

## BUSI 2710

### Computer Lab Exercises: Process Modelling with WoPeD

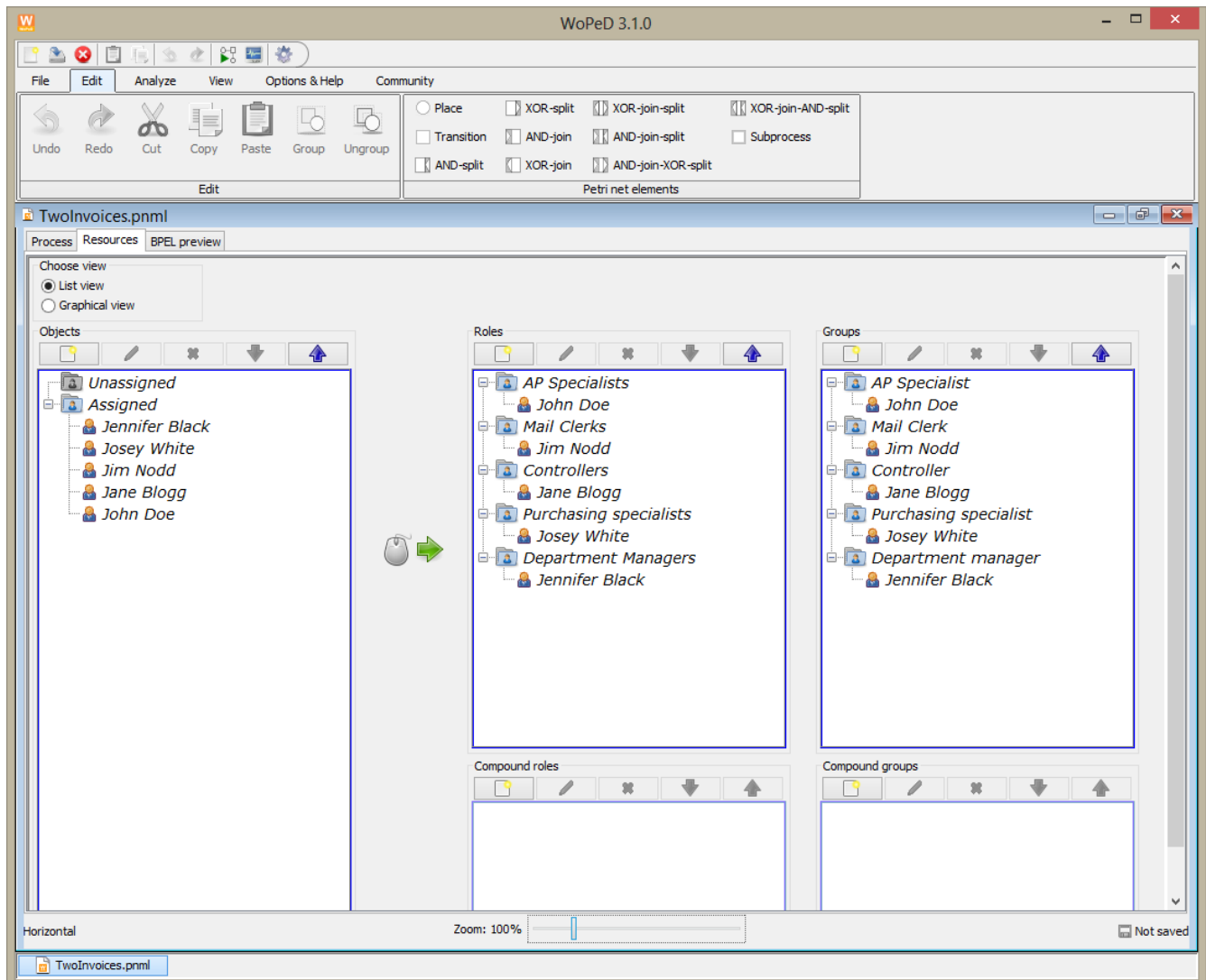
#### Exercise 1 (Process Model – Petri Net)

Watch the video: “A Tale of Two Invoices”

Using the video, draw a process model as a Petri net using the WoPeD software. As you model the process, reflect on what is easy and what is difficult to model, and what cannot be expressed in a Petri net.

#### Exercise 2 (Resources)

Switch to the resources tab of your WoPeD model to model the resources (people) involved in the process. You need to add roles as well as groups for the people involved in the process. You also need to create at least one person object for each role/group and assign them to the corresponding roles and groups. You can assign objects to roles and groups by “drag-and-drop”. The end result should look like the following:



### Exercise 3 (Resource Usage)

Switch back to the process tab in WoPed. For each transition that represents a task to be carried out by a person (“human resource”), right click, and select “Properties”. Do the following:

- Select “Resource” for trigger. This means that the transition fires when it is enabled and a resource is available.
- Specify the average service time.
- Specify both the role and group from which the resource is to be assigned.

The following screenshot shows an example:

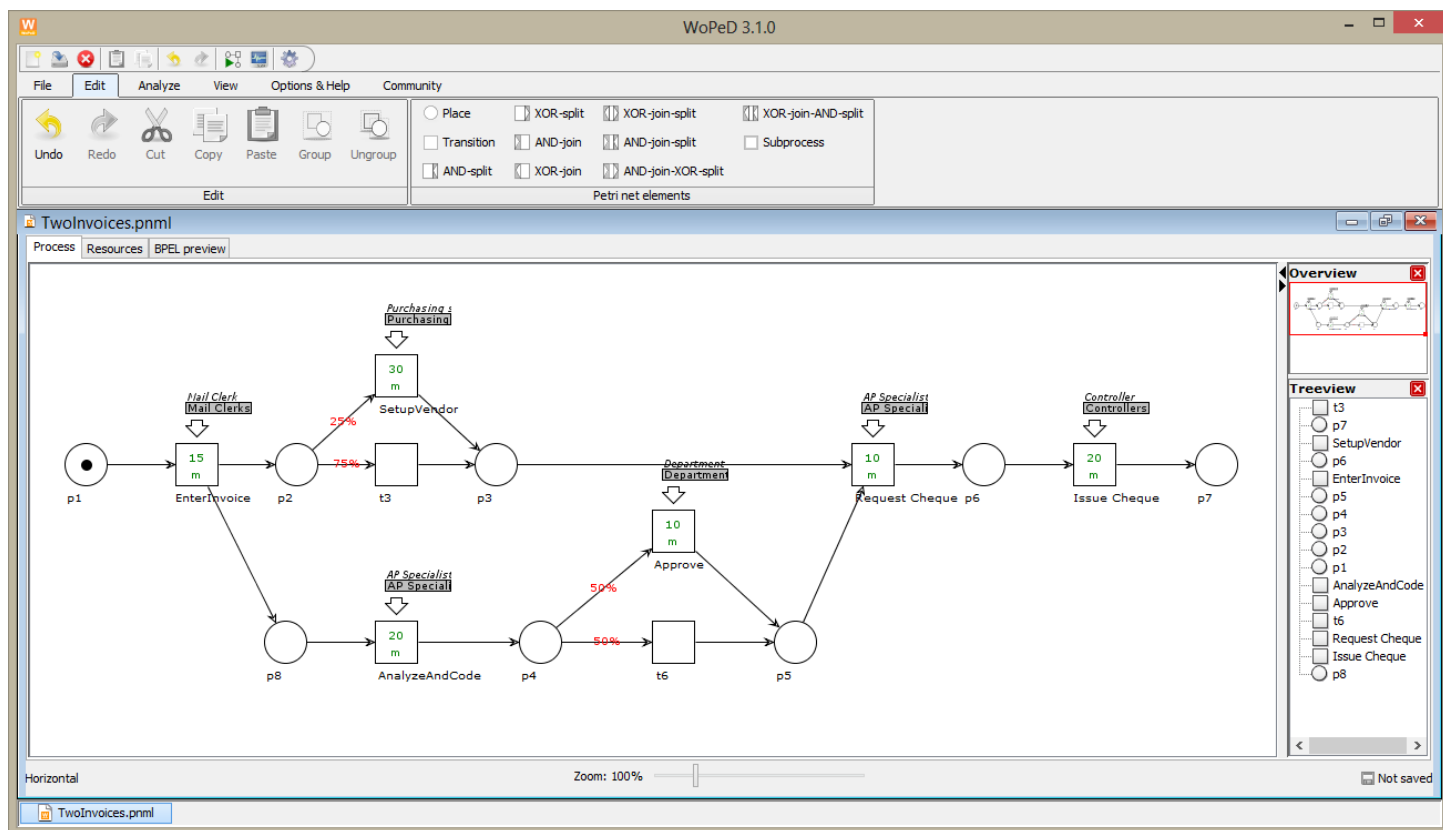
The screenshot shows the "Transition properties" dialog box with the "General" tab selected. The "Identification" section has "Name: EnterInvoice" and "Id#: t1". The "Branching" section has "None" selected. The "Trigger" section has "Resource" selected. The "Orientation" section has "East" selected. The "Service time" section has "Average: 15" and "minute(s)". The "Resource mapping" section has "Role: Mail Clerks", "Group: Mail Clerk", and "No. of assigned resource objects: 1". The "Ok" and "Cancel" buttons are at the bottom.

**Do this for all transitions!**

Because the video does not mention service times for each task/transition, you can use the ones in the table below:

Task	Service Time	Resources
Enter Invoice	15 minutes	Mail clerk
Setup Vendor	30 minutes	Purchasing specialist
Analyze and code invoice	30 minutes	AP specialist
Approve invoice	10 minutes	Departmental manager
Request cheque	10 minutes	AP specialist
Issue cheque	20 minutes	Controller

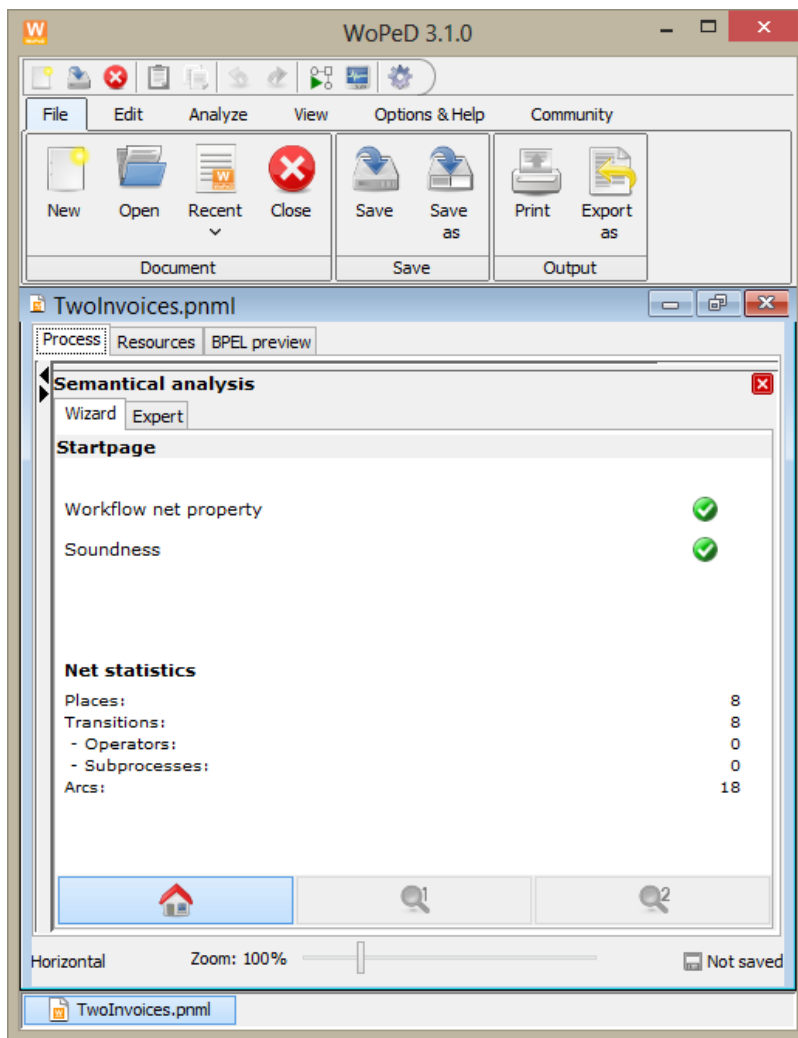
When completed, your model may look like the one below:



Do not worry if your model looks somewhat different, there is no single correct way of interpreting the video case.

#### Exercise 4 (Model Verification)

Place a single token on the initial/start place and verify the correctness of your model using the “Analysis” → “Semantic Verification” feature. You should have a sound workflow net, as indicated below. If you do not, use the information in the “Assistant” or “Expert” tab to guide you to correct the model.



### Exercise 5 (Process Model – Workflow Net)

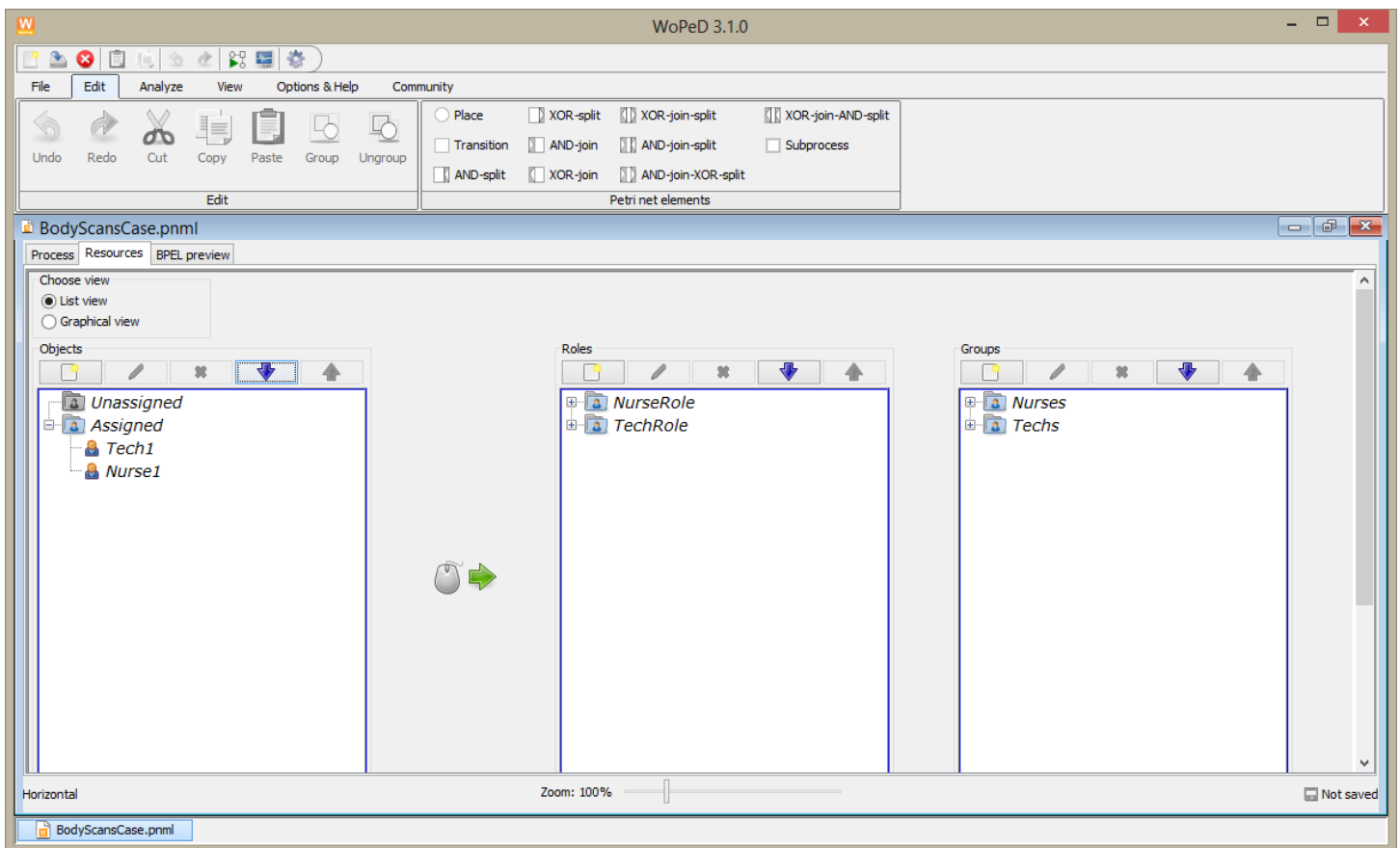
Read the case: Harvard Business School Case KEL592: “Body Scans and Bottlenecks: Optimizing Hospital CT Process Flows” by Sunil Chopra, Scott Flamm, and Sachin Waikar.

Using the description of the process steps in the case on page 2, draw a process model as a Workflow net using the WoPeD software

### Exercise 6 (Resources)

Switch to the resources tab of your WoPeD model

You need to add roles as well as groups for the technician and the nurse in WoPeD. You also need to create at least one technician and one nurse object and assign them to the corresponding roles and groups. You can assign objects to roles and groups by “drag-and-drop”. The end result should look like the following:



## Exercise 7 (Resource Usage)

Switch back to the process tab in WoPeD. For each transition that represents a task to be carried out by either the nurse or the technician, right click, and select “Properties”. Do the following:

- Select “Resource” for trigger. This means that the transition fires when it is enabled and a resource is available.
- Specify the average service time. See the case description (page 2) for these
- Specify both the role and group from which the resource is to be assigned.

The screenshot below shows an example:

W

Transition properties

×

General

BPEL

Identification

Name:

Locate Patient

Id#:

t2

Branching

☒ None
☐

☐ AND-split
☐

☐ XOR-split
☐

☐ XOR-join-split
☐

☐ AND-join-XOR-split
☐

☐
☐

☐ AND-join
☐

☐ XOR-join
☐

☐ AND-join-split
☐

☐ XOR-join-AND-split
☐

Trigger

☐ Automatic
☐ Message

☒ Resource
☐ Time

↓

⌚

Orientation

☐ North
☐ West
☒ East
☐ South

Service time

Average:

2

minute(s)

Resource mapping

Role:

NurseRole

Group:

Nurses

No. of assigned resource objects:

1

✓ Ok

✗ Cancel

**Do this for all transitions!**

### Exercise 8 (Model Verification)

Place a single token on the initial/start place and verify the correctness of your model using the “Analysis” → “Semantic Verification” feature. You should have a sound workflow net. If you do not, use the information in the “Assistant” or “Expert” tab to guide you to correct the model.