**Project: Lab Academy portal**

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**Product Description:**

Learner’s Academy is a school that has an online management system. The system keeps track of its classes, subjects, students, and teachers. It has a back-office application with a single administrator login

**The administrator can perform the below**

* Set up a master list of all the subjects for all the classes.
* Set up a master list of all the teachers.
* Set up a master list of all the classes.
* Assign classes for subjects from the master list.
* Assign teachers to a class for a subject (A teacher can be assigned to different classes for different subjects).
* Get a master list of students (Each student must be assigned to a single class)
* There will be an option to view a Class Report which will show all the information about the class, such as the list of students, subjects, and teachers

**High Level Sprint Planning**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| story | story desc | sprint | story points | dependant story |
| 1 | creation of DB table scripts Teachers, Subjects, classroomteacher,acamdemicclass, studentdets | Sprint-1 | 1 |  |
| 2 | Develop Java bean class for Teahcers under com.bean | Sprint-1 | 1 | 1 |
| 3 | Develop Java bean class for Subjects under com.bean | Sprint-1 | 1 | 1 |
| 4 | Develop Java bean class for classroomteacher under com.bean | Sprint-1 | 1 | 1 |
| 5 | Develop Java bean class for acamdemicclass under com.bean | Sprint-1 | 1 | 1 |
| 6 | Develop Java bean class for studentdets under com.bean | Sprint-1 | 1 | 1 |
| 7 | Develop new class to load MySQL driver under  com.resource package | Sprint-2 | 1 |  |
| 8 | Develop new class for dao class (Teachders) under com.dao package  to persist data in Teachers table | Sprint-2 | 1 | 1 |
| 9 | Enhance the above code to include few validations like teacher id,  teacher name vallation etc, before persisting the data into Teachers | Sprint-2 | 3 | 1,8 |
| 10 | Develop new method to extract Teachers from the DB  should be part of teachers dao class | Sprint-2 | 1 | 1 |
| 11 | Developed new service class for teachers under com.service to have UI validations and invoke dao methods (9 and 10) | Sprint-2 | 3 | 1,8,9,10 |
| 12 | Developing first page with Index.jsp, calling Signin and sign up JSP to accept values from UI | Sprint-2 | 5 |  |
| 14 | Develop new service class for Login- under com.service to have UI validations for Login and Roles | Sprint-2 | 3 |  |
| 15 | Develop Login Servlet - should be part of com.controller have the get and post implemented | Sprint-2 | 3 | 12,14 |
| 16 | Develop new JSP adminHome to navigate tod different pages/roles and this should be invoked in in Login servlet, post validations | Sprint-2 | 1 |  |
| 17 | Develop new JSP to have Teachers info carried over from UI and passed to Servlet | Sprint-2 | 1 | 18 |
| 18 | Develop Teacher Servlet - should be part of com.controller have the get (Extraction) and post implemented (to persist new records) | Sprint-2 | 1 | 17 |
| 19 | Enhance adminHome jsp to include Config Teachers | Sprint-2 | 1 | 16 |
| 20 | Develop new JSP to have Display Teachers info from the DB and include this in adminHome | Sprint-2 | 1 | 18 |
| 21 | Develop new class for dao class (Subjects) under com.dao package  to persist data in Subjects table | Sprint-2 | 1 |  |
| 22 | Enhance the above code to include few validations like Subject id,  teacher name vallation etc, before persisting the data into Subjects | Sprint-2 | 1 | 21 |
| 23 | Develop new method to extract Subjects from the DB  should be part of Subjects dao class | Sprint-2 | 1 | 21 |
| 24 | Developed new service class for teachers under com.service to have UI validations and invoke dao methods (22 and 22) | Sprint-2 | 1 | 22 |
| 25 | Develop new JSP to have Subjects info carried over from UI and passed to Servlet | Sprint-2 | 1 |  |
| 26 | Develop Subject Servlet - should be part of com.controller have the get (Extraction) and post implemented (to persist new records) | Sprint-2 | 1 | 25 |
| 27 | Enhance adminHome jsp to include Config Subjects | Sprint-2 | 1 | 19 |
| 28 | Develop new JSP to have Display Subjects info from the DB and include this in adminHome | Sprint-2 | 1 | 25 |
| 29 | Develop new class for dao class (acamdemicclass) under com.dao package  to persist data in acamdemicclass table | Sprint-2 | 1 |  |
| 30 | Enhance the above code to include few validations like Classid,   before persisting the data into acamdemicclass | Sprint-2 | 1 | 29 |
| 31 | Develop new method to extract acamdemicclass from the DB  should be part of acamdemicclass dao class | Sprint-2 | 1 | 29 |
| 32 | Developed new service class for acamdemicclass under com.service to have UI validations and invoke dao methods (30 and 31) | Sprint-2 | 1 | 31 |
| 33 | Develop new JSP to have acamdemicclassStore info carried over from UI and passed to Servlet | Sprint-2 | 1 |  |
| 34 | Develop acamdemicclass Servlet - should be part of com.controller have the get (Extraction) and post implimented (to persist new records) | Sprint-2 | 1 | 32 |
| 35 | Enhance adminHome jsp to include Config acamdemicclasses | Sprint-2 | 1 | 19 |
| 36 | Develop new JSP to have Display acamdemicclasses info from the DB and include this in adminHome | Sprint-2 | 1 | 34 |
| 37 | Develop new class for dao class (classroomteacher) under com.dao package  to persist data in classroomteacher table | Sprint-3 | 1 |  |
| 38 | Enhance the above code to include few validations like Classid, teacherID from the respective fconfigs, before persisting the data into classroomteacher | Sprint-3 | 1 | 37 |
| 39 | Develop new method to extract classroomteacher from the DB  should be part of classroomteacher dao class | Sprint-3 | 1 | 38 |
| 40 | Develope new service class for classroomteacher under com.service to have UI validations and invoke dao methods (37 and 38) | Sprint-3 | 1 | 37 |
| 41 | Develop new JSP to have classroomteacherStore info carried over from UI and passed to Servlet | Sprint-3 | 1 |  |
| 42 | Develop classroomteacher Servlet - should be part of com.controller have the get (Extraction) and post implemented (to persist new records) | Sprint-3 | 1 | 41 |
| 43 | Enhance admi Home jsp to include Config classroomteacher | Sprint-3 | 1 | 43 |
| 44 | Develop new JSP to have Display classroomteacher info from the DB and include this in adminHome | Sprint-3 | 1 | 42 |
| 45 | Develop new class for dao class (studentdets) under com.dao package  to persist data in studentdets table | Sprint-3 | 1 |  |
| 46 | Enhance the above code to include few validations like Studetnid,classid from the respective fconfigs, before persisting the data into studentdets | Sprint-3 | 1 |  |
| 47 | Develop new method to extract classroomteacher from the DB  should be part of studentdets dao class | Sprint-3 | 1 |  |
| 48 | develop new service class for studentdets under com.service to have UI validations and invoke dao methods (46 and 47) | Sprint-3 | 1 |  |
| 49 | Develop new JSP to have studentdetsStore info carried over from UI and passed to Servlet | Sprint-3 | 1 |  |
| 50 | Develop studentdets Servlet - should be part of com.controller have the get (Extraction) and post implemented (to persist new records) | Sprint-3 | 1 |  |
| 51 | Enhance adminHome jsp to include Config studentdets | Sprint-3 | 1 |  |
| 52 | Develop new JSP to have Display studentdets info from the DB and include this in adminHome | Sprint-3 | 1 |  |

**Pre- requisite for this project**

* apache-tomcat-8.5.78
* mysql-connector-java-8.0.19.jar (attach this under java build path -> )
* add the same as above file
  + under src\main\webapp\WEB-INF\lib

**High Level Steps**

1. Create dynamic project and associated the proper Apache.
2. Have the respective mysql drivers should be attached as per the prerequisite step.
3. Creation of the following DB scripts

|  |  |
| --- | --- |
| DB table name | Purpose/description |
| Teachers | Configure teachers and Retrieve teachers’ data |
| Subjects | Configure teachers and Retrieve Subjects data |
| acamdemicclass | Configure Classes |
| classroomteacher | Configure teachers along with class numbers |
| studentdets | Configure Students along with class numbers |

1. Creating bean classes for the above under com.bean package, and make sure it should have getters/setters and default constructor should be in it.
   1. Apart from the above have another class for “Login”.
2. Create com.resource package, underneath create class, should have logic to connect to DB and respective Driver should be loaded (generic class with the method).
3. Create LoginService class under com.service package.
   1. Perform the weather what type of user
   2. If Type Of user is not an ADMIN, provide the user defined message to UI.Else
   3. Validate the username and pwd and return the message
4. Create” LoginController” servlet under com.controller package.
   1. Import Login.java and Import “LoginService”.
   2. In the do get method,
      1. Based on UI passed values pass to bean object
      2. Invoke LoginService to validate the user name and password
      3. If result valid, navigate to another page called “**Admin.jsp**”
5. Create one Index JSP, invoke signin.JSP
   1. Inside singin.jsp, it should have username, password and provide radio button to select “Admin” or “User” role. And provide 2 buttons Submit and Reset.
   2. Create Servlet called Loginservice under (com.controller)
6. Create com.dao package for under this have create different classes in it.
7. Create new class – TeachersDao and have below validations put in place
   1. Validate teacher id
   2. Create Function = to Store teachers details into DB and return type is String. (Import respective DB connection code. - step-5)
   3. Create function = To Extract teachers details from DB and return type is List.
8. Create com.service package, under this create class “TeachersService.java”
   1. Have method “StoreTeacher” to accept Teachers object as input parameter.
   2. If teacherid is not exist, then invoke **step 10.b.**
9. Create one JSP(storeTeachers.jsp) to accept teacher id and teacher name from UI.
10. Create com.controller package, under this
11. Create one servlet called “TeacherController.java”
    1. In Post method, read inputs from UI
       1. Invoke method step - 11.a
       2. Show result on UI.
    2. In Get method,
       1. Invoke 10.c to provide the teachers list to UI.
       2. Have session variable and capture result list in it.
       3. The same must passed to “dispalyTeachers.jsp”
12. Create another JSP(dispalyTeachers.jsp), in the scriptlet based on (14.b.2) show the result set in UI.
13. Have the below to be done for Subjects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Subjects | Dao | service | Servlet | jsp |
| subject id validation |  |  |  |
| store subject method | method to store subjects | under post method invoke service store method | Store Subjects |
| retrieve subject as List | method to retrieve subjects return type as list | under get method invoke retrieve ubjects srom service class | Display Subjects |

1. Have the below to be done for classes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| acamdemicclass | Dao | service | Servlet | jsp |
| Class num validation |  |  |  |
| store classes method | method to store acamdemicclass. | under post method invoke service store method | Store acamdemicclass |
| retrieve classes as List | method to retrieve classes return type as list | under get method invoke retrieve “acamdemicclass” from service class | Display acamdemicclass |

1. Have the below to be done for classroomteacher

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| classroomteacher | Dao | service | Servlet | jsp |
| Class num validation  And teacher num validation |  |  |  |
| store classwith teachers method | method to store classroomteacher. | under post method invoke service store method | Store classroomteacher |
| retrieve classwitht  teacher as List | method to retrieve classes return type as list | under get method invoke retrieve from service class | Display classroomteacher |

1. Have the below to be done for classes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| studentdets | Dao | service | Servlet | jsp |
| Class num validation |  |  |  |
| store studentdets method | method to store studentdets. | under post method invoke service store method | Store studentdets |
| retrieve studentdets as List | method to retrieve classes return type as list | under get method invoke retrieve “studentdets” from service class | Display studentdets |

**Git Repository Link**

**Core concepts used in this project**

1. JSP
2. Servlets
   1. Request Dispatcher package.
   2. httpSession package
3. MySQL DB
4. PreparedStatement API for DB operations
5. Core Java concepts
   1. Beans
   2. Arrays
   3. Validation methods

**Conclusion**

This project can be enhanced by providing below features.

1. In the UI, while configuring teachers with classes, should be selected from the list of values
2. While displaying the subject and classes numbers, should be displayed with subject name along with class number
3. While configuring the students,
   1. It should show the list from classes to select the class number
4. This project can be implemented Maven with Hibernate SQL