JAXB

Java objects can be bonded to XML structures by using annotation and specific rules.

- **Marshal**
  - First of all we have to indicate which java elements correspond to what XML nodes.
    Before class declaration we insert:
    - **@XmlType**(propOrder = { "name", "capital", "foundation", "continent" , "population"}) to indicate special options like order
    - **@XmlRootElement**(name = "Country"): the root element of the file.

    Then, before each set method we define the XML element:

    - **@XmlElement** (name = "Country_Population")
    - **@XmlAttribute**(name = "importance", required = true) if it is needed to indicate some property.

    Finally, we have simply to generate the JAXB context, marshal the data to create the XML file:

    /* init jaxb marshaler */
    - JAXBContext jaxbContext = JAXBContext.newInstance(Country.class);
    - Marshaller jaxbMarshaller = jaxbContext.createMarshaller();

    /* set this flag to true to format the output */
    - jaxbMarshaller.setProperty(Marshaller.JAXB_FORMATTED_OUTPUT, true);

    /* marshaling of java objects in xml (output to file and standard output) */
    - jaxbMarshaller.marshal(spain, new File("country.xml")); jaxbMarshaller.marshal(spain, System.out);

    On the other hand, we can unmarshal the data in the following way:

    - File file = new File("countries.xml");
    - JAXBContext jaxbContext = JAXBContext.newInstance(Countries.class);

    - Unmarshaller jaxbUnmarshaller = jaxbContext.createUnmarshaller();
    - Countries countres = (Countries)jaxbUnmarshaller.unmarshal(file);

- **Adapters**
  - Handling complex types may be not direct: JAXB could not have it and so we need an adapter to indicate JAXB how to manage the specific type:
    - public LocalDate unmarshal(String date) throws Exception{
      return LocalDate.parse(date);
      }
    - public String marshal(LocalDate date) throws Exception{
      return date.toString();
      }

    It shows the implementation of the marshal and un-marshal methods of the interface :
    javax.xml.bind.annotation.adapters.XmlAdapter