
Adapting Information Delivery to Groups of People

Judy Kay and William Niu

School of Information Technologies
University of Sydney



The University of Sydney



**SMART INTERNET
TECHNOLOGY CRC**

Outline

- Introduction
 - Related work
 - Challenges in group modelling
 - System architecture
 - Conclusions & discussions
-

Introduction

- Most adaptive systems target individuals
- People do things in groups
- Group = user + user + ...

BUT

Group model \neq user model + user model + ...

- Domains: museums and homes
-

Related Work

- Group modelling in different domains
 - Fitness centres, cities, televisions, vacation planning
 - Group modelling in cultural heritages
 - Historic houses, museums
 - Smart homes
 - Less focus on “personalisation”
-

MusicFX

- A group preference arbitration system for a fitness centre
- A group is made up of (mostly) strangers
- Use explicit preferences
- McCarthy, Prasad et al., CSCW 1998, IAAI 1999



INTRIGUE

- **I**Nteractive **T**ou**R**ist **I**nformation **G**Uide
 - Tourist-information server for Turin City, Italy
 - Subgrouping
 - Weighted importance for each subgroup
 - Work better for large groups
 - Ardissono et al., AH 2001, AAI 2003
-

INTRIGUE (cont.)

INTRIGUE new technologies for tourist assistance
Dip. di Informatica - Università di Torino - C. Svizzera, 135 - 10149 Torino (Italia) [email us!](#)

[back](#) [Advanced Search](#) [View Agenda](#) [Separate listing by groups](#) [Unique listing \(method 1\)](#) [Unique listing \(method 2\)](#)

"Separate listing by group": it shows separate lists, with items sorted on the basis of the different user's preferences
"Unique listing (method 1)": it shows a single list, taking into account the needs of the whole group
"Unique listing (method 2)": it shows a single list, trying to satisfy a little bit everybody

[add to agenda](#) Palazzo Saluzzo di Paesana ** For children the visit is quite short.

is quite short. For yourself it is much eye-catching and it has high historical value. For impaired it is much eye-catching and it has high historical value.

[add to agenda](#) Palazzo Reale *** For children it is much eye-catching. For yourself it is much eye-catching, it has high historical value and it has high artistic value. For impaired it is much eye-catching and it has high artistic value.

[add to agenda](#) Palazzo Madama *** For yourself it has high historical value.

[add to agenda](#) Palazzo Carignano ** For children the visit is quite short. For yourself it has high historical value.

[add to agenda](#) Palazzo Saluzzo di Paesana ** For children the visit is quite short.

* not suited
** not really suited
*** rather suited
**** suited
***** well suited

[exit](#)

Simulator

NOKIA

Attractions

A <u>Palazzo Reale</u>	4
A <u>Lingotto</u>	4
A <u>Palazzo Madama</u>	3
A <u>Palazzo Carignano</u>	2
A <u>Palazzo Saluzzo di</u>	2

[Options](#) [back](#)

Adaptive TV

- How group decision rules affect results of preference order and group satisfaction
- Important for group modelling
- Masthoff, UMUAI 2004

chl\ppl	A	B	C
1	10	1	10
2	9	7	8
3	5	10	2

Travel Decision Forum

- Joint vacation planner
 - Asynchronous group communication
 - Use a virtual mediator
 - Jameson et al., AVI 2004
-



Health Facilities



Weight: +

Whirlpool	=	Beautyfarm	+
Sauna	++	Fitness	++
Massage	++		



RITCHIE
REJECTED

TINA
ACCEPTED



Preferences - Claudia

My Group

show:	copy:
Claudia <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tina <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ritchie <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Proposal

show:	after:
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Finished

Finished!

Type of Accommodation

Room Facilities

Hotel Facilities

Sports Facilities

Leisure Activities

Health Facilities

Country

Weight of Health Facilities

Not important	Very important
=	+++
C R	T
+	++



Rating

Don't want it	Want it	
--	+	Whirlpool
C R	T	
=	++	
Don't want it	Want it	
--	+	Sauna
C R	T	
=	++	
Don't want it	Want it	
--	+	Massage
C R	T	
=	++	

Rating

Don't want it	Want it	
--	+	Beautyfarm
C R	T	
=	++	
Don't want it	Want it	
--	+	Fitness
C R T	++	

MIAU

Pause

Preference Forms

Skip Comment

mash57...

MASH

cmd

Group Modelling in Cultural Heritages

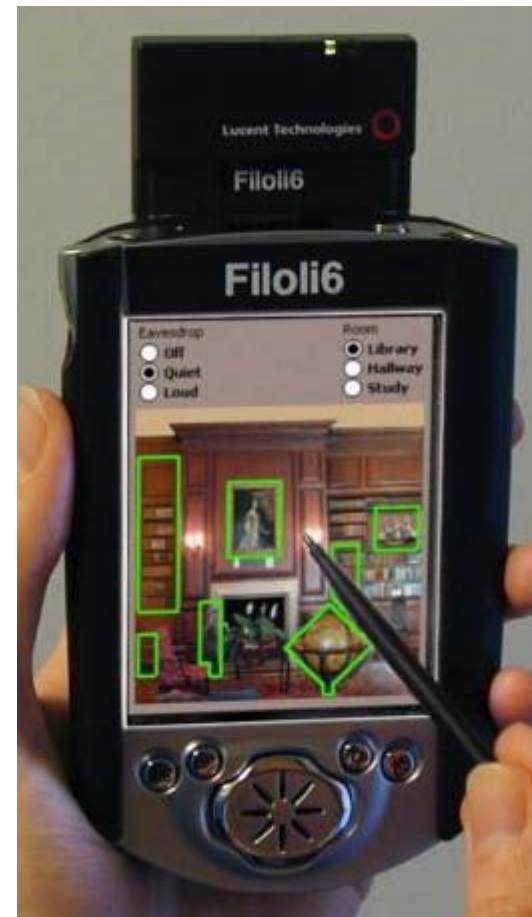
- Sotto Voce (historic houses)
- PEACH (museums)

Sotto Voce

- Deliberately left out adaptation element
- Emphasise on social interaction between group members
- “Eavesdropping”
- Woodruff, Aoki et al.,
CHI 2002,
UbiComp 2001



Sotto Voce (cont.)



PEACH (Personal Experience with Active Cultural Heritage)

- Multimodal presentations
- Stock, Kruppa et al., MU3I 2005 & 2004



Challenges in Group Modelling

- Common sub-models
 - Collective models
 - Group interaction models
 - Knowledge-based reasoning
 - Common sense reasoning
 - Stereotypic reasoning
 - Ontological reasoning
-

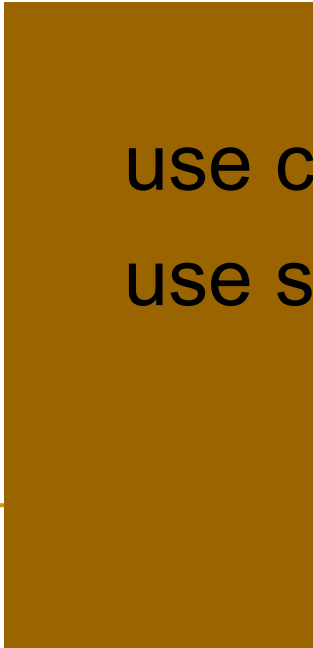
Example User Models

Pref \ UM	A	B	C	D
Horror movies	√		√	
Documentaries	√			
Musicals	√	√	X	
Cartoons		√		
Jazz				√

Common Sub-models

- Logical AND
- : $A \text{ and } B \Rightarrow \text{musicals}$

Collective Models

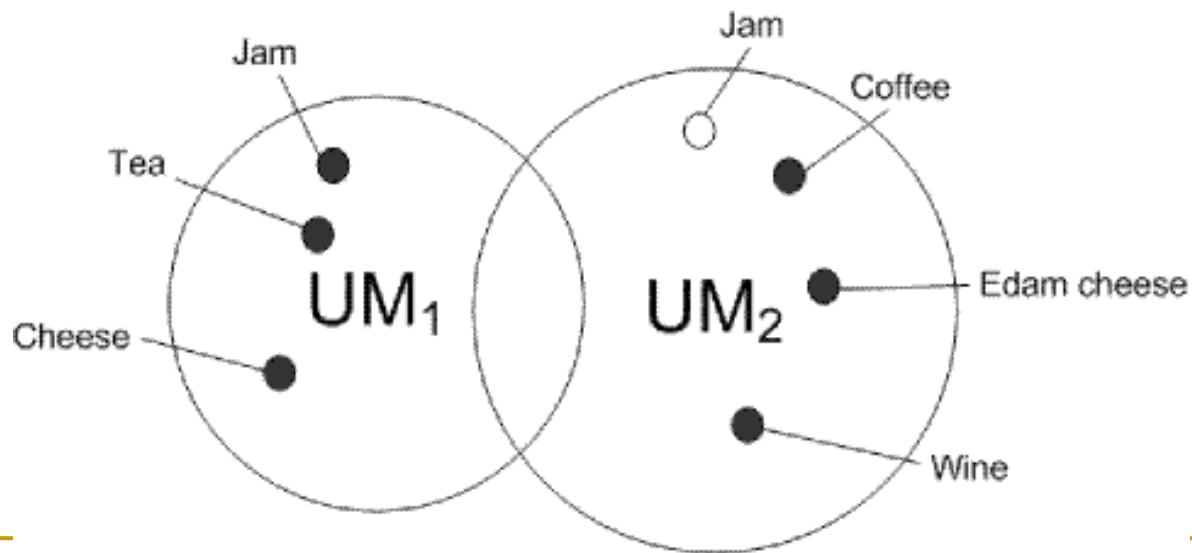
- Logical OR
- Often too general
- Need more algorithms to generate a more satisfying solution
-  : A, B, and C => 4 choices
 - use common sub-model => 2 choices
 - use simple reasoning => horror movie

Group Interaction Models

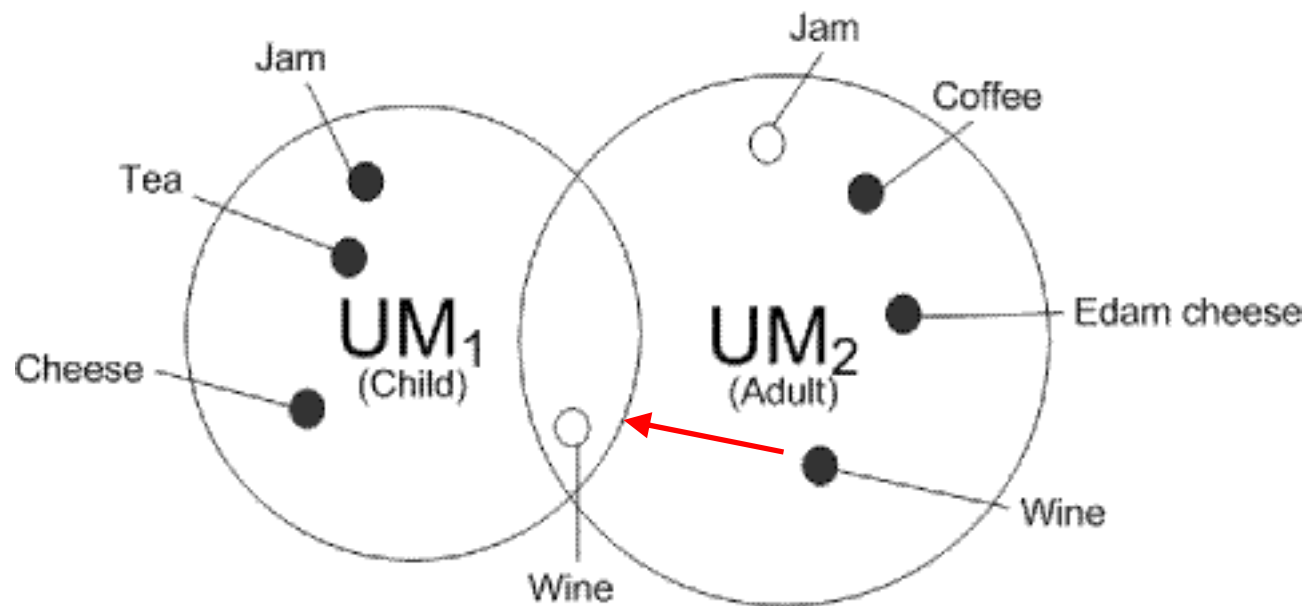
- Group composition and interaction
- Most group modelling systems use this
- Example: Subgrouping in INTRIGUE
- : similar to last example, but...
 - if they are family members:
 - B is a 10-year-old child
 - A, B, and C => musical or cartoon

Knowledge-based Reasoning

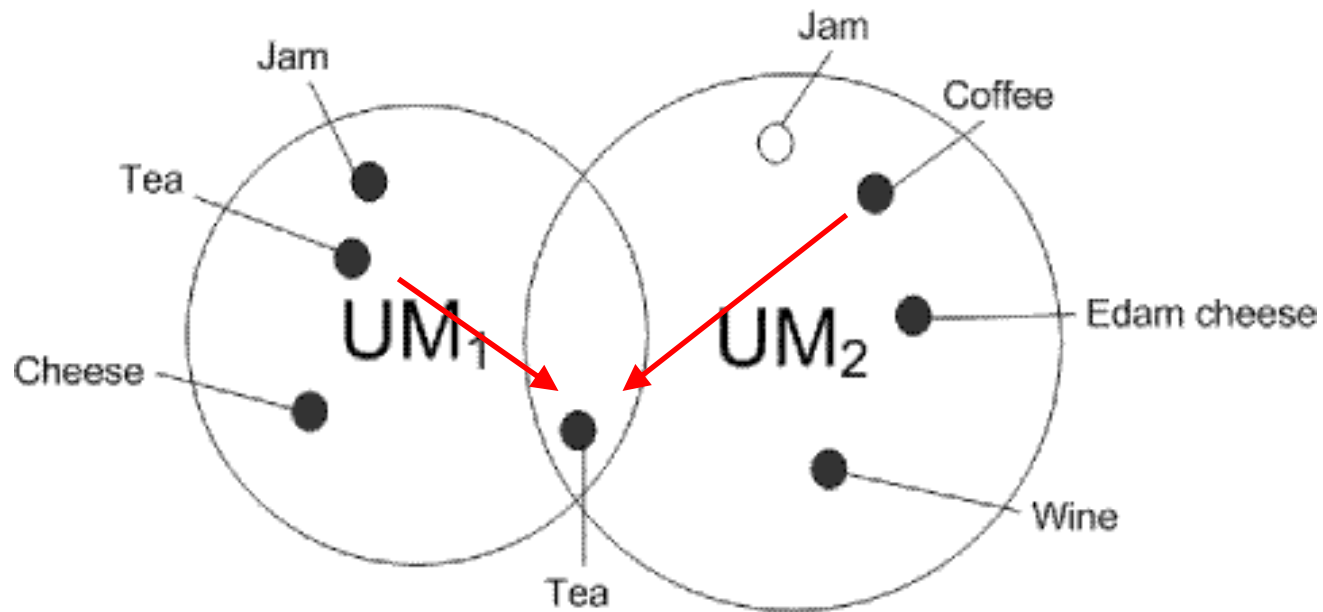
- When inference is required:
 - ❑ Common sense reasoning
 - ❑ Stereotypic reasoning
 - ❑ Ontological reasoning



Common Sense Reasoning

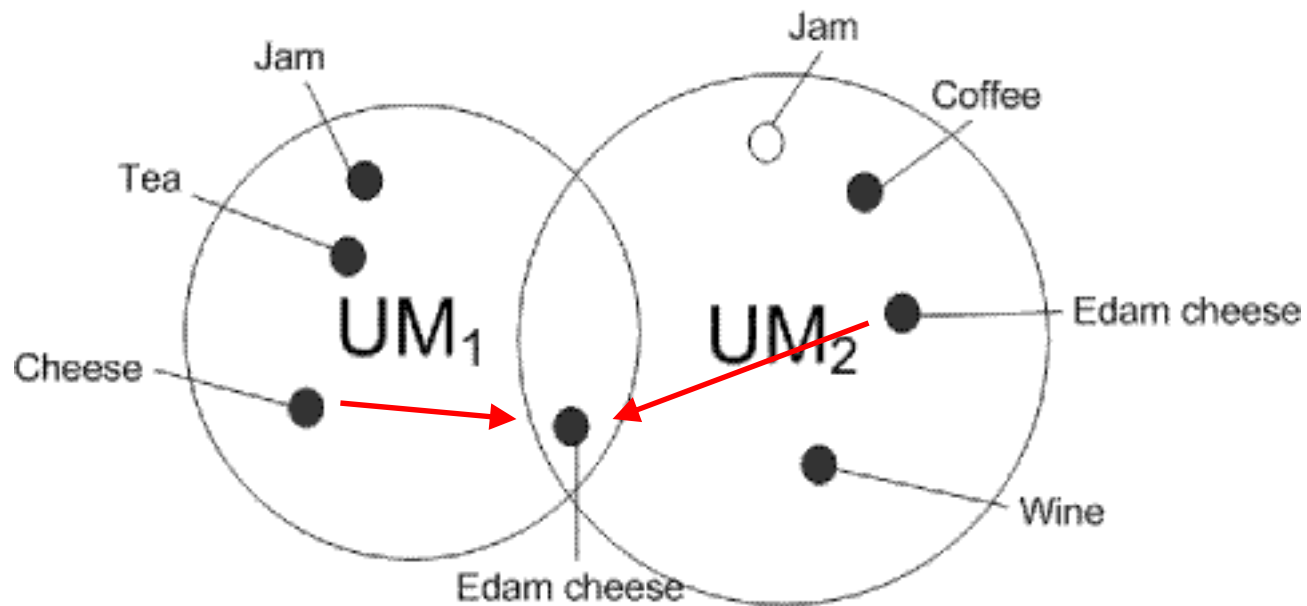


Stereotypic Reasoning

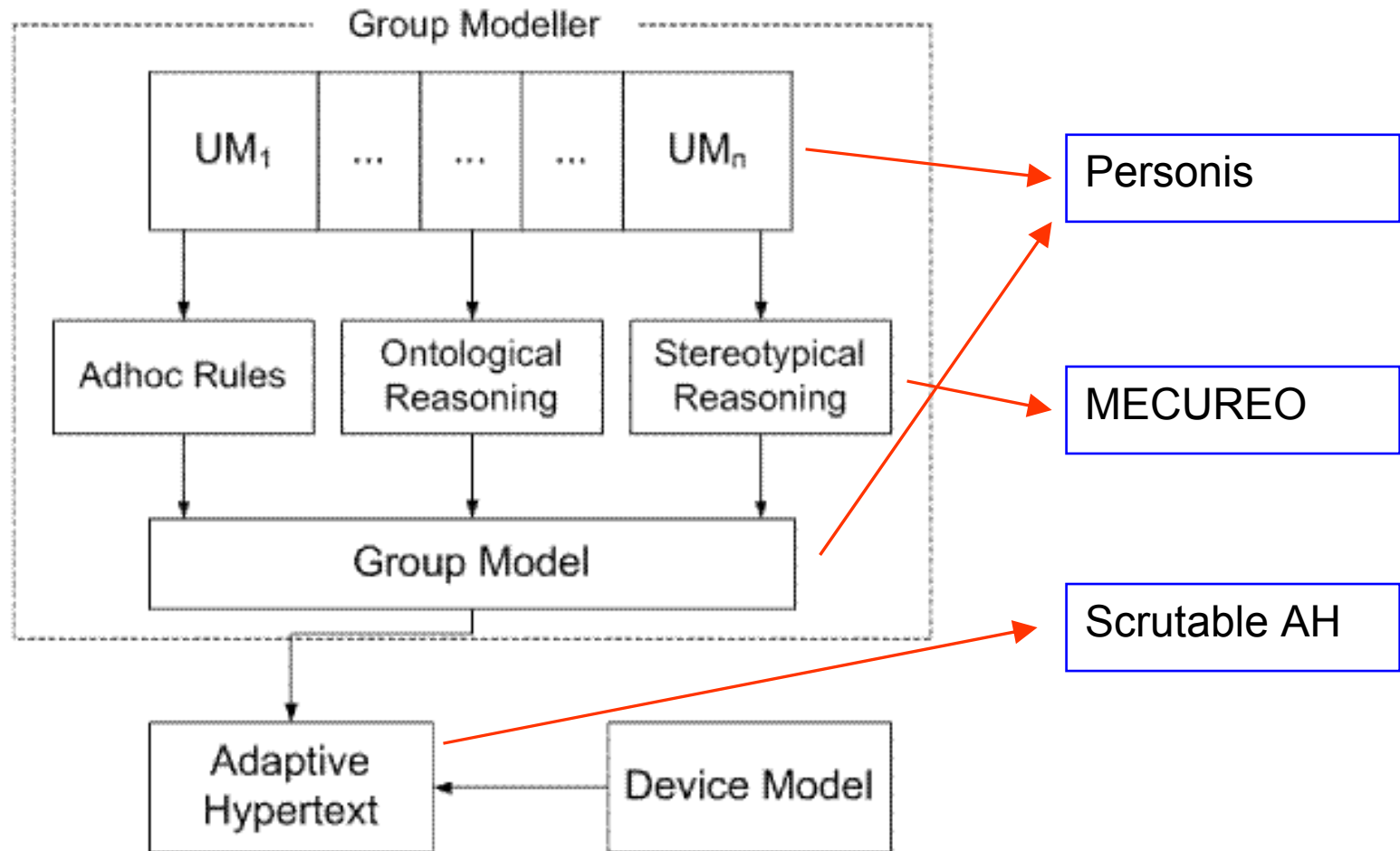


Ontological Reasoning

- Use ontology of vocabularies



System Architecture



System Architecture (cont.)

- Personis (Kay, Kummerfeld, & Lauder 2002)
- MECUREO (Apted & Kay 2004)
- Scrutable Adaptive Hypertext (Czarkowski & Kay 2002)

Hector

Instruction: Hold your mouse over a coloured section to see the reason for the adaptation.

Key: content which was included
content which was excluded



Hector was the eldest son of the king of Troy. He was the best fighter of the people of Troy. He fought Patroklos and killed him, thinking that he was Achilles. When Achilles found this out he got very upset and there was a big fight between the two of them. But in the end Achilles won and killed Hector. Hector was the eldest son of Priam and Hecuba; he was the husband of Andromache and the father of Astyanax.

Hector was the mightiest warrior on the side of Troy during the Trojan War, and he led many of the attacks against the Greek troops. He and Ajax fought to a draw in single combat, and he killed Patroklos, the close friend and companion of Achilles. He was eventually killed by Achilles, who was eager to avenge Patroklos' death. Achilles then desecrated Hector's corpse by dragging it behind his chariot before the walls of Troy, and refused to give up the body for burial. Achilles only allowed the body to receive funeral rites after King Priam came to his tent to plead for its return in person.

<http://www.in2greece.com/english/historymyth/mythology/names/hector.htm>

The Depature of Hector: Book 22, lines 32 - 113

Death of Patroklos: Iliad book 16, lines 985-997

Related topics

- [Andromache](#)
- [Patroklos](#)
- [Troy](#)
- [Ajax](#)
- [Hekabe](#)
- [Achilles](#)
- [King Priam](#)

[Hide adaption](#)

Personalisation

[Change your Profile](#)

Preferences

Goal of visit: learn_troy
Level: basic
Related artefacts: yes
Show adaptation: no
Questions: no
External references: no
Images: yes

Authentication

User **niu** is logged in.

This session will timeout in 30 minutes at 11:18 PM. [Refresh](#)

[Logout](#)



Conclusions & Discussions

- Related work in group modelling
 - Challenges and approach
 - Ontological approach seems promising
 - How to evaluate the Group Modeller?
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