1)

RESTful web service, is a service based on the transmission of data over Http. It is based on the description of resources.

The methods have been defined in advance based on the verbs GET, POST, PUT, DELETE. Each resource has an URL and a verb can be applied to that url.

The main characteristics of a restful service is that it is addressability, so every resource has a url; there is a uniform interface relative to the verbs; the interaction is stateless, so there is no session; it is self describing with metadata; hypermedia with hyper-links.

We can realize a RESTful web service in Java using Apache CXF and JAXB to bind in XML the instances of the classes. With the use of their relative command it is possible to describe the method to be applied to the resources, such as:

```
@GET
@Path("{studentId}")
public static void getStudent(@PathParam("studentId") int studentId){
    return findById(studentId);
}
```

Interface of a public transportation: http://localhost:8080/transport

```
Lines.java
@GET
@Path("lines/{lineId}")
public Line getLine(@PathParam("id") int id); -> return the stops, the schedule and the buses of that line

@Path("lines/{idLine}/bus)
public Bus pathToBus(@PathParam("id") int id){ -> this function delegate to Bus class the request
 return findById(id);
}
```

```
Bus.java
Bus{id, real time arrival} -> params of the bus
@GET
@Path("arrival")
public String getBus(); -> return the current time of arrival
```