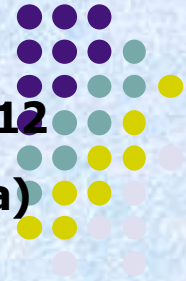


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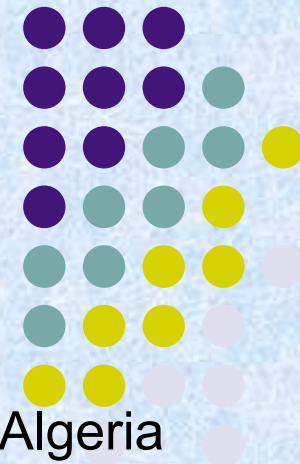
10-11 November 2012

Constantine (Algeria)



An UML profile to design Aspects in AspeCiS approach

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Outline



- **Introduction**
- **An overview of AspeCiS**
 - **The phases of AspeCis**
 - Phase I: Elicitation and analysis of CRs
 - Phase II: CRs models
 - Phase III: from models to code
- **An UML profile for AspeCiS**
 - Aspects
 - Pointcuts
 - Advices
- **A motivated example**
- **Conclusion**

Introduction



- The increased competition
- The changes in customer demands
- The communications performance
- The Important business conditions
- etc...

obligate Enterprises to migrate to



Introduction

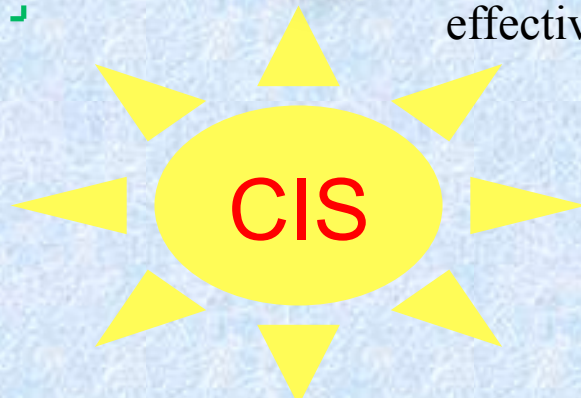


Building effective enterprise cooperation is not an easy task

It **requires** a **CIS** to support this inter-entreprise cooperation

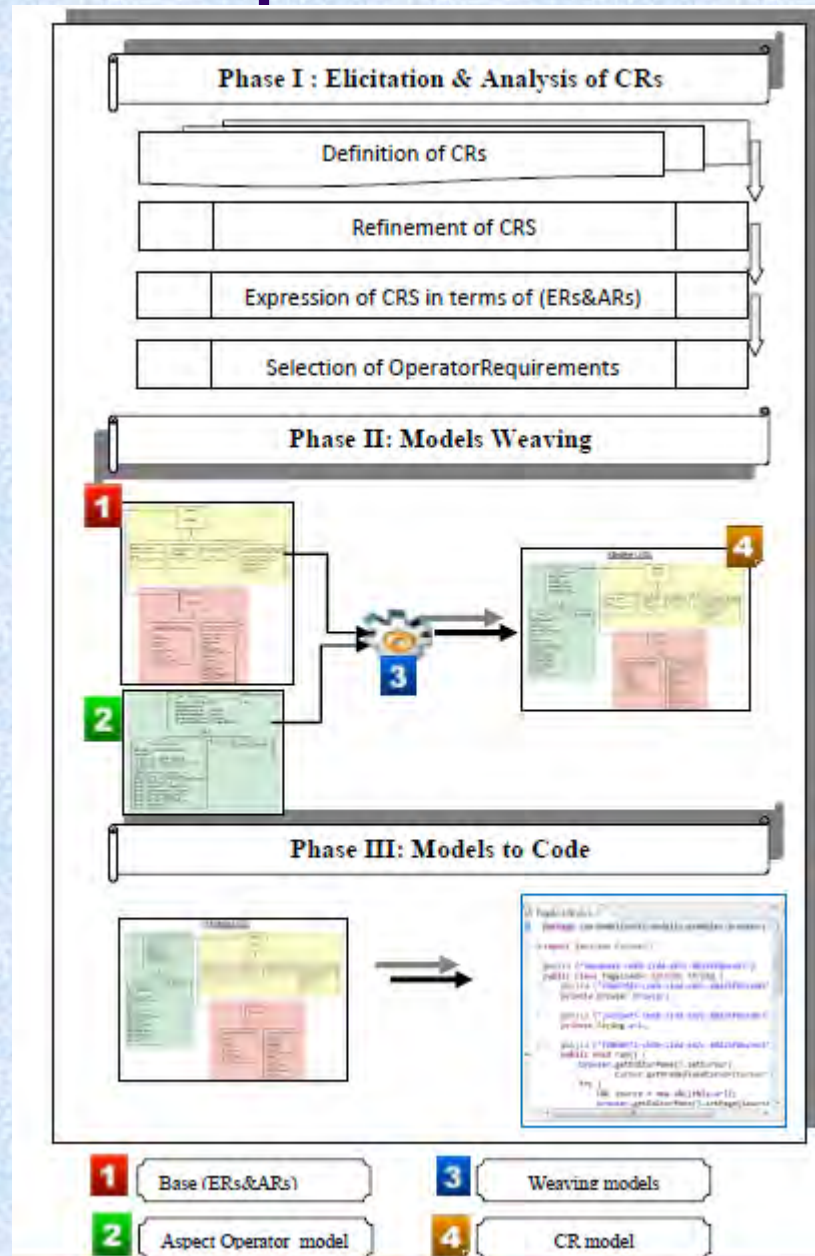


our research aims at developing a new approach called **AspeCiS**, that ensures the effectiveness and efficiency of business cooperation



AspeCiS develops a **CIS** from existing ISs by using their artifacts such as requirements, and design based on the **ASPECT** concept

An Overview of AspeCiS:



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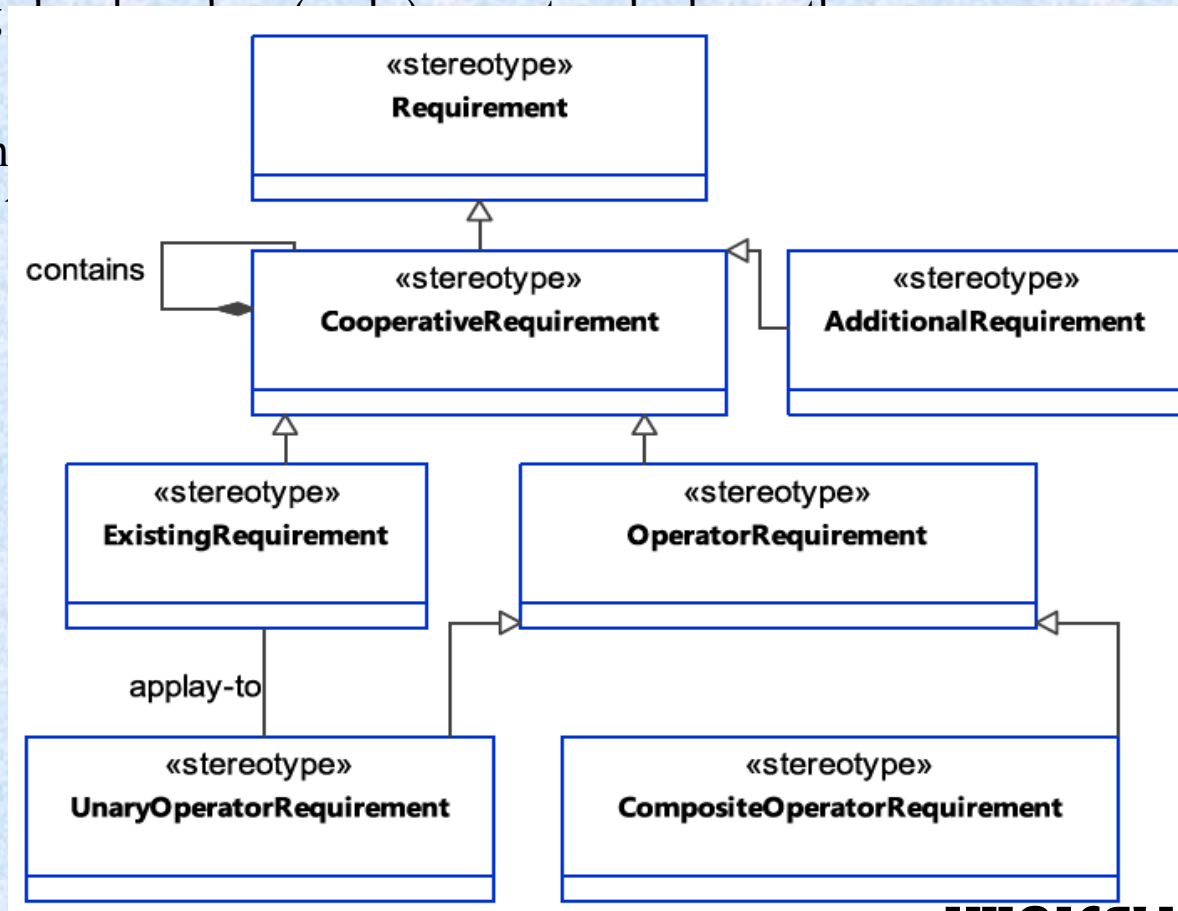
Synopsis of AspeCiS approach

An Overview of AspeCiS



In **AspeCiS**, When a new requirement cannot be achieved directly by the existing systems, there should be a possibility to (i) to separate (not mixed) in the resulting system, the pre-existing functionalities from the new ones, combine and compose the requirements of set of existing systems in order to fulfill the requirement.

The main feature of AspeCiS is to analyze the new requirements of the system being woven on existing accessible parts) (ii) to provide a high weave (build) again systems



The Phases of AspeCiS



Phase I: The Elicitation and Analysis of Cooperative Requirements

- **Refinement of Cooperative Requirements:** decompose CRs into a set of *basic requirements*.
- **Expression of CRs in terms of ERs/ARs:** determine the **ERs** and **ARs** involved in the definition of every CR
- **Selection of the OperatorRequirements:** A modification of an **ER** = the *weaving* of a new behavior on this ER. This change is provided by the UnaryOperatorRequirement

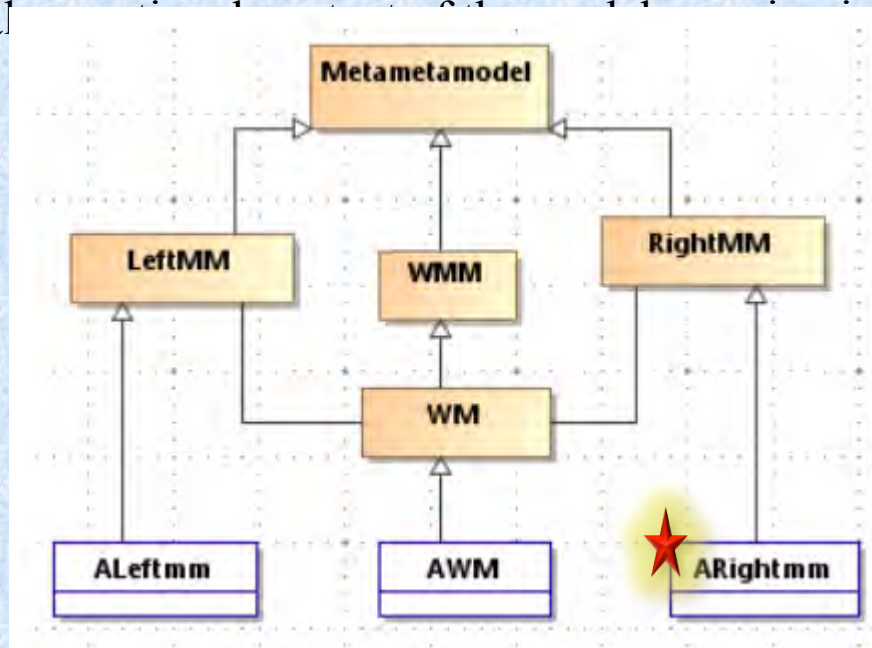
The Phases of AspeCiS



Phase II: Weaving Models

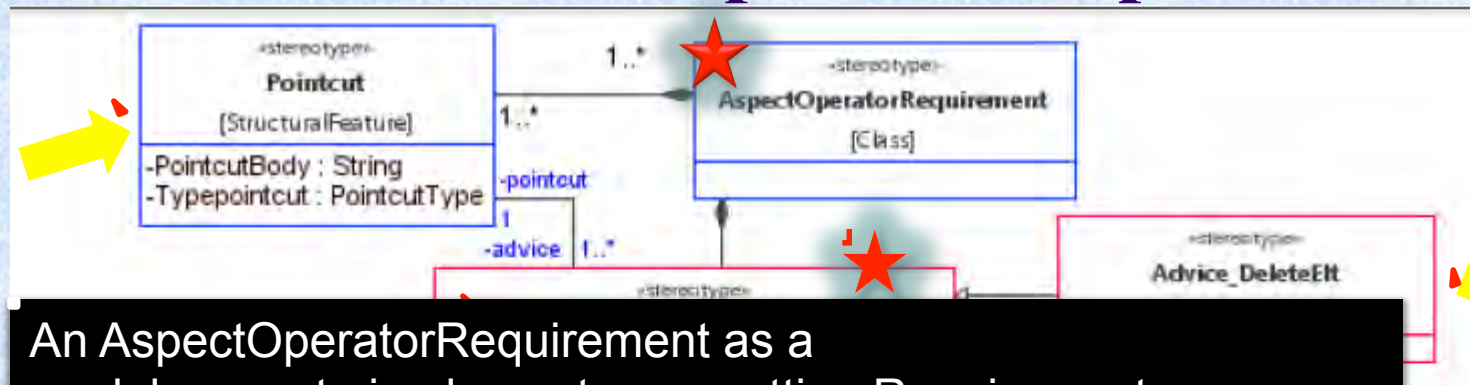
The second phase of AspeCiS basically entails the modelling of base (ERs or ARs models, aspectual entities (OperatorRequirement models) and the definition of a process for weaving them in order to define CRs models.

The general structure of the weaving models is depicted in



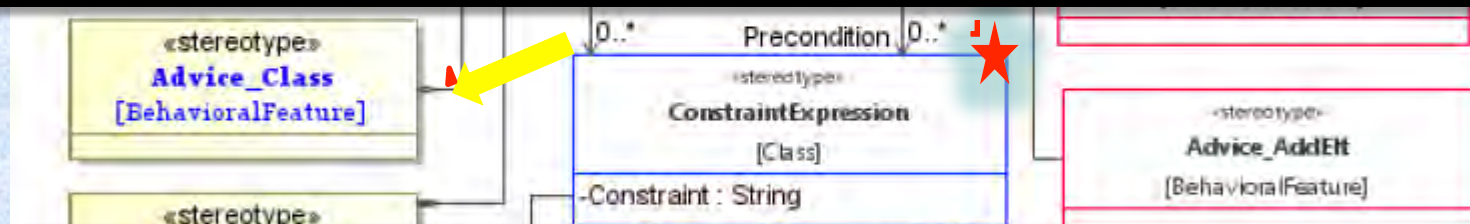
An UML Profile of Aspects in AspeCiS

An UML Profile of Aspects in AspeCiS

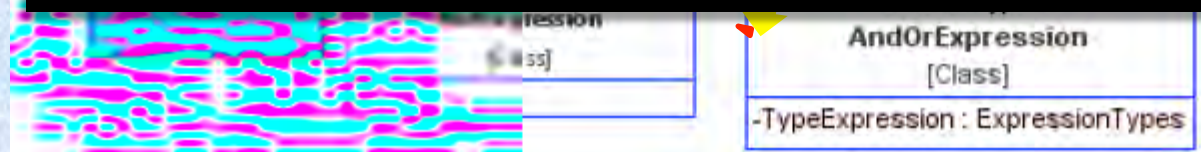


An **AspectOperatorRequirement** as a

module used to implement crosscutting Requirements. Constraints allow the system designer to specify both when an Advice is applicable (**precondition**), and the effect of an Advice execution (**postcondition**).

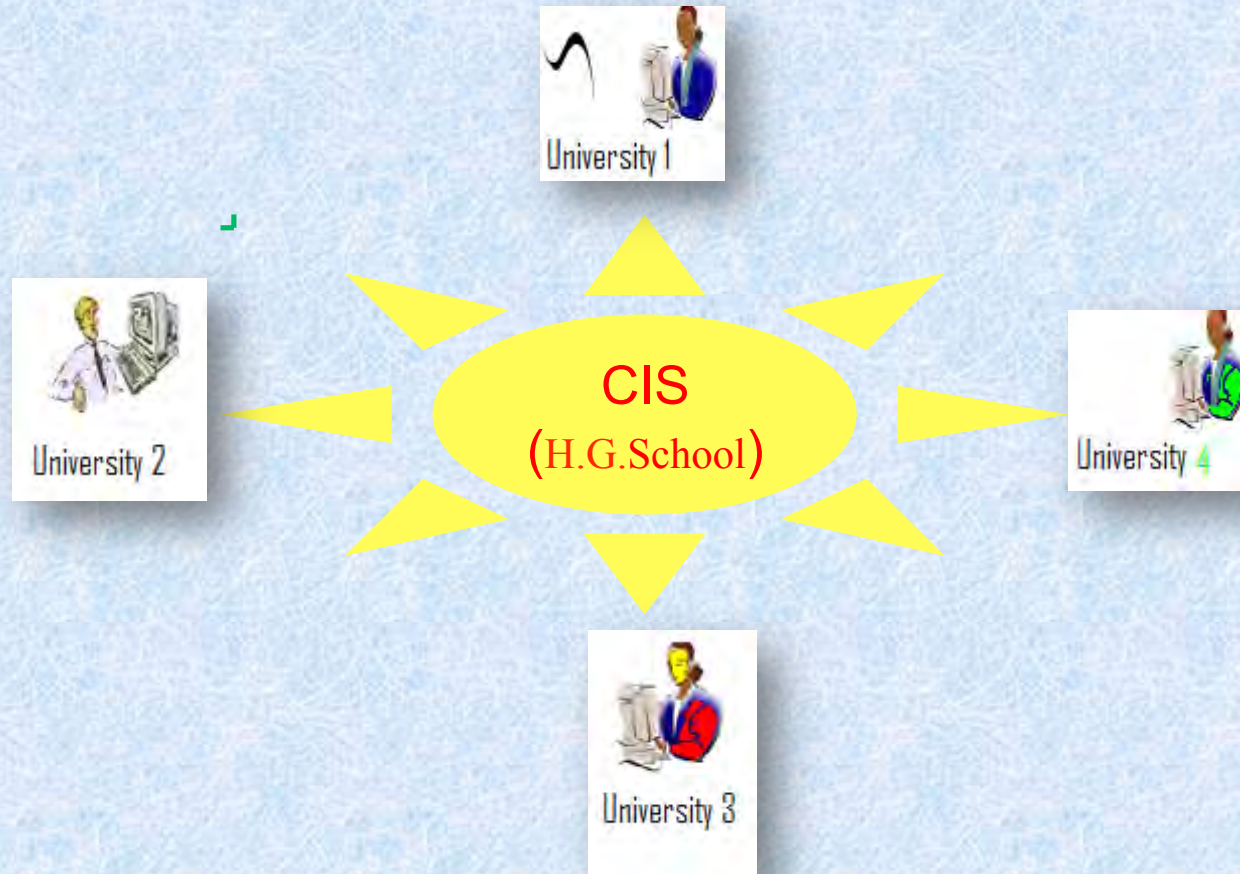
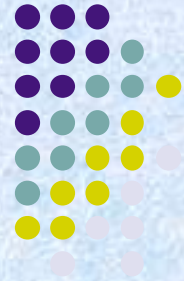


The **Advices** define the **AspectOperatorRequirements** behavior, (the modifications performed by the aspect). An Advice can be either **Advice_AddElt** to add an element. These elements can be **attributes**, **classes** or **associations**. **DeleteElt** to remove an element.



A motivated example

This example illustrates a part of the University Students Management System for the High Graduate School



A motivated example



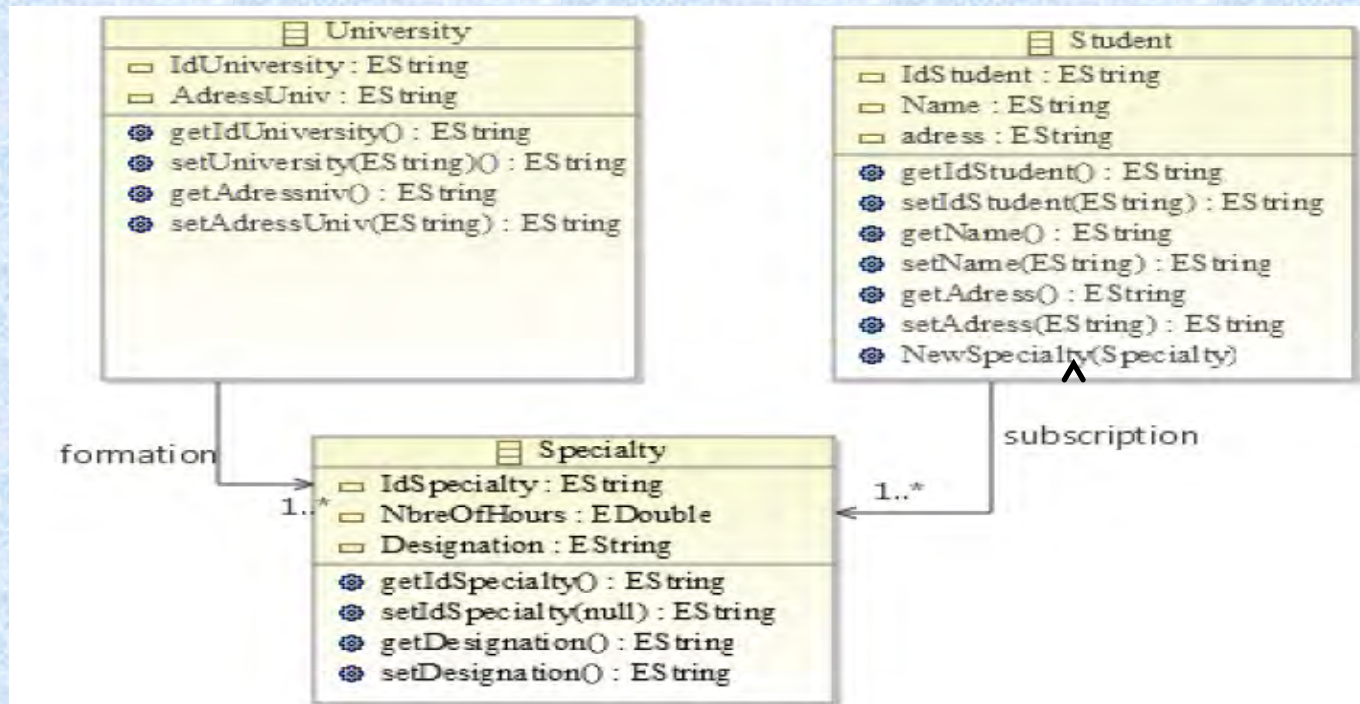
At the requirements level of the existing ISs, the student subscription requirement is defined as:

- ER1= Every student may have a second subscription in the same university.
- CR1= Every student can have a second subscription in the same university
- provided that** the number of hours of the second specialty does not exceed 50% of the number of hours of the first one.

A motivated example



At the model level of the existing ISs, the student subscription requirement is defined as:



```

«AspectOperatorRequirement»
    VerifySecondspecialty
«Pointcut»+Pointcut1{PointcutBody = "Student.Newspecialty()", Typepointcut = Class, advice = NbreOfHours}
«Advice_AddElt»+NbreOfHours(){pointcut = Pointcut1}
    
```

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Conclusion



□ Conclusion

- We have proposed an approach named *AspeCiS* to develop a CIS from existing ISs by using their artifacts such as requirements, and design.
- We presented in this paper a profile for *AspeCiS*. It allowed the designer to give response to the following question "How to design Aspects in *AspeCiS*"?



An UML profile to design Aspects in AspeCiS approach

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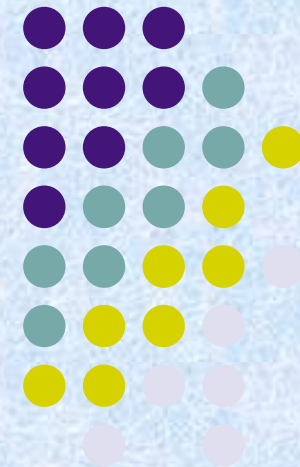
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Thank you !

