XSLT and JPA Assignment

Using the concepts and examples discussed in class, create an application that will export a database content into an XML document, and then transforms it into different HTML and XML documents. Follow the steps below to complete the assignment

1. Use the SQL schema and initial data
    a. site(**id**, name, latitude, longitude)
    b. tower(**id**, name, height, sides, ***siteId***) - where siteId references table site
    c. equipment(**id**, name, brand, description, price, ***towerId***) - where towerId references table tower

2. (5pts.) Using JPA implement and annotate the following classes so that they map to their corresponding tables. Do not use mapping tables. Use the example JPA classes as a guide
    a. **Site.java** - maps to site table
    b. **Tower.java** - maps to tower table
    c. **Equipment.java** - maps to equipment table

3. Write a class called **SiteDatabase.java** that contains a list of Site instances similar to the one discussed in class
    a. List<Site> sites

4. (15pts.) Annotate the JPA and **SiteDatabase** classes so that they can be marshalled to XML files. The output XML file should be similar to the one discussed in class and must follow these rules:
    a. Use attributes instead of elements for all scalar properties, e.g., id,name, height, etc…
    b. Use singular names for elements even if they are derived from collection properties, e.g., SiteDatabase.sites, Site.towers, Tower.equipments
    c. Ignore properties used for references to parent entities, e.g., Tower.site, Equipment.tower

5. (45pts.) Write a DAO class called SiteDao.java that implements the methods listed below. Use the files discussed in class as an example:
    a. (5pts.) public Site **findSite**(int siteId) - returns an instance of Site for the given siteId
    b. (5pts.) public List<Site> **findAllSites**() - returns a list of Site instances
    c. (15pts.) public void **exportSiteDatabaseToXmlFile**(SiteDatabase database, String xmlFileName) - marshals database parameter into a file called xmlFileName

d. (15pts.) public void **convertXmlFileToOutputFile**(String inputXmlFileName, String outputXmlFileName, String xsltFileName) - transforms a file called inputXmlFileName into a file called outputXmlFileName using XSLT file called xsltFileName
e. (5pts.) Write a **main**() method that uses SiteDao to
    i. Use findAllSites() to retrieve all the sites from the database
    ii. Use exportSiteDatabaseToXmlFile() to export the sites to a file called "xml/sites.xml"

6. (35pts.) Write the following XSLT files. Use the example files discussed in class
    a. (15pts.) **sites2html.xslt** - transforms "xml/sites.xml" to "xml/sites.html". The HTML should be similar to the sample HTML discussed in class
    b. (15pts.) **sites2equipment.xslt** - transforms "xml/sites.xml" to "xml/equipments.html". The HTML should be similar to the sample HTML discussed in class
    c. (5pts.) Update **SiteDao.main**() method to
        i. Use **convertXmlFileToOutputFile**() to convert "xml/sites.xml" to "xml/sites.html" using "xml/sites2html.xslt"
        ii. Use **convertXmlFileToOutputFile**() to convert "xml/sites.xml" to "xml/equipments.html" using "xml/sites2equipment.xslt"