

Once logged in, click the SDF button

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## Computational Modeling Workbench

Welcome Omer. You are logged in.

Select one of the following.

Automata And Languages

Discrete-Time Markov Chains

Max-Plus And Dataflow

Build date: 03-07-2022 20:04:21

Build commit: d59978b340c43b6258158a9d1822812f45419403

Scroll all the way down, and click the green button under “Create a Model” and click “Create a new dataflow model”

### Scratch Models

Name	Type	Modified on	Owner
hmm	dataflow	8-3-2022, 15:03:58	Omer
worst-case-model	dataflow	10-3-2022, 09:59:22	Omer

No model selected.

[Open](#) [Delete](#) [Publish](#) [Unpublish](#) [Scratch](#) [Unscratch](#) [Rename](#) [Hand Over](#) [Delete All Scratch Models](#)

Analysis Output

[Clear](#)

[General Operations](#)

Operations on Data Flow Models

### Create a Model

[Select...](#)

Create a new dataflow model

Create a new max-plus model

Give a name and click OK:

dataflow

Question

×

Please enter a name for the new model.

test\_name

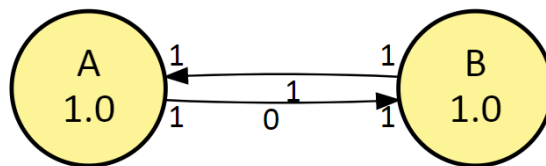
OK

Cancel

A new model should appear in the “Scratch Models” menu, if you click on the model you just added, you will see a default network. Click on “Open” to edit the model

#### Scratch Models

Name	Type	Modified on	Owner
hmm	dataflow	8-3-2022, 15:03:58	Omer
test_name	dataflow	14-3-2022, 16:03:28	Omer
worst-case-model	dataflow	10-3-2022, 09:59:22	Omer



Open

Delete

Publish

Unpublish

Scratch

Unscratch

Rename

Hand Over

Delete All Scratch Models

Add the program/text needed for your model. See lecture slides on how and what. When you are done click save and then close:

# Dataflow Editor

```
1
2 dataflow graph Model {
3     A ----> B
4     B - initial tokens: 1 --> A
5 }
```

Connected to the language server.



Save



Download



Close

After you saved and closed your model, you are back in the “Scratch Models” menu. Click the model name, then press “Operations on Data Flow Models” > “Analysis” and choose “Gantt Chart”: see next two screenshots:

### Scratch Models

Name	Type	Modified on	Owner
hmm	dataflow	8-3-2022, 15:03:58	Omer
<b>test_name</b>	<b>dataflow</b>	<b>14-3-2022, 16:03:28</b>	<b>Omer</b>
worst-case-model	dataflow	10-3-2022, 09:59:22	Omer

Open Delete Publish Unpublish Scratch Unscratch Rename Hand Over Delete All Scratch Models

Analysis Output

Clear

General Operations

Operations on Data Flow Models

Analysis

Select...

### Scratch Models

Name	Type	Modified on
hmm	dataflow	8-3-2022, 15:03:58
<b>test_name</b>	<b>dataflow</b>	<b>14-3-2022, 16:03:28</b>
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Open Delete Publish Unpublish Scratch Unscratch Rename Hand Over

Repetition Vector  
Check Deadlock  
Throughput  
Latency  
State-Space Matrices  
Gantt Chart

Operations on Data Flow Models

Select...

It will ask you for “Some number of iterations”, the value 4 is fine

Enter a number

Provide the number of iterations to visualize.

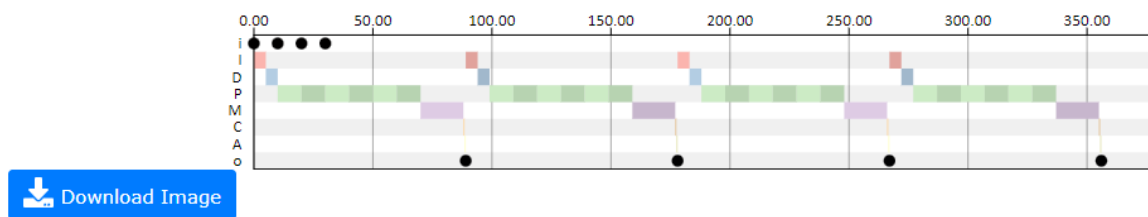
4

OKCancel

Press OK in the next menus.

With the default program, the Gantt Chart cannot be created. Just input your model, if you follow the same steps, you can get a chart like this:

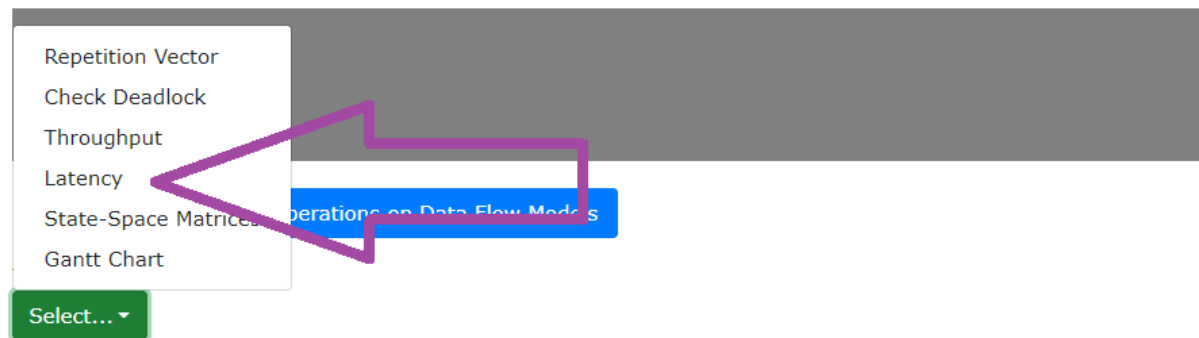
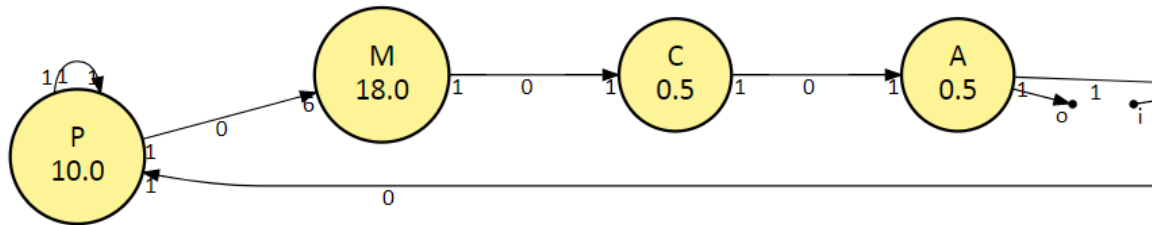
## Gantt chart of hmm



When you select latency in the Analysis menu, you are asked for a period, see next two screenshots:

## Scratch Models

Name	Type	Modified on
<b>hmm</b>	<b>dataflow</b>	<b>8-3-2022, 15:03:58</b>
test_name	dataflow	14-3-2022, 16:03:28
worst-case-model	dataflow	10-3-2022, 09:59:22



Enter a number

Provide the period ( $\mu$ ).

OK

Cancel

If I remember correctly, this is the period of the sampling time in microseconds. A value of 100000 seems correct, should double check with the lecturer. The output in the console tells you the Sensor to Actuation delay:

### Analysis Output

The latency analysis of the graph hmm for period 100000 is as follows.

Inputs:

i

Outputs:

o

State vector:

P\_P, A\_I

IO latency matrix:

[[ 89.0000 ]]

Initial state latency matrix:

[[ 79.0000 89.0000 ]]

Clear