

HIDOSSI Adnane/systèmes informatiques/Semestre 6/Données semi-structurées/Section25/26							
Matricule	Note	Absent	Absence Justifiée	Observation	Section	Groupe	
232334005201	15,75					Section25/26/Groupe 1	
232334279413	10,75					Section25/26/Groupe 1	
232334007111	10,5					Section25/26/Groupe 1	
232334044713	6,25					Section25/26/Groupe 1	
232334228809	4,5					Section25/26/Groupe 1	
232334092616	8,75					Section25/26/Groupe 1	
232334030107	13,5					Section25/26/Groupe 1	
232334075205	9					Section25/26/Groupe 1	
222234037009	8,75					Section25/26/Groupe 1	
232334041404	7,75					Section25/26/Groupe 1	
2501406956	1					Section25/26/Groupe 1	
222234006403	10					Section25/26/Groupe 1	
232334005412	5,5					Section25/26/Groupe 1	
2101410055						Section25/26/Groupe 1	
212134005202						Section25/26/Groupe 1	
232334094820	1,5					Section25/26/Groupe 1	
232334006603	12,25					Section25/26/Groupe 1	
232334006317	10,25					Section25/26/Groupe 1	
232334008606	10,5					Section25/26/Groupe 1	
232334007410	10					Section25/26/Groupe 1	
222234005711	11,5					Section25/26/Groupe 1	
232334027610	11					Section25/26/Groupe 1	
232334030011	6,75					Section25/26/Groupe 1	
2599400938						Section25/26/Groupe 1	
232334305405	7					Section25/26/Groupe 1	
232334095217	6					Section25/26/Groupe 1	
232334096906	9,5					Section25/26/Groupe 1	
222234007012	8,5					Section25/26/Groupe 1	
222234027404	12					Section25/26/Groupe 1	
222234018908	9					Section25/26/Groupe 1	
232335350705	14,25					Section25/26/Groupe 1	

232334039507	10				Section25/26/Groupe 1
222234017419	13,25				Section25/26/Groupe 1
232334040520	10,75				Section25/26/Groupe 1
222234008502	13,5				Section25/26/Groupe 1
232334045016	7				Section25/26/Groupe 1
232334006220	5,5				Section25/26/Groupe 2
232334059206	7,5				Section25/26/Groupe 2
232334018205	9				Section25/26/Groupe 2
232334017808	8				Section25/26/Groupe 2
222234017809	8,5				Section25/26/Groupe 2
222234015819	9				Section25/26/Groupe 2
232334032708	13,25				Section25/26/Groupe 2
232334020801	5,5				Section25/26/Groupe 2
9797416056					Section25/26/Groupe 2
232334019211	11				Section25/26/Groupe 2
222234005615	11,75				Section25/26/Groupe 2
2599344369	4,5				Section25/26/Groupe 2
222234020503	12				Section25/26/Groupe 2
232334019101	10,5				Section25/26/Groupe 2
232334010909	12,75				Section25/26/Groupe 2
232334009706	10,75				Section25/26/Groupe 2
232334101312	9,5				Section25/26/Groupe 2
232334021019	4,5				Section25/26/Groupe 2
232334017318	12,5				Section25/26/Groupe 2
212134013517					Section25/26/Groupe 2
232334059801	9				Section25/26/Groupe 2
222234056005	7,5				Section25/26/Groupe 2
222234006401	10,5				Section25/26/Groupe 2
232334010003	4,5				Section25/26/Groupe 2
232334021108	6				Section25/26/Groupe 2
232334033611	1,5				Section25/26/Groupe 2
232334044413	10,25				Section25/26/Groupe 2
232334314509	11,5				Section25/26/Groupe 2

232334019308	11				Section25/26/Groupe 2
232334167013	5				Section25/26/Groupe 2
191936002466					Section25/26/Groupe 2
232334066011	13,5				Section25/26/Groupe 2
232334049720	5,5				Section25/26/Groupe 2
232334042013	3,75				Section25/26/Groupe 2
222234016711	6				Section25/26/Groupe 2
232334039208	7				Section25/26/Groupe 2
2596410713	2				Section25/26/Groupe 2
232334343210	13				Section25/26/Groupe 3
232334075609	1				Section25/26/Groupe 3
232334031716	3,5				Section25/26/Groupe 3
222234008418	4,5				Section25/26/Groupe 3
232334032703	14,5				Section25/26/Groupe 3
232334074809	9				Section25/26/Groupe 3
232334075403	11,5				Section25/26/Groupe 3
222234038118	8				Section25/26/Groupe 3
232334020415	10,5				Section25/26/Groupe 3
232334039615	10,5				Section25/26/Groupe 3
232334075410	2,5				Section25/26/Groupe 3
232334403017	6				Section25/26/Groupe 3
232334061308	6				Section25/26/Groupe 3
2593326806					Section25/26/Groupe 3
232334097209	12,25				Section25/26/Groupe 3
222234059220	5,5				Section25/26/Groupe 3
232334049512	5				Section25/26/Groupe 3
232334072614	5,5				Section25/26/Groupe 3
2596249308					Section25/26/Groupe 3
222234030518	5,5				Section25/26/Groupe 3
2597429470					Section25/26/Groupe 3
222234053702	8,75				Section25/26/Groupe 3
232334016805	9				Section25/26/Groupe 3
232339314410	9				Section25/26/Groupe 3

First/Last name	Registration N°	Option/Group
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Exercise 1 (NB: Answer directly on this copy and return it to avoid penalties)

1) The following table aim to distinguish element's types according to its content. Fill with yes or no.

	Content			
	Simple	Empty	Mixed	Complex
Elements				
Text				

2) Modify and complete the previous table in order to consider the presence/absence of attributes.

Content	Attribute	Type
		Simple type
		Complex Type

Exercise 2

Considering that one student at least is already registered, give a valid XML example according to this DTD. (External DTD)

```
<! DOCTYPE inscriptions [
<! ELEMENT inscriptions (module +, etudiant +) >
<! ELEMENT module (titre , resume , inscrit *) >
<! ATTLIST module code ID # REQUIRED niveau CDATA # REQUIRED >
<! ELEMENT titre (# PCDATA )>
<! ELEMENT resume (# PCDATA )>
<! ELEMENT inscrit EMPTY >
<! ATTLIST inscrit num IDREF # REQUIRED semestre CDATA # REQUIRED >
<! ELEMENT student (nom-prenom, adresse )>
<! ATTLIST student num ID # REQUIRED >
<! ELEMENT nom-prenom (# PCDATA )>
<! ELEMENT adresse (# PCDATA )> ]>
```

Exercise 3

The University's IT department wants to standardize online access to digital resources and you are responsible for designing the validation structure for a new user management platform. The goal is to ensure that data transmitted via XML adheres to strict formatting rules before being processed by the system. So you have to create an XML Schema file (.xsd) to validate XML documents containing account identification information. Your schema must define a root element <UserAccount> composed of the following elements, respecting precise typing rules:

1. The Identifier (Username):

The system must allow the user to log in using either a **username** or a **specific email address**.

- It must start with a letter (uppercase or lowercase).
- **If it is a username:** It must be between 3 and 20 characters long and may include numbers, underscores _, or parentheses ().
- **If it is an email:** It must belong exclusively to the following domains: @gmail.com, @yahoo.com, or @hotmail.com. The local part (before the @) must not exceed 20 characters.

2. The Password:

- The length must be between 8 and 64 characters.
- It must accept letters, numbers, and the following special characters: @, #, \$, %, &, +, =, !, *, ? as well as parentheses ().

Questions

1. Define named simple types (xs:simpleType) for the Username and Password.
2. Define the complex element UserAccount that structures this information.
3. Produce an example of a valid XML file according to your schema.

Exo1 (6.5 Pts)

0.5Pt*13	Content			
	Simple	Empty	Mixed	Complex
Elements	NO	NO	YES	YES
Text	YES	NO	YES	NO

Content	Attribute	Type
Simple: Empty & text	Without Attributes	Simple type
	With Attributes	
Complex: Child elements or mixed with text	Without Attributes	Complex Type

Exo2 (6 Pts: 0.5*10 + 1Pt)

```
<? xml version = " 1.0 " encoding="UTF-8"?>
<! DOCTYPE inscriptions SYSTEM " inscriptions.dtd ">
< inscriptions >
  <module code = "SSD" niveau = "L3">
    <titre >Semi Structred Data </ titre >
    <resume >XML , DTD , Shema, XSL, Xpath </ resume >
    <inscrit num = " 123 " semestre = " 2026 S6 "/>
  </module>

  <student num = " 123 ">
    <nom-prenom >Jalal </ nom-prenom >
    <adresse > Algiers </ adresse >
  </student>
</ inscriptions >
```

Exo3 (7.5Pts)

1) <xs:simpleType name="UsernameType"> (2Pts)

```
<xs:restriction base="xs:string">
  <xs:pattern value="([a-zA-Z][a-zA-Z0-9_]{2,19})([a-zA-Z][a-zA-Z0-9_]{0,19})@(gmail|yahoo|hotmail)[.](com)"/>
</xs:restriction>
</xs:simpleType>
```

<xs:simpleType name="PasswordType"> (2Pts)

```
<xs:restriction base="xs:string">
  <xs:minLength value="8"/>
  <xs:maxLength value="64"/>
  <xs:pattern value="[a-zA-Z0-9@#$$%&+!=*?()]+"/>
</xs:restriction>
</xs:simpleType>
```

2) <?xml version="1.0" encoding="UTF-8"?> (2Pts)

```
<xs:schema xmlns:xs="http://w3.org">
  <xs:element name="UserAccount">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="Username" type="UsernameType"/>
        <xs:element name="Password" type="PasswordType"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

3) <?xml version="1.0" encoding="UTF-8"?> (1.5Pts)

```
<UserAccount>
  <Username>MonUser2026@gmail.com</Username>
  <Password>P@ssword123!</Password>
</UserAccount>
```