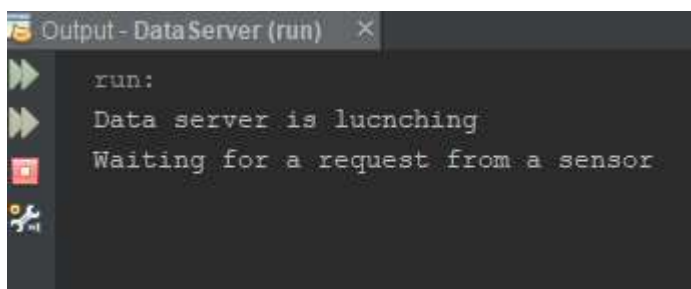
### Order Of Executing :

- 1- Run the DataServer first.
- 2- Then the Sink Project
- 3- Then the Supervisor sensor
- 4- Now we can start execute some sensors

### Rules Of Executing and some screenshots:

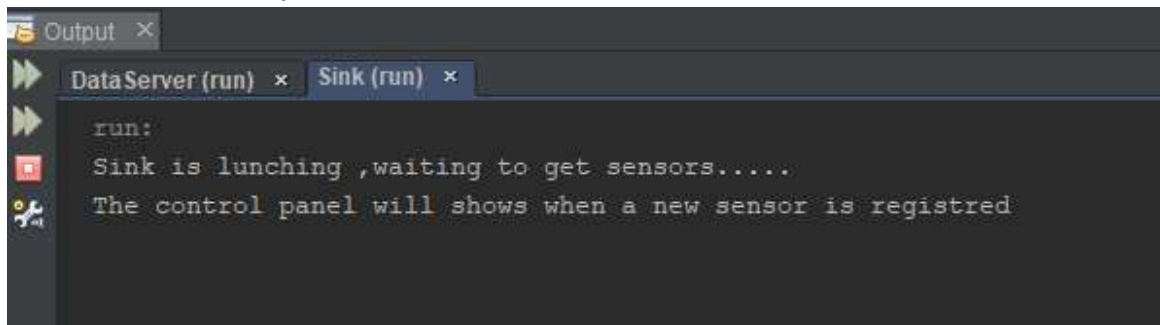
- 1- DataServer :

Just run it and it will be waiting for a new request from a sensor after.



```
run:
Data server is lucnching
Waiting for a request from a sensor
```

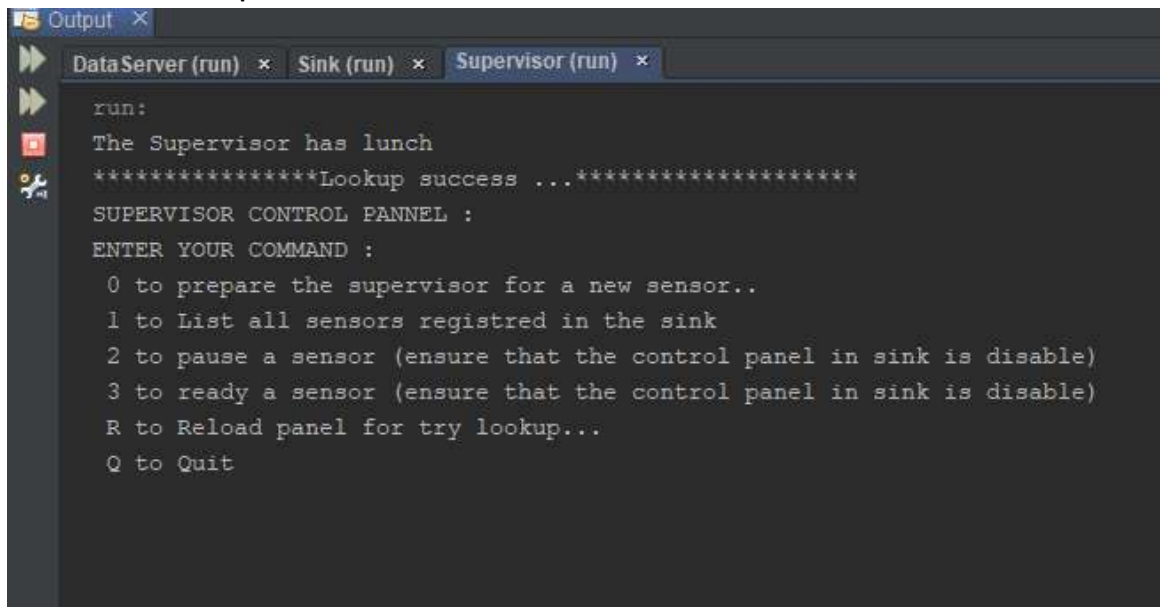
- 2- Sink , after run , a message will be show up that the sink is running , but the control pannel will be disable till a new sensor come.



The screenshot shows an IDE output window with a tab labeled 'Sink (run)'. The output text is as follows:

```
run:
Sink is lunching ,waiting to get sensors.....
The control panel will shows when a new sensor is registred
```

- 3- Supervisor : after the run of the supervisor , a message will be show up that the supervisor Is running , then the control pannel will be show up.

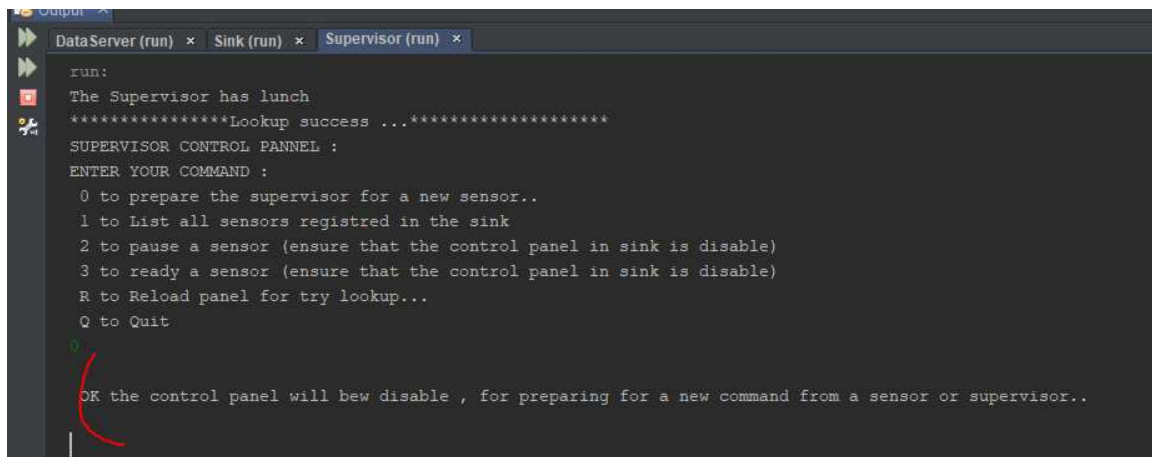


The screenshot shows an IDE output window with a tab labeled 'Supervisor (run)'. The output text is as follows:

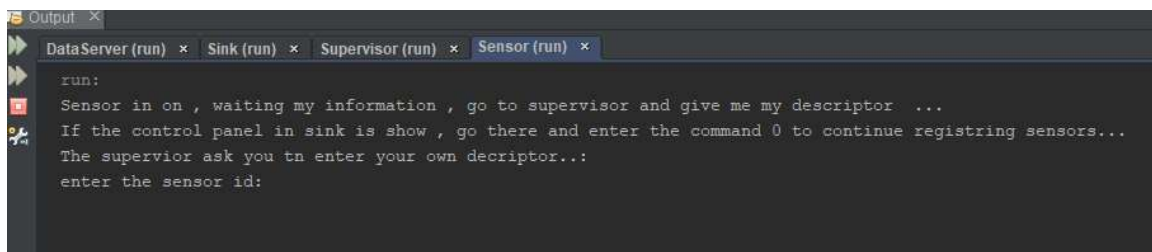
```
run:
The Supervisor has lunch
*****Lookup success ...*****
SUPERVISOR CONTROL PANNEL :
ENTER YOUR COMMAND :
0 to prepare the supervisor for a new sensor..
1 to List all sensors registred in the sink
2 to pause a sensor (ensure that the control panel in sink is disable)
3 to ready a sensor (ensure that the control panel in sink is disable)
R to Reload panel for try lookup...
Q to Quit
```

4- Now after the 3 machines are running and all connection has been opened a running , we can start launching the sensor, run the sensorMain to start running a sensor:

But before running a sensor , we need to click '0' in the control panel of the supervisor or the sink to prepare them to start accepting the connection and the parameter of this new sensor.

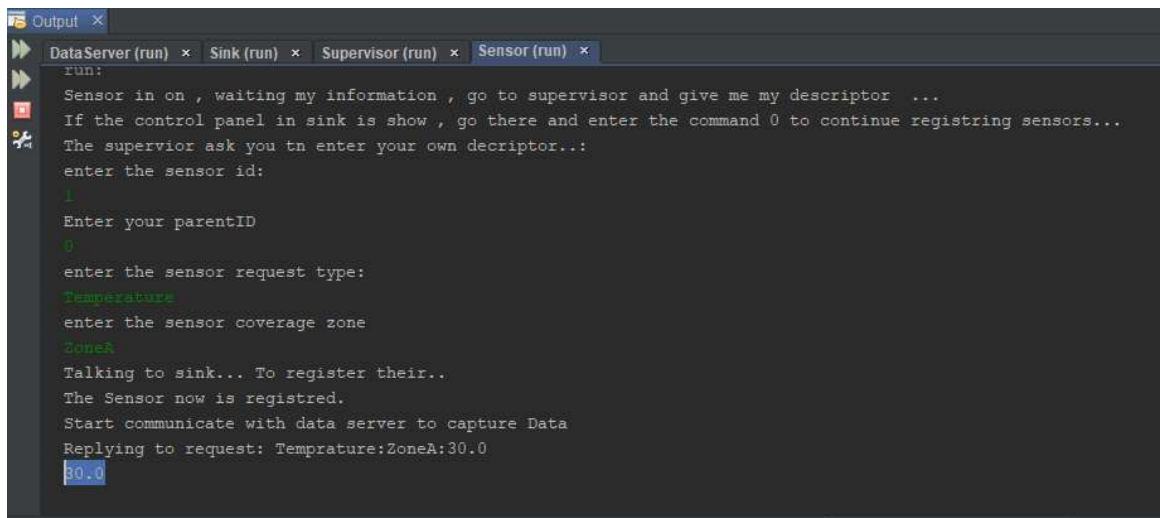


```
run:
The Supervisor has lunch
*****Lookup success ...*****
SUPERVISOR CONTROL PANNEL :
ENTER YOUR COMMAND :
0 to prepare the supervisor for a new sensor..
1 to List all sensors registred in the sink
2 to pause a sensor (ensure that the control panel in sink is disable)
3 to ready a sensor (ensure that the control panel in sink is disable)
R to Reload panel for try lookup...
Q to Quit
0
OK the control panel will be disabled , for preparing for a new command from a sensor or supervisor..
```



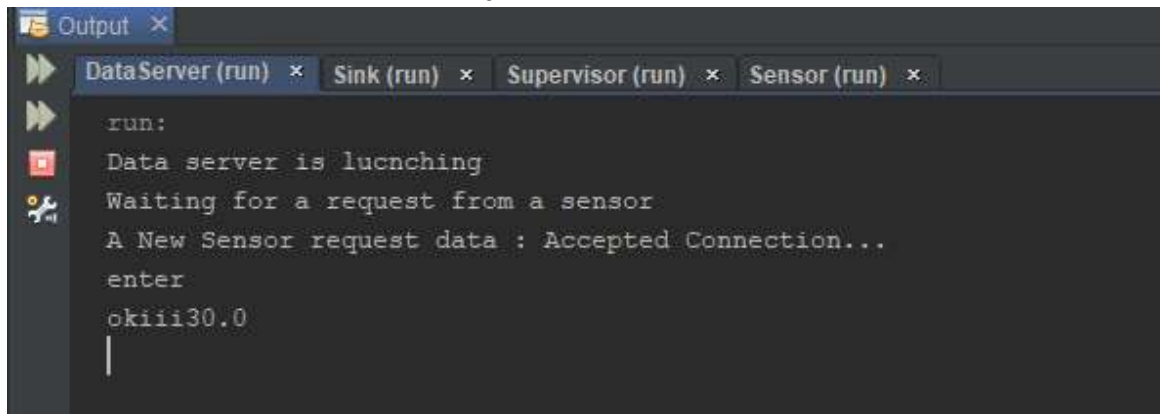
```
run:
Sensor is on , waiting my information , go to supervisor and give me my descriptor ...
If the control panel in sink is show , go there and enter the command 0 to continue registering sensors...
The supervisor ask you to enter your own descriptor...:
enter the sensor id:
```

Now the sensor is on and the user start entering his information(zone/id/parentid/request type),



```
Output X
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
run:
Sensor in on , waiting my information , go to supervisor and give me my descriptor ...
If the control panel in sink is show , go there and enter the command 0 to continue registering sensors...
The supervisor ask you tn enter your own decriptor..:
enter the sensor id:
1
Enter your parentID
0
enter the sensor request type:
Temperature
enter the sensor coverage zone
ZoneA
Talking to sink... To register their..
The Sensor now is registred.
Start communicate with data server to capture Data
Replaying to request: Temprature:ZoneA:30.0
30.0
```

Now the sensot has all his informations including the result of the request type(temperature or humidity)  
Now the sensor has finish his job .



```
Output X
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
run:
Data server is lucnching
Waiting for a request from a sensor
A New Sensor request data : Accepted Connection...
enter
okiii30.0
|
```

Here is how the dataserver show the value of requested type .

```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
run:
Sink is lunching ,waiting to get sensors.....
The control panel will shows when a new sensor is registred
Receiving data from a sensor to sink :
1:0:Temperature:ZoneA:Registred-Ready:30.0

Control Panel
Enter 0 To pause the control panel and waiting for a new sensor
Enter 1 List All Sensor
Enter 2 Get A Specific data (Temperature or humuidte) for a specific zone
Enter Q To Exit the sink
|
```

And here what the sink will showed ("Receiving data from sensor").

.....  
Now all machines are registered and waiting an order from the sink for a new capture or from the supervisor for a configuration.

- Now in the sink , the control panel is showed including 4 command:
  - 1- '0' to pause the sink so you can run a new sensor.
  - 2- '1' to list all available sensors.
  - 3- '2' to get or capture a specfic value for a zone and type.
  - 4- 'Q' to exit the sink (Stop runnig...)

```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
run:
Sink is lunching ,waiting to get sensors.....
The control panel will shows when a new sensor is registred
Receiving data from a sensor to sink :
1:0:Temperature:ZoneA:Registred-Ready:30.0

Control Panel
Enter 0 To pause the control panel and waiting for a new sensor
Enter 1 List All Sensor
Enter 2 Get A Specific data (Temperature or humuidte) for a specific zone
Enter Q To Exit the sink
1
GETTING SENOSRS....

*****List of all regustred sensor*****
Sensor{id=1, parentid=0, request_type=Temperature, zone=ZoneA, status=Registred-Ready}
*****
```

Example of command '1'.

```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
Enter 1 List All Sensor
Enter 2 Get A Specific data (Temperature or humuidte) for a specific zone
Enter Q To Exit the sink
2
GETTING SENOSRS....

A new Capture is Preparing....
Enter your request type :
Temperature
Temperature
Enter your request coverage zone :
ZoneA
ZoneA
***Start searching with the midlle level sensors***
The sensor responsible to this capabilities is a sensor in a midlle level:
Sensor(id=1, parentid=0, request_type=Temperature, zone=ZoneA, status=Registred-Ready)
*****Required Data is :Temperature:ZoneA:30.0 *****
|
*****
```

Example of command '2'

```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
GETTING SENOSRS....

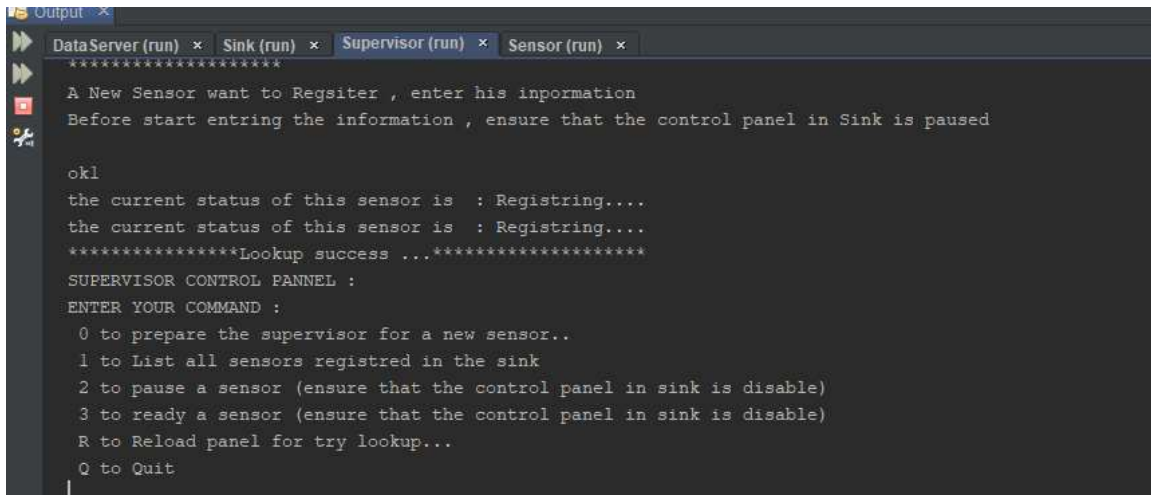
A new Capture is Preparing....
Enter your request type :
op
op
Enter your request coverage zone :
zal
zal
***Start searching with the midlle level sensors***
Any of the sensor of middle level(parent is sink) has these capabilities
Start searching on the base level
Any of the sensor of middle level or base level has these capabilities
*****
Control Panel
Enter 0 To pause the control panel and waiting for a new sensor
Enter 1 List All Sensor
Enter 2 Get A Specific data (Temperature or humuidte) for a specific zone
Enter Q To Exit the sink
0

OK, the control panel will bew disable , for preparing for a new sensor to come
```

Example of command '0'

(for pausing the sink for a new sensor to come or for a command from the supervisor).

Supervisor run:



```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
*****
A New Sensor want to Regsiter , enter his inpormation
Before start entring the information , ensure that the control panel in Sink is paused

okl
the current status of this sensor is : Registring....
the current status of this sensor is : Registring....
*****Lookup success ...*****
SUPERVISOR CONTROL PANNEL :
ENTER YOUR COMMAND :
0 to prepare the supervisor for a new sensor..
1 to List all sensors registred in the sink
2 to pause a sensor (ensure that the control panel in sink is disable)
3 to ready a sensor (ensure that the control panel in sink is disable)
R to Reload panel for try lookup...
Q to Quit
```

We have 6 commands in control pannel

0-to prepare a new sensor

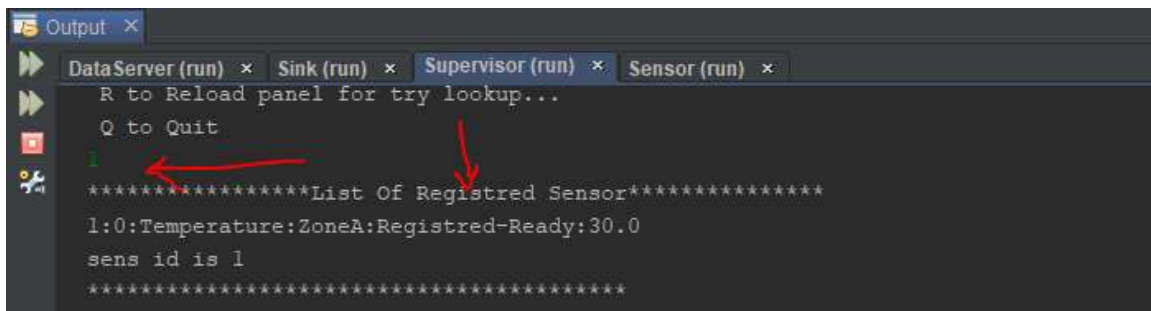
1-to list all sensors registred in the sink

2-to pause a specific sensor by its id (status=pause)

3-to ready a specific sensor by its id (status=ready)

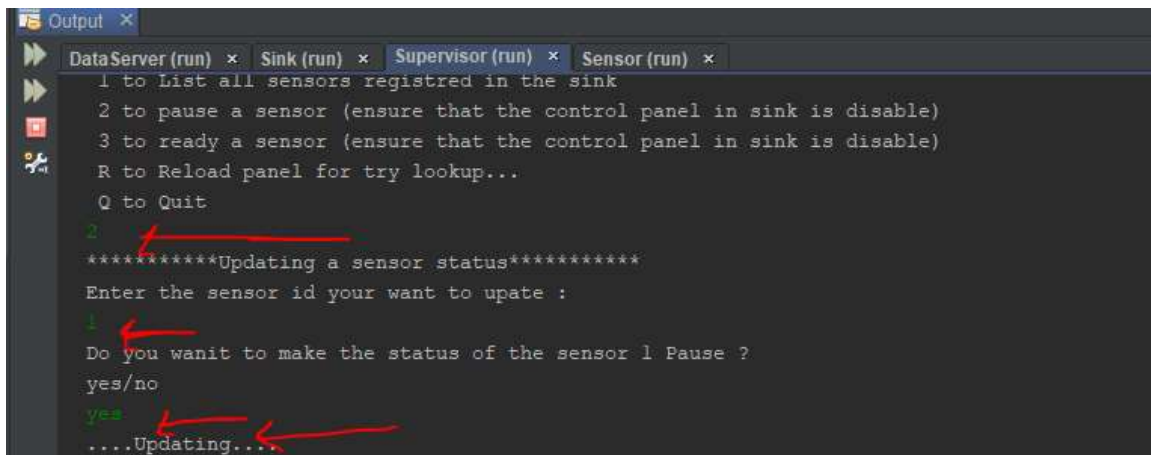
R-to reload panel for try lookup

Q-to exit the supervisor



```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
R to Reload panel for try lookup...
Q to Quit
1
*****List Of Registred Sensor*****
1:0:Temperature:ZoneA:Registred-Ready:30.0
sens id is 1
*****
```

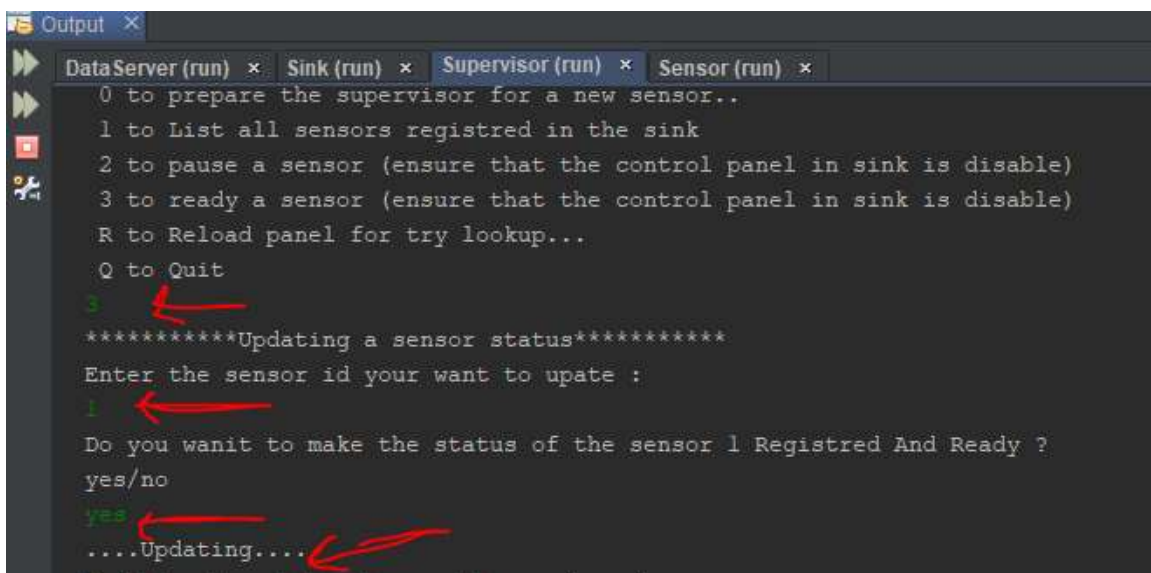
Example for command 1

A terminal window with tabs for 'DataServer (run)', 'Sink (run)', 'Supervisor (run)', and 'Sensor (run)'. The 'Sink (run)' tab is active. The terminal shows a menu with options 1, 2, 3, R, and Q. Option 2 is selected, followed by a separator line '\*\*\*\*\*Updating a sensor status\*\*\*\*\*'. A prompt asks for a sensor ID, and '1' is entered. Another prompt asks if the status should be paused, and 'yes' is entered. The terminal then shows '....Updating....'. Red arrows point to the input '2', the sensor ID '1', and the response 'yes'.

```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
1 to List all sensors registred in the sink
2 to pause a sensor (ensure that the control panel in sink is disable)
3 to ready a sensor (ensure that the control panel in sink is disable)
R to Reload panel for try lookup...
Q to Quit
2
*****Updating a sensor status*****
Enter the sensor id your want to upate :
1
Do you want to make the status of the sensor 1 Pause ?
yes/no
yes
....Updating....
```

Example for command 2:Status=pause

He ask to enter id and to affirm the updating we should enter yes or no .

A terminal window with tabs for 'DataServer (run)', 'Sink (run)', 'Supervisor (run)', and 'Sensor (run)'. The 'Sink (run)' tab is active. The terminal shows a menu with options 0, 1, 2, 3, R, and Q. Option 3 is selected, followed by a separator line '\*\*\*\*\*Updating a sensor status\*\*\*\*\*'. A prompt asks for a sensor ID, and '1' is entered. Another prompt asks if the status should be 'Registered And Ready', and 'yes' is entered. The terminal then shows '....Updating....'. Red arrows point to the input '3', the sensor ID '1', and the response 'yes'.

```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
0 to prepare the supervisor for a new sensor..
1 to List all sensors registred in the sink
2 to pause a sensor (ensure that the control panel in sink is disable)
3 to ready a sensor (ensure that the control panel in sink is disable)
R to Reload panel for try lookup...
Q to Quit
3
*****Updating a sensor status*****
Enter the sensor id your want to upate :
1
Do you want to make the status of the sensor 1 Registred And Ready ?
yes/no
yes
....Updating....
```

Example for cammand 3:status=ready

He ask the id of sensor and to affirm we should enter yes or no.



```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x
Q to Quit

Wrong command
*****Lookup success ...*****

SUPERVISOR CONTROL PANNEL :
ENTER YOUR COMMAND :
0 to prepare the supervisor for a new sensor..
1 to List all sensors registred in the sink
2 to pause a sensor (ensure that the control panel in sink is disable)
3 to ready a sensor (ensure that the control panel in sink is disable)
R to Reload panel for try lookup...
Q to Quit
0

OK the control panel will bew disable , for preparing for a new command from a sensor or supervisor..
```

Example for command 0

To prepare a new sensor.

NB:When we update the status of the sensor,in the supervisor , the sink track these command:

```
Output x
DataServer (run) x Sink (run) x Supervisor (run) x Sensor (run) x

*****UPDATING A SENSOR (COMMAND FROM SUPERVISOR)
Update a status of 1 new is Pause
Calling this method rmi size : 1
Updating Sensor : Sensor{id=1, parentid=0, request_type=Temperature, zone=ZoneA, status=Registred-Ready}
Updating Sensor new status : Sensor{id=1, parentid=0, request_type=Temperature, zone=ZoneA, status=Pause}
To write 1:0:Temperature:ZoneA:Pause:30.0

Control Panel
Enter 0 To pause the control panel and waiting for a new sensor
Enter 1 List All Sensor
Enter 2 Get A Specific data (Temperature or humuidte) for a specific zone
Enter Q To Exit the sink
*****UPDATING A SENSOR (COMMAND FROM SUPERVISOR)
Update a status of 1 new is Registred And Ready
Calling this method rmi size : 1
Updating Sensor : Sensor{id=1, parentid=0, request_type=Temperature, zone=ZoneA, status=Pause}
Updating Sensor new status : Sensor{id=1, parentid=0, request_type=Temperature, zone=ZoneA, status=Registred And Ready}
To write 1:0:Temperature:ZoneA:Registred And Ready:30.0
```