Universidad de Granada

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Practical Process Mining (III)

Master CD&IC

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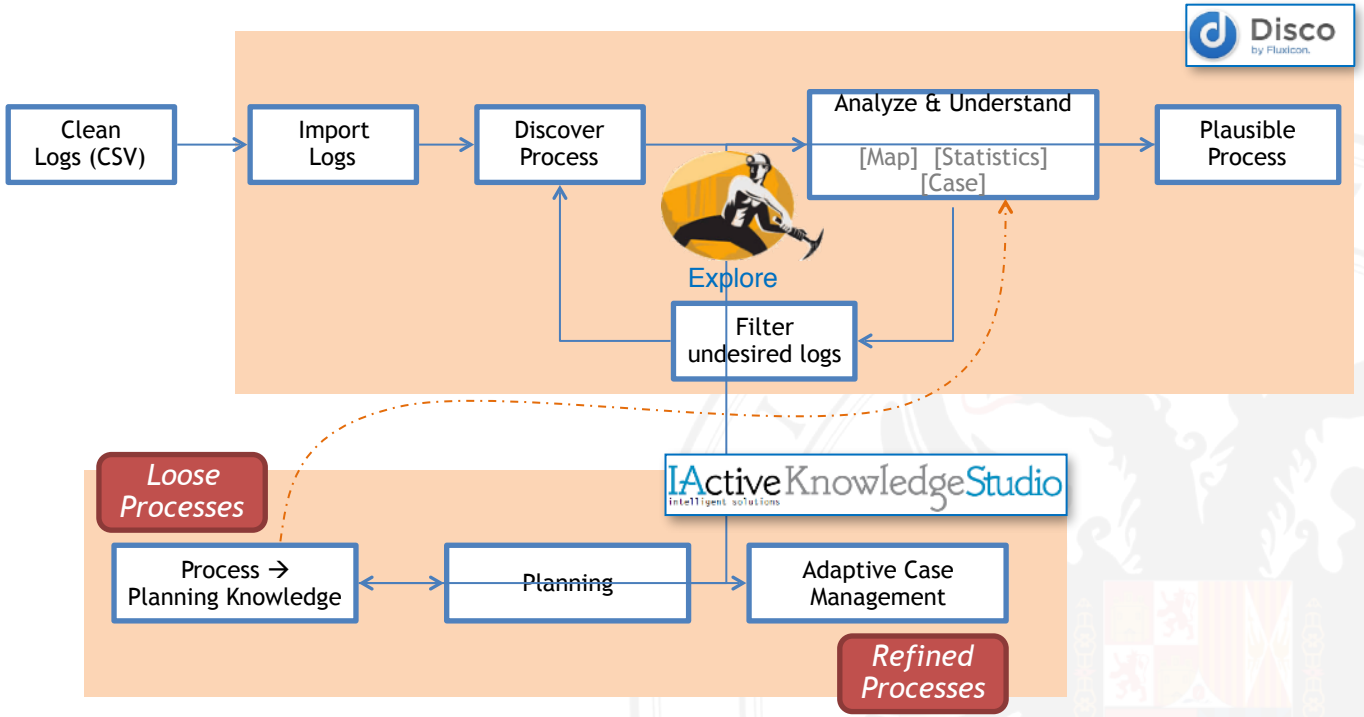
DECSAI

Departamento de Ciencias de la Computación e Inteligencia Artificial

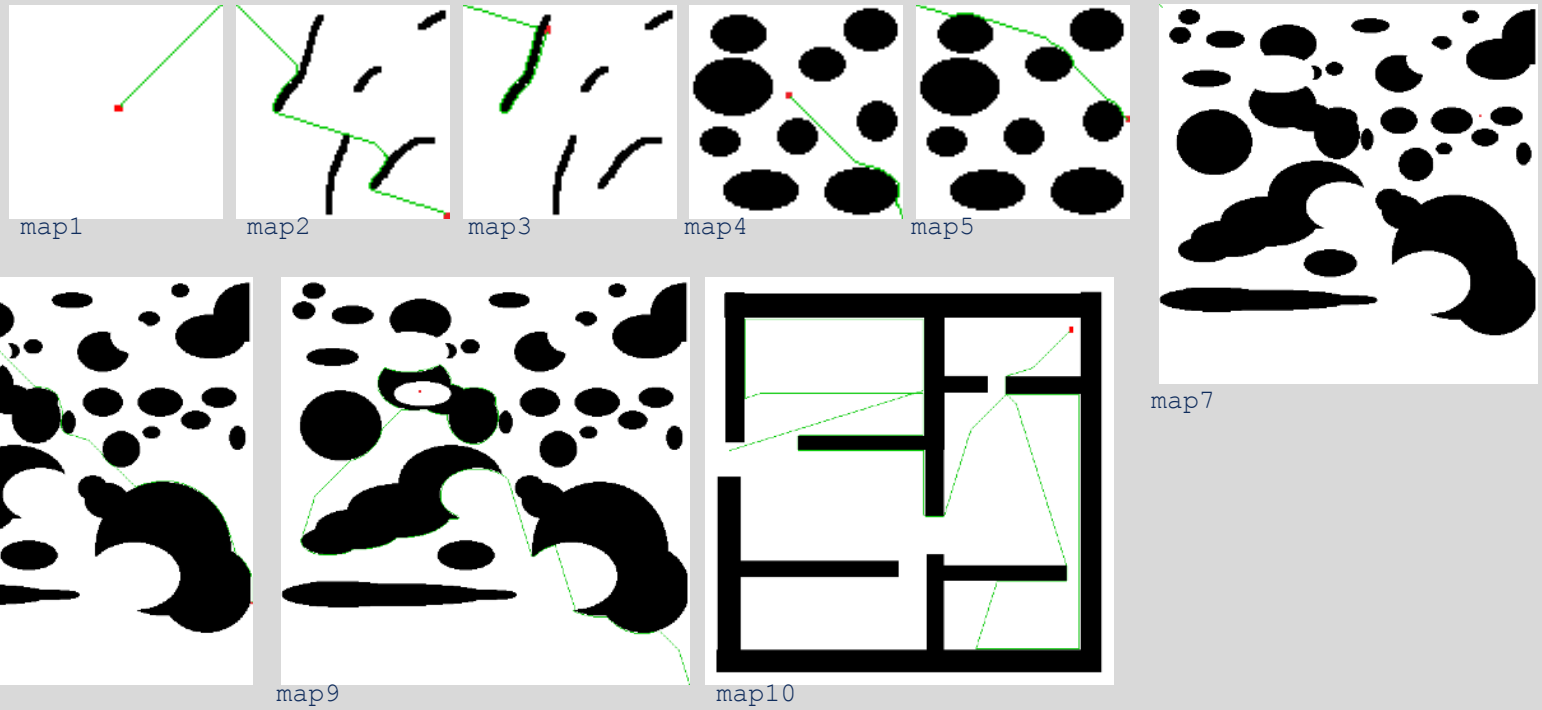
1. Feeding Knowledge Studio with mined processes for Adaptive Case Management



Dynamic Environment *Unpredictable Behaviour*

Real log of “Agent-Based Development” Course (4th year). 11.6M + events. Read more …

Log a drone into a virtual world and try to reach the red area avoiding runing out of battery

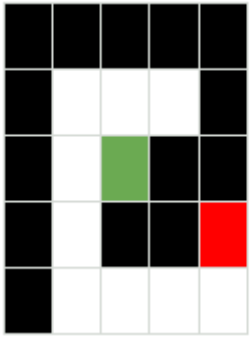


Dynamic Environment
Unpredictable Behaviour

Log a drone into a virtual world and try to reach the red area avoiding runing out of battery

1	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	1	2
1	0	0	0	0

RADAR



SCANNER

67.94	68.62	69.31	70.00	70.71
68.68	69.35	70.03	70.72	71.42
69.42	70.09	70.76	71.44	72.13
70.17	70.83	71.50	72.18	72.86
70.93	71.58	72.24	72.91	73.59

LEGAL MOVEMENTS

	NW	N	NE	
	W	D	E	
	SW	S	SE	

GPS

BATTERY LEVEL

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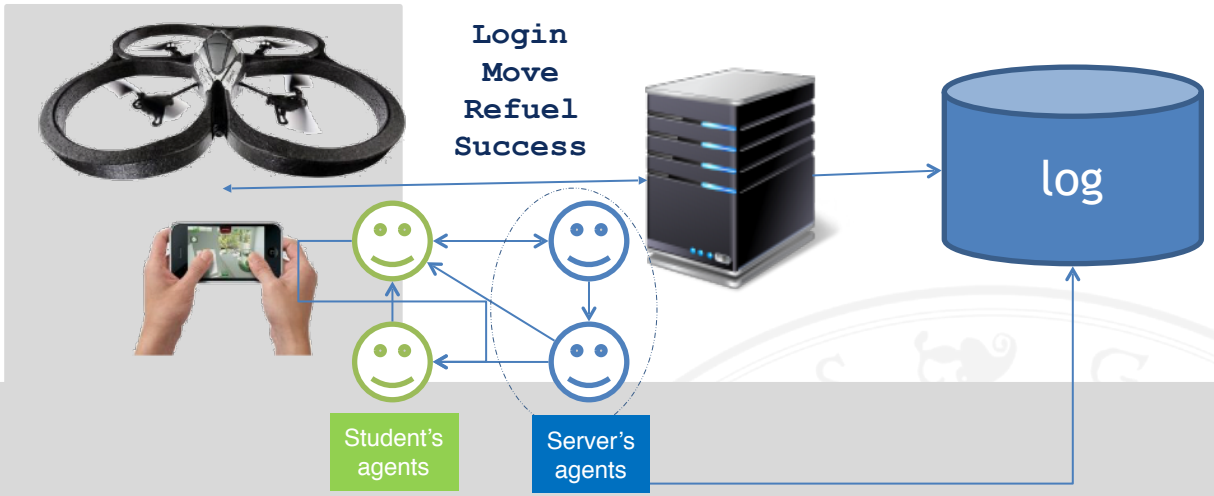


9 Different teams

	Average Score *(out of 10)*
Achernar	7,8
Bellatrix	8,8
Cerastes	10
Denebola	8,8
Elnath	8,8
Furud	9,2
Girtab	8,2
Haldus	9,6
Izar	9,12

Dynamic Environment *Unpredictable Behaviour*

Log a drone into a virtual world and try to reach the red area avoiding runing out of battery

RAW LOG (≈ 2,2GB all)


```
"date":"30/10/2014_17:24:35", "value":{"agent":"Saggitta_satellite", "key":"41yaumv6", "content":"Esperando mensaje"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"41yaumv6", "content":
"command":"login","world":"plainworld","radar":"bot2","gps":"bot2"}}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"41yaumv6", "content":"Petición de login de bot2"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"41yaumv6", "content":"Abriendo sesión en mundo plainworld"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"Sesión correcta"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"Registrado bot2 como receptor del radar"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"Receptor del scanner sin especificar"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"Registrado bot2 como receptor del GPS"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"Receptor del batería sin especificar"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"Esperando acción"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta_satellite", "key":"wqpus119", "content":
1,1,1,1,1,1,1,1,1,1,0,0,0,1,1,0,0,0,1,1,0,0,0,1,1]}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta_satellite", "key":"wqpus119", "content":"Enviando gps"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta_satellite", "key":"wqpus119", "content":"Esperando mensaje"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":{"command":"moveN","key":"wqpus119"}}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"bot2 CRASHED"}}
"date":"30/10/2014_17:25:05", "value":{"agent":"Saggitta", "key":"wqpus119", "content":"Logout de bot2"}}
```


CLEAN LOG (≈ 76MB all)


```
41yaumv6,Saggitta,30/10/2014_17:25:05,LOGIN,plainworld
41yaumv6,Saggitta,30/10/2014_17:25:05,MOVE,plainworld
zadra8j5,Saggitta,30/10/2014_17:39:14,LOGIN,plainworld
```

Dynamic Environment
Unpredictable Behaviour

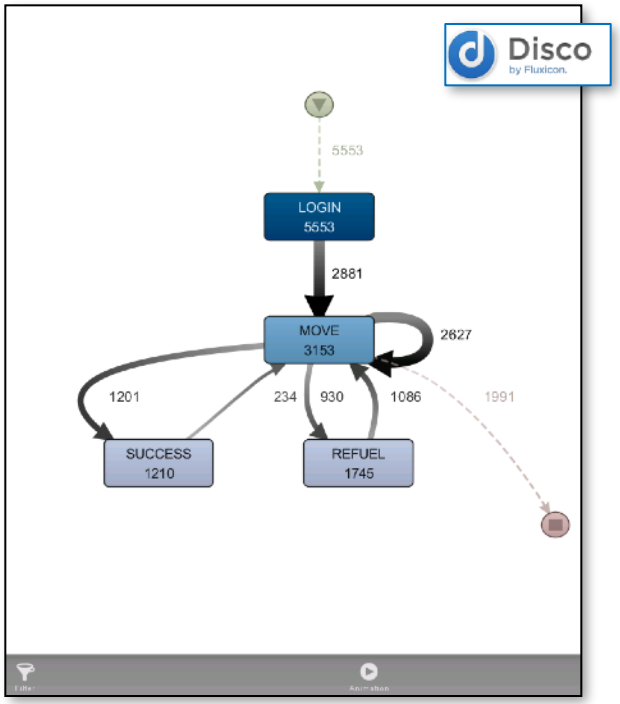
Log a drone into a virtual world and try to reach the red area avoiding runing out of battery

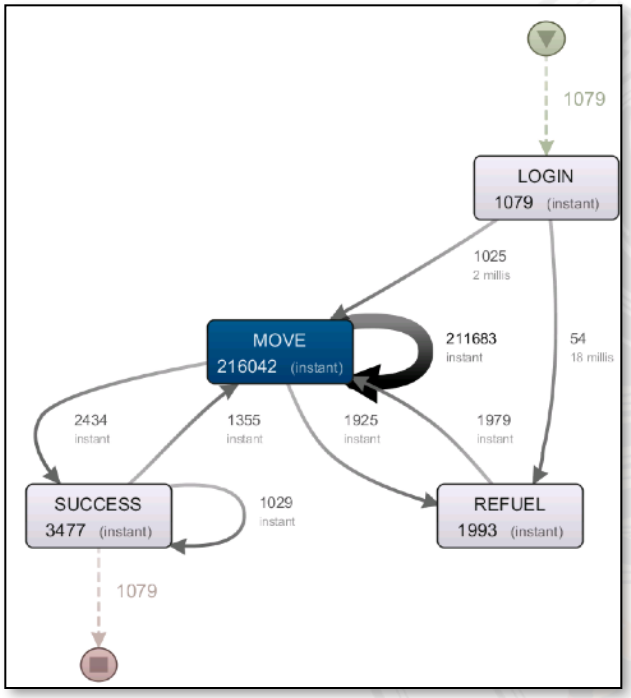
Some “incidents”

- Dumb agents might have crashed on a wall and log stops
- There is an unsolvable world, it never ends with SUCCESS
- There are errors in the protocol/parameters between agents
- There are different exploratory tactics of each team
- There are incomplete cases (frozen agents, interrupted agents)
- There are syncronization problems (agent does not stop at SUCCESS)

Dynamic Environment
Unpredictable Behaviour

Log a drone into a virtual world and try to reach the red area avoiding runing out of battery





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Practice work with DISCO

1. Load the log dba1516p2logs
   1. Are there any errors or strange records? Filter them out (as much as possible).
      1. 23% cases & 21% events
   2. Find the most frequent process (activities 60% - paths 20%) and save it as “dba1_60_20.pdf”
   3. Did all groups follow the same process?
   4. Did any of them follow the rules exactly? (STOP at SUCCESS)
2. Load the log dba1516p2logs_noargs. It is the same than the former one except that Activity and Resource fields have been concatenated.
   1. Find the most frequent process (activities 10% - paths 10%)
   2. Filter the same cases than before and save it as “dba2_10_10.pdf”
   3. Did all groups follow the same process? (sugg.: compare with group’s scores)
3. **Send both PDFs and your comments to the teacher**

dba1516p2logs.csv

```
Case, Agent, Timestamp, Activity, Resource
v170xpay,Achernar,16/10/2015_10:33:00,LOGIN,map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE,map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE,map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE,map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE,map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE,map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE,map1
```

dba1516p2logs_noargs.csv

```
Case, Agent, Timestamp, Activity
v170xpay,Achernar,16/10/2015_10:33:00,LOGIN_map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE_map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE_map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE_map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE_map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE_map1
v170xpay,Achernar,16/10/2015_10:33:00,MOVE_map1
```

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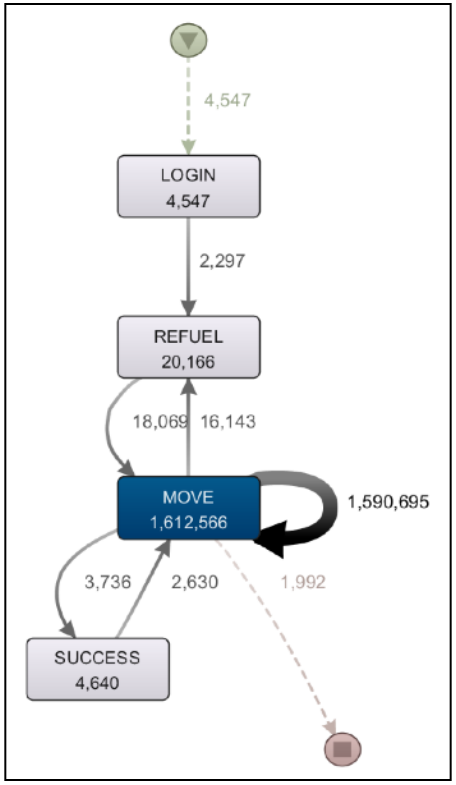
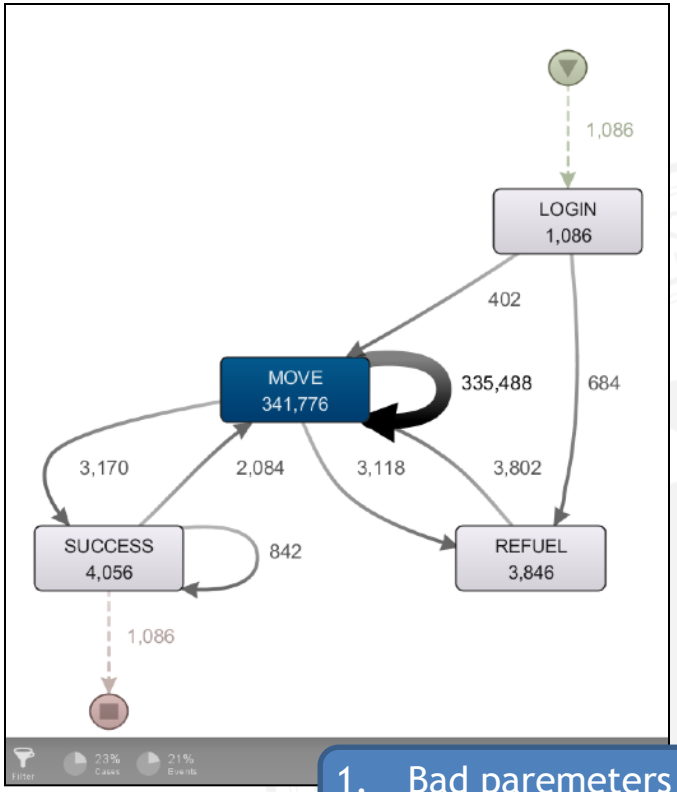
Practice work with DISCO

1. dba1516p2logs





1. Bad paremeters
2. LOGIN-SUCCESS

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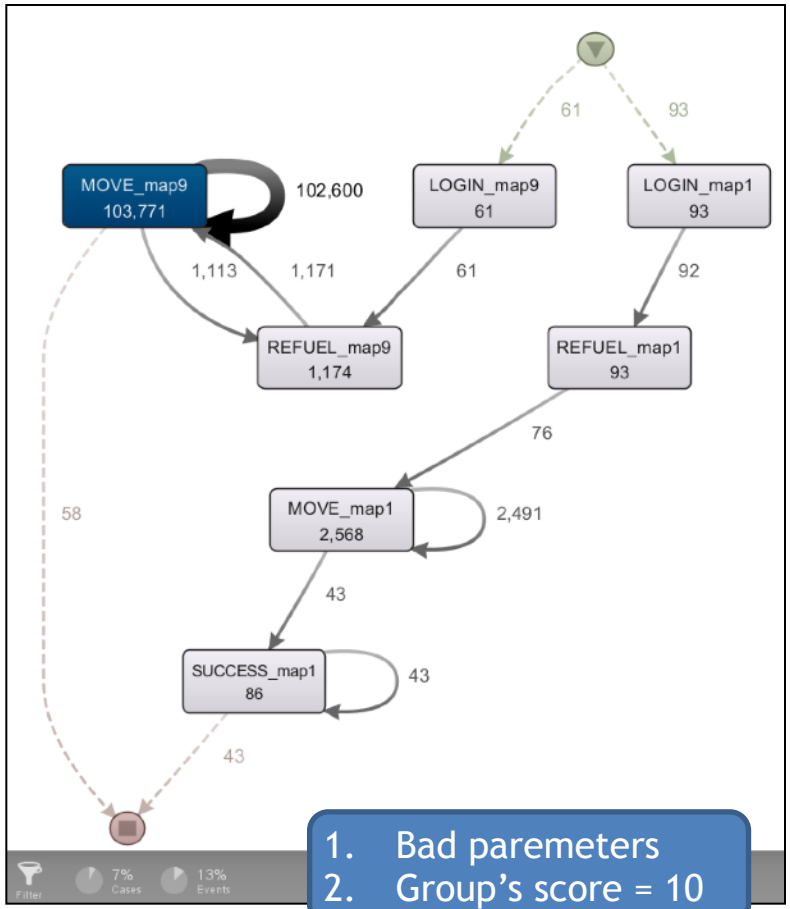
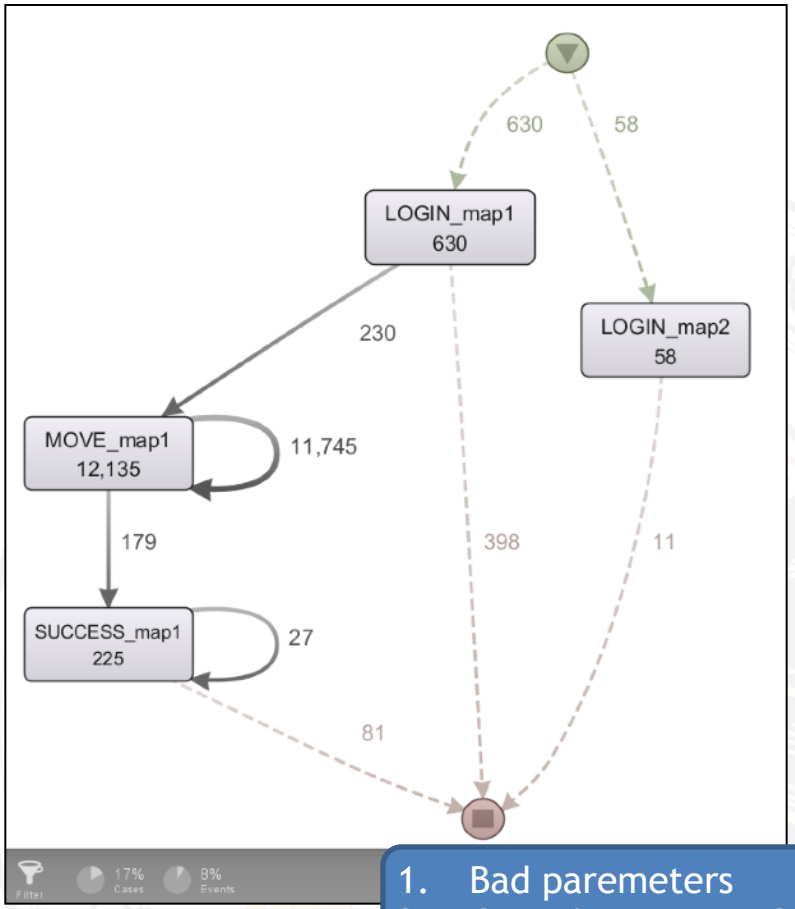
Practice work with DISC

1. dba1516p2logs_noargs



1. Bad paremeters
2. Group's score = 10



1. Bad paremeters
2. Group's score = 7,2

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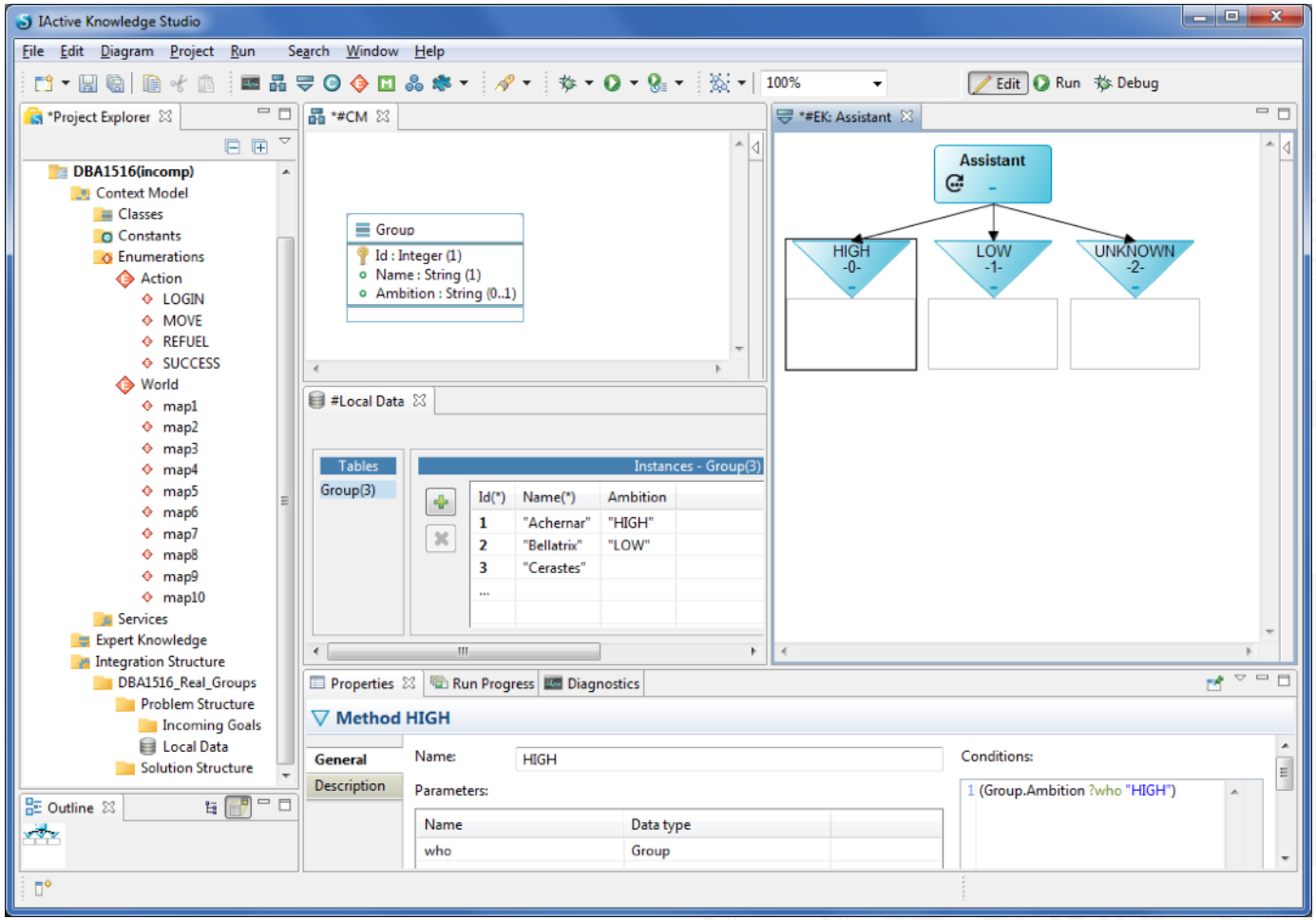
Practice work with IActive KnowledgeStudio

- Download KS project DBA1516(incomp) and import it into KS. It is the basis of an intelligent assitant that will guide the students on how to complete their work based on what their companions are already doing or did.



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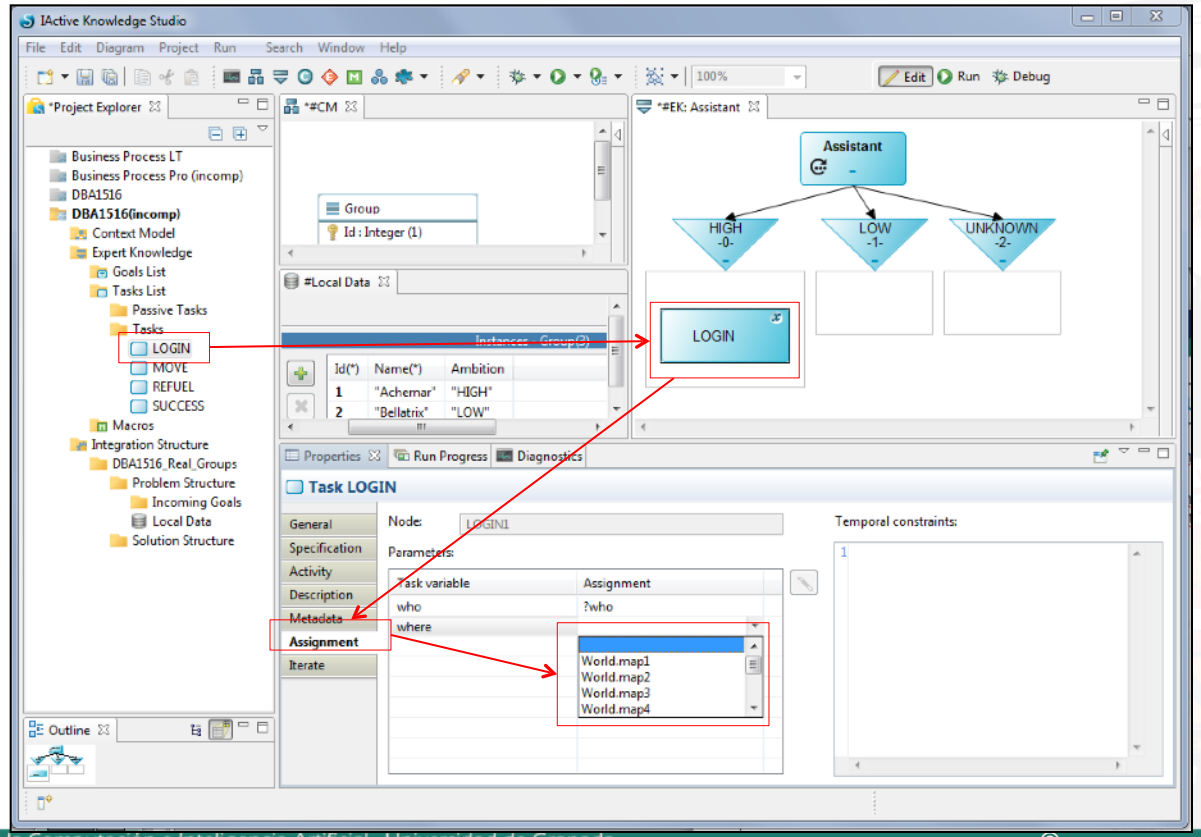
- Under Goal “Assistant” fill in the process found with Disco by using the goal “Perform” and assign the appropriate constants to the variables depending on the expected outcome of the group (HIGH, LOW)



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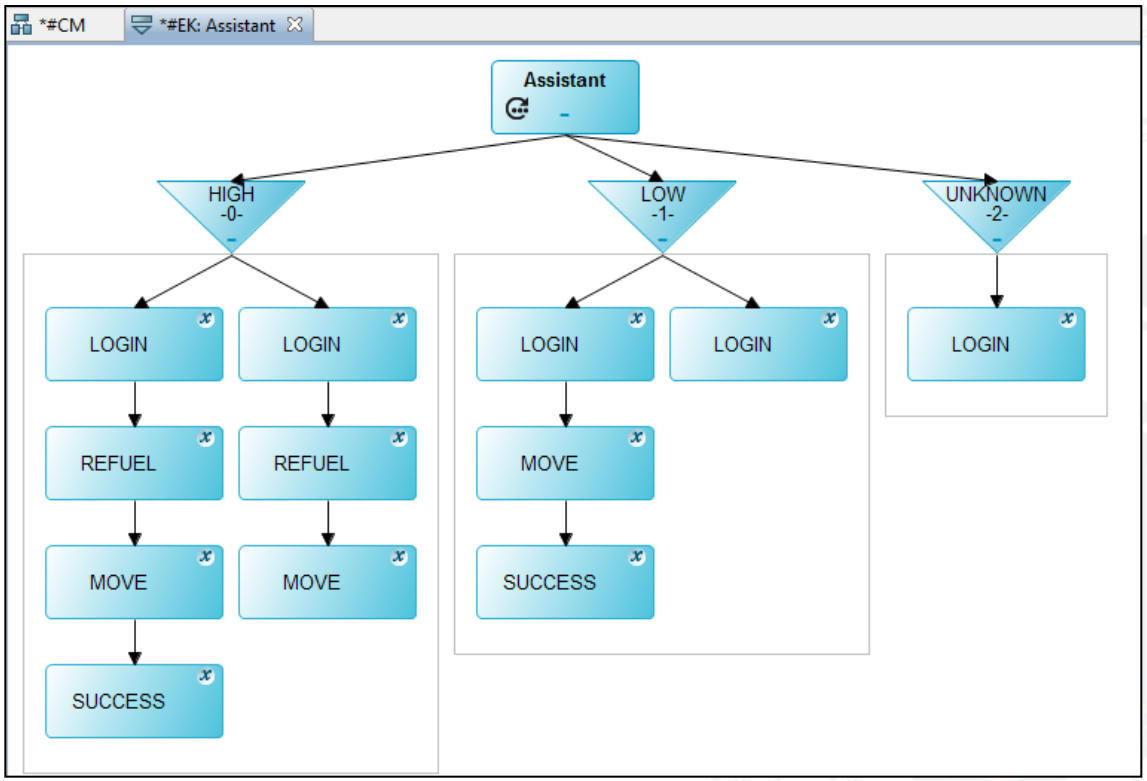

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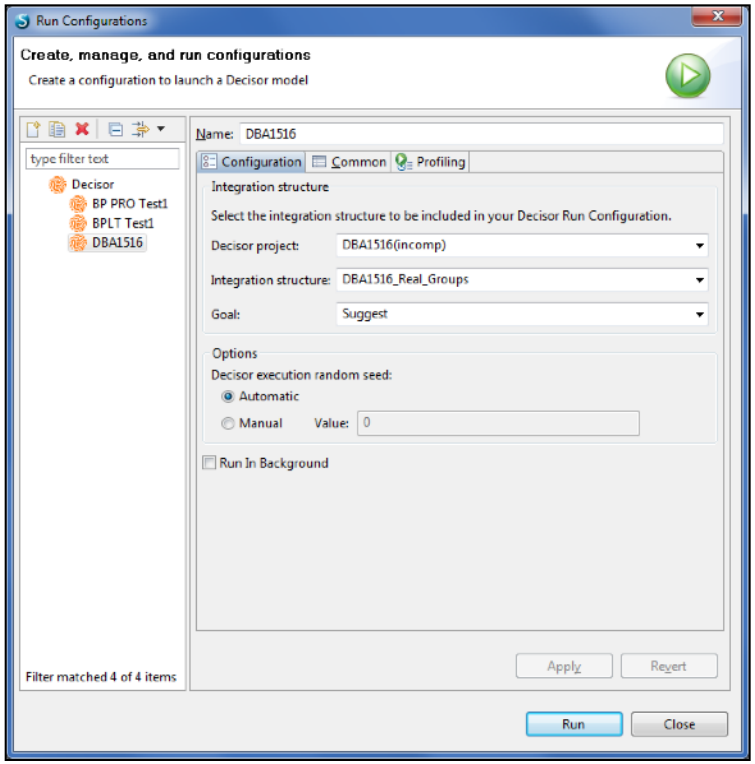
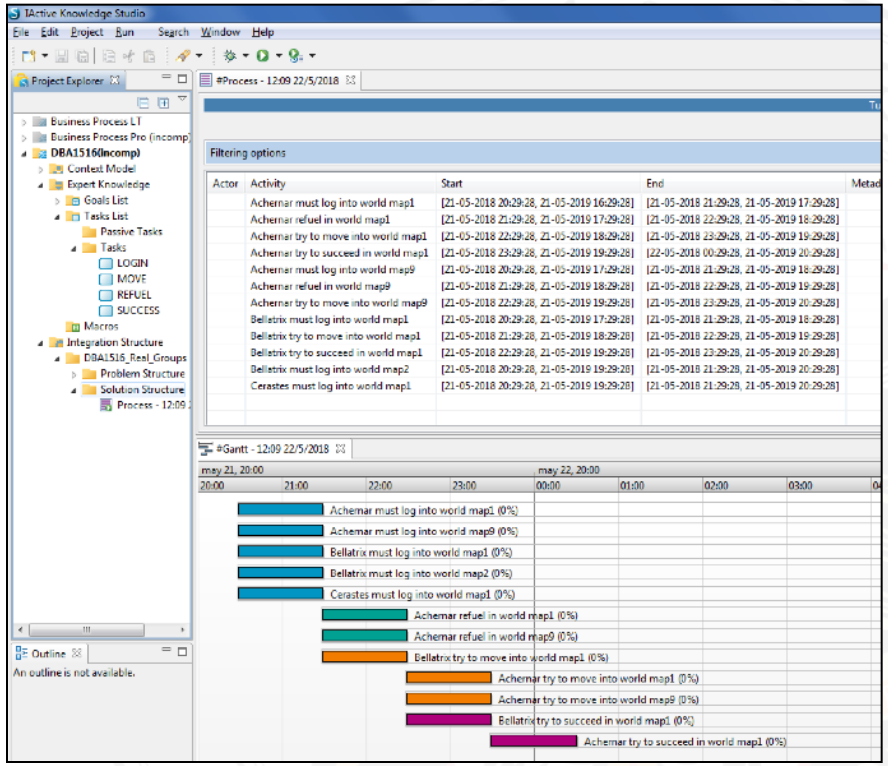
Practice work with IActive KnowledgeStudio intelligent solutions

- Download KS project DBA1516(incomp) and import it into KS. It is the basis of an intelligent assitant that will guide the students on how to complete their work based on what their companions are already doing or did.
- Under Goal “Assistant” fill in the process found with Disco by using the goal “Perform” and assign the appropriate constants to the variables
- Create a Run Environment for this new project
- Take a screenshot of the first process found





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- Under Goal “Assistant” fill in the process found with Disco by using the goal “Perform” and assign the appropriate constants to the variables
- Create a Run Environment for this new project
- Take a screenshot of the first process found
- Export the project as DBA.zip
- **Send both the snapshot and the project to the teacher**

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