

OOP Java Lab Assignment 5

Sep 15th Wednesday

Inheritance, Overriding & Dynamic binding

Note: The **naming conventions have changed**. You will be submitting only one Java file today. `WebResourceMain.java`. Before submission, **rename the file to `S2020xxxx_WebResourceMain.java`** i.e. (Your rollno followed by the filename) You need to **rename the class-name** also appropriately. Anyone who does not follow the new naming convention will incur a **penalty of 5 marks**.



The above image describes the parts of the URL of a web resource.

1. Create the following classes [Note: Parameterized constructors are optional, but I strongly recommend it. It will make your code look cleaner]
 - a. `WebResource` with
 - i. The following attributes
 1. Domain Name (ex: `build-your-website.co.uk`)
 2. Path to resource (ex: `/html`)
 3. Name of Resource (ex: `index.htm`)
 - ii. The following methods
 1. `Getter/Setter` for all attributes
 2. Method named `'getFullURL'` - which constructs and returns the URL as a String, based on the attributes. (use `http` as the default protocol)
(example: see *image above*)
 - b. `SecureWebResources` which extends `WebResource`
 - i. Overrides the `'getFullURL'` method and uses `'https'` instead of `'http'`
 - c. `DynamicWebResource` which extends `WebResource`

- i. The following additional attributes
 1. servletName (example: org.iiits.IndexServlet)
 2. jspTemplate (example: org.iiits.IndexTemplate.jsp)
- ii. The following methods
 1. **Getter/Setter** for the new additional attributes
 2. Overriden '**getFullURL**' method which constructs URL based on the information
(ex:
<http://www.build-your-website.co.uk/org/iiits/IndexServlet>)
 [Note1: This overridden method ignores the 'Path to resource' attribute and uses the Servlet name to construct the path
 Note2: You need to use String replace for achieving this. Learning to read javadoc is part of the exercise. The link to string replace, with a simple example:
[https://docs.oracle.com/javase/7/docs/api/java/lang/String.html#replace\(char,%20char\)](https://docs.oracle.com/javase/7/docs/api/java/lang/String.html#replace(char,%20char))
 If you still don't understand how to use string replace, you may use 'org/iiits/IndexServlet' as the servlet name instead of using dot]
- d. **SecureDynamicWebResource** which extends DynamicWebResource
 - i. Overrides the '**getFullURL**' method and uses 'https' instead of 'http'
- e. **WebResourceMain** (public java file which will have the main method)
 - i. Create an array of WebResource (size: 10). There are multiple places to create this array. You may choose as you wish.
 1. You may create it as a 'static' member of the WebResourceMain class
 2. You may create it as a local variable inside the main method
 3. You may create it as a 'static' member of the WebResource class
 - ii. Inside the main method, create at least one instance of each of the following classes. Each time you create an instance, you need to add that instance to the array.
 1. WebResources
 2. SecureWebResources
 3. DynamicWebResource
 4. SecureDynamicWebResource
 - iii. Create a public static void **printAllWebResourceURL** method inside WebResourcesMain, which does the following

1. Iterates over the array and prints the full URL of all resources in the array.
 2. It does this by calling the `getFullURL` method of each object in the array.
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