**Lab 2.2 – Schema Types**

Q1. Given the XML instance document phones.xml.

1. Write the schema. At first, just get the schema structure correct i.e. write the schema to validate using “*xsd:string*” everywhere.
2. Secondly, strengthen the schema types when applying the following schema rules i.e. where possible, do not use *“xsd:string”*:

* phone type is “Pre-pay” or “Bill-pay”
* phone provider is “Three”, “GoMo” or “Vodafone”
* currency is “USD” or “Euro”
* free call credit is an integer ranging from 10 to 30
* location is “Europe”, “North America”, “South America”, “Asia” or “Australia”.
* The mobile number has a pattern of “08n-nnnnnn”.

Q2. Given the XML instance document horses.xml.

1. Write the schema. At first, just get the schema structure correct i.e. write the schema to validate using “*xsd:string*” everywhere.

2. Secondly, strengthen the schema types when applying the following schema rules i.e. where possible, do not use *“xsd:string”*:

* Horses consist of a maximum of 10 horse elements
* The name element conforms to the following pattern
  1. An uppercase letter followed by one or more lowercase letters; followed by a space; followed by an uppercase letter followed by one or more lowercase letters
* The dob element is a schema date type
* The gender element can be “Male” or “Female” only
* The favRace element is a schema string type
* The trainer attribute is a schema string type

Q3. Finish the following instance document (header) and write the schema (Student.xsd) that validates it.

The rules to apply to the data are specified in the schema and are listed on the following page.

<?xml version="1.0"?>

<student ...>

<personal>

<name>Joe Bloggs</name>

<dob>2000-01-22</dob>

<time>10:12:03</time>

<gender>Male</gender>

<weight>8.7</weight>

<phoneNo>087-1234567</phoneNo>

</personal>

<college name="TUS" studentID="A012345">

<course name="MSc in S/W Eng">

<semester>1</semester>

<classSize>7</classSize>

<favouriteSubject>SOA</favouriteSubject>

</course>

</college>

</student>

In the schema the following rules must be applied:

* namespace is “*http:// www.student.com*”
* *name* is a capital letter, followed by one or more lower case letters, followed by a space, followed by a capital letter, followed by one or more lower case letters
* *dob* is a schema date datatype
* *time* of birth is a schema time datatype
* *sex* is “Male” or “Female”
* *weight* is a schema double datatype
* *phoneNo* has the following pattern: 3 digits, followed by a dash, followed by 7 digits
* *college* has 2 attributes:
  + *name* is either “TUS, “UCD”, “NUIG” or “TUD”
  + *studentID* has the pattern “A0” followed by 5 digits
* *course* has one attribute
  + *name* is a schema string
* *semester* is an integer which ranges from 1 to 2
* *classSize* is an integer which ranges from 2 to 30
* *favouriteSubject* is either “SOA”, “Data Science”, “Agile Build and Delivery”, “Software Design”