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Hands-on Session

Let's get started!

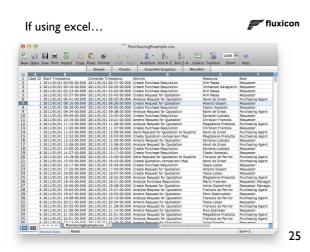


Step 1 - Inspect Data

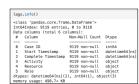
Open **PurchasingExample.csv** file in python/pandas (or Excel) and inspect its contents

- Every row corresponds to one event
- You find information on Case IDs, Activities, Start and end times, Resources, Roles

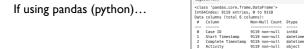
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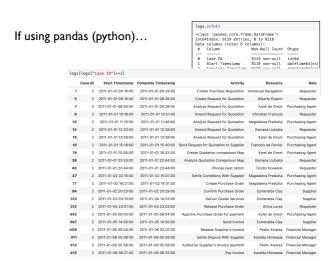
If using pandas (python)...



logs						
	Case ID	Start Timestamp	Complete Timestamp	Activity	Resource	Role
0	1	2011-01-01 00:00:00	2011-01-01 00:37:00	Create Purchase Requisition	Kim Passa	Requeste
1	2	2011-01-01 00:16:00	2011-01-01 00:29:00	Create Purchase Requisition	Immanuel Karagianni	Requeste
2	3	2011-01-01 02:23:00	2011-01-01 03:03:00	Create Purchase Requisition	Kim Passa	Requeste
3	1	2011-01-01 05:37:00	2011-01-01 05:45:00	Create Request for Quotation	Kim Passa	Requeste
4	1	2011-01-01 06:41:00	2011-01-01 06:55:00	Analyze Request for Quotation	Karel de Groot	Purchasing Agen
9114	1284	2011-10-14 13:53:00	2011-10-14 14:07:00	Pay Invoice	Pedro Alvares	Financial Manage
9115	1448	2011-10-14 13:56:00	2011-10-14 14:24:00	Settle Dispute With Supplier	Karalda Nimwada	Financial Manage
9116	1941	2011-10-14 14:05:00	2011-10-14 14:18:00	Analyze Request for Quotation	Karel de Groot	Purchasing Agen
9117	1448	2011-10-14 14:24:00	2011-10-14 14:24:00	Authorize Supplier's Invoice payment	Karalda Nimwada	Financial Manage
9118	1448	2011-10-14 15:16:00	2011-10-14 15:31:00	Pay Invoice	Karalda Nimwada	Financial Manage



	Case ID	Start Timestamp	Complete Timestamp	Activity	Resource	Role
0	1	2011-01-01 00:00:00	2011-01-01 00:37:00	Create Purchase Requisition	Kim Passa	Requeste
3	1	2011-01-01 05:37:00	2011-01-01 05:45:00	Create Request for Quotation	Kim Passa	Requeste
4	1	2011-01-01 06:41:00	2011-01-01 06:55:00	Analyze Request for Quotation	Karel de Groot	Purchasing Agen
12	1	2011-01-01 11:43:00	2011-01-01 12:09:00	Send Request for Quotation to Supplier	Karel de Groot	Purchasing Agen
13	- 1	2011-01-01 12:32:00	2011-01-01 16:03:00	Create Quotation comparison Map	Magdalena Predutta	Purchasing Ager
36	1	2011-01-01 22:44:00	2011-01-01 23:13:00	Analyze Quotation Comparison Map	Immanuel Karagianni	Requesto
37	1	2011-01-01 23:13:00	2011-01-01 23:13:00	Choose best option	Tesca Lobes	Requeste
42	1	2011-01-02 01:22:00	2011-01-02 09:20:00	Settle Conditions With Supplier	François de Perrier	Purchasing Ager
60	1	2011-01-02 09:58:00	2011-01-02 10:10:00	Create Purchase Order	Karel de Groot	Purchasing Ager
68	1	2011-01-02 14:09:00	2011-01-02 14:43:00	Confirm Purchase Order	Sean Manney	Supplie
97	1	2011-01-02 20:49:00	2011-01-03 03:37:00	Deliver Goods Services	Sean Manney	Supplie
137	1	2011-01-03 11:20:00	2011-01-03 11:21:00	Release Purchase Order	Elvira Lores	Request
76	1	2011-01-03 19:09:00	2011-01-03 19:10:00	Approve Purchase Order for payment	Karel de Groot	Purchasing Age
21	1	2011-01-04 00:54:00	2011-01-04 00:54:00	Send Invoice	Kiu Kan	Supplie
76	1	2011-01-04 15:08:00	2011-01-04 15:13:00	Release Supplier's Invoice	Karalda Nimwada	Financial Manage
77	1	2011-01-04 15:13:00	2011-01-04 15:13:00	Authorize Supplier's Invoice payment	Karalda Nimwada	Financial Manage
78	- 1	2011-01-04 15:22:00	2011-01-04 15:31:00	Pay Invoice	Pedro Alvares	Financial Manage



Step 2 - Import Data

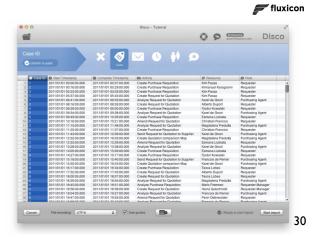
Load PurchasingExample.csv in Disco

Assign columns as follows:

- Case ID → Case ID
- Start and Complete Timestamp → Timestamp
- Activity → Activity
- Resource → Resource
- Role → Other

Click 'Start import'

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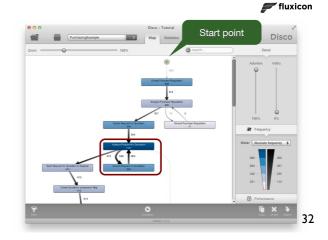
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Step 3 - Inspect Process

Look at the resulting process model

- Numbers in rectangles are activity frequencies
- Number at arcs is frequency of connection
- → You see the main process flows
 - All 608 cases start with activity 'Create Purchase Requisition'
 - Lots of changes were made (amendments)!

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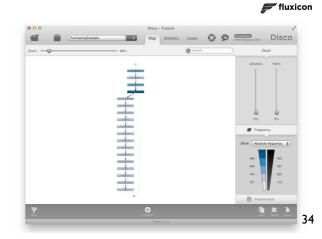


Step 3 - Inspect Process

It's important to be able to adjust the level of detail for the process map

Move up the 'Activities' slider down to lowest position (0%)

- Only the activities from the most frequent process variant are shown



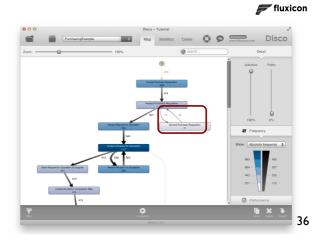
Step 3 - Inspect Process

Gradually move the 'Activities' slider up to 100% again until all activities are shown

- Even infrequent activities such as 'Amend Purchase Requisition' are shown

You'll notice that 11 cases are flowing in to 'Amend Purchase Requisition' but only 8 are moving out - Where are the other 3?

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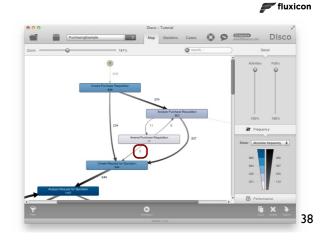
Step 3 - Inspect Process

Move up the 'Paths' slider up to the top

You now see a 100% detailed picture of the executed process

- The 3 missing cases move from 'Amend Purchase Requisition' to 'Create Request for Quotation'

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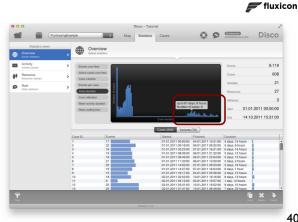
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Step 4 - Inspect Statistics

Look at 'Statistics' tab to see 'Overview' information about the event log

- 9,119 events were recorded for 608 cases
- Timeframe is January October 2011

The 'Case duration' is typically up to 15 or 16 days, but some cases take very long (more than 70 or 80 days!)



Step 5 - Inspect Cases

Select 'Cases' tab to inspect variants and individual service instances

- The third most frequent process variant ends after 'Analyze Purchase Requisition' (ca. 10.36% of all cases follow this pattern)
- → Why are so many requests abrupted?
 - Do people not know what they can buy?
 - We can find this back in the process map, too

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Disco - Tutorial

Disco - Tutorial

Disco

Zoon.

Disco

Disco

Disco

Dead

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Results so far...

Original Questions:

- ✓ 1. How does the process actually look like?
 - · Objective process map discovered
 - Lots of amendments and stopped requests: Update of purchasing guidelines needed
 - 2. Are there deviations from the prescribed process?
 - 3. Do we meet the performance targets?
 - Not by all (some take longer than 21 days):
 Is there a bottleneck in the process? -> Next

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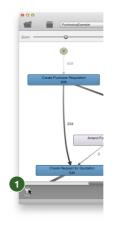
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Step 6 - Filter on Performance

Click on the Filter symbol in the lower left corner and add a Performance filter

- Select 21 days as lower boundary
- You'll see that ca. 15% of the purchase orders take longer than 21 days

Press 'Apply filter' to focus only on those cases that take longer than 21 days







Step 7 - Spot Bottlenecks

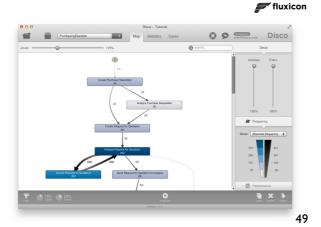
The filtered process map shows the process flow for the 92 (15%) 'slow' cases

- On average 3 amendments per case!
 - 92 cases, 302 amendments...

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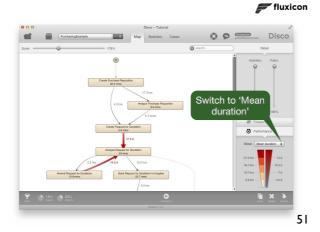


Step 7b - Spot Bottlenecks

Switch to 'Performance' view

- 'Total duration' shows the high-impact areas
- Switch to 'Mean duration':
 - On average it takes more than 14 days to return from the rework loop to the normal process
 - What about min and max duration?

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Step 8 - Animate Process

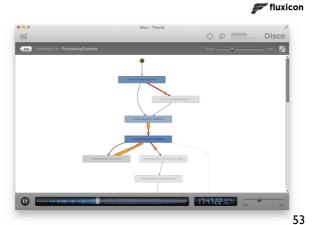
Visualize bottleneck: Press ▷ button to start animation

Observe how purchase orders move through the process

Drag needle to the end of the timeline

• observe how the most used paths get thicker and thicker

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Results so far...

✓ 1. How does the process actually look like?

· Objective process map discovered

Lots of amendments and stopped requests: Update of purchasing guidelines needed

2. Are there deviations from the prescribed process? -> Next

3. Do we meet the performance targets?

• Not by all (some take longer than 21 days)

• The 'Analyze Request for Quotation' activity is a huge bottleneck: Process change is needed

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Step 9 - Compliance Check

Exit the animation, return to Filter settings, and remove performance filter

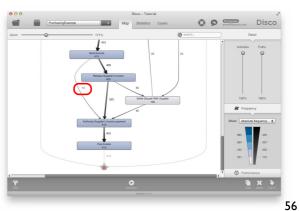




Switch back to Frequency Map view and scroll to end of the process

- 10 cases skip the mandatory 'Release Supplier's Invoice' activity!

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Step 9 - Compliance Check

Drill down: Click on the path from 'Send invoice' to 'Authorize Supplier's Invoice payment' and press 'Filter this path...'

Switch to Cases view to see the 10 cases

- Actionable result: We can either change the operational system to prevent the violation or provide targeted training

0 9 5 Shortcut to

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Results so far...

- ✓ 1. How does the process actually look like?
 - · Objective process map discovered
 - Lots of amendments and stopped requests: Update of purchasing guidelines needed
- 2. Are there deviations from the prescribed process? -> Yes, training or system change needed
- 3. Do we meet the performance targets?
 - Not by all (some take longer than 21 days)
 - The 'Analyze Request for Quotation' activity is a huge bottleneck: Process change is needed

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Step 10 - Organizational View

Last Step: We seek an alternative view on the data to visualize the organizational flow

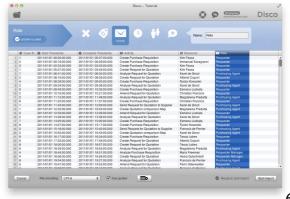
Go to 'Project view' and press 'Reload':





Set 'Activity' column to 'Other' and configure 'Role' column as 'Activity'

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Step 10 - Organizational View

Instead of the activity flow, we are now looking at how the process moves through different roles in the organization

- Inefficiencies can often be found at the borders of organizational units
- Clearly, the Purchasing agents are causing the biggest delays in the process!

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