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Virtual Learning Platform Using Spring MVC

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ABSTRACT: This paper plans to investigate constantly the learning cycle to improve the student social goals to utilize the e-learning framework. The E-learning System accentuation while in transit to cause understudies to comprehend the ideas in a superior manner. Online Education has gotten a significant path in this pandemic circumstance to understudies to go through their schoolings. This has acquired a lot of prevalence lately among individuals across India and everywhere on the world is denied of training by numerous methods like paid online instruction, additional educational cost, etc. Along these lines, each understudy doesn't get profited similarly. There are part numerous online stages giving training administrations, however only one out of every odd stage is free. Only one out of every odd specialist organization covers all essential necessities in a single stage.

KEYWORDS: Online education, E-learning System, educational, single stage, essential

I. INTRODUCTION

The term E-learning is utilized to allude to the web-based realizing which is essentially a sort of preparing and educational cost that depends on innovation. In such learning, understudies are engaged with different exercises inside a virtual climate. Web administrations are norms that coordinate Web-based applications through associating and sharing of business measures across the organization where uses of various merchants, dialects, and stages speak with one another and with customers. These days, with the progression of data innovation and correspondence media, a large portion of the associations, organizations use systems for making the improvement of uses a lot simpler. In present days, the business is generally utilizing web applications, so it is essential to accentuation to deal with the engineering. System can be considered as a bunch of capacities helping the engineers in making the applications. The Spring Framework is an application system that assists with modifying application. This E-learning application depends on layered design. The web application is created with assistance of spring and different application dialects like html, CSS, bootstrap. One answer for this issue is teacher to execute a learning environment that empowers joint effort. Giving students the chance to team up, offer, and make will build the student's utilization of different advances, improve their e-learning experience, and backing self-coordinated and continuous learning. During this time the teacher should think about the student's innovative ineptitude's and acknowledge different capacity levels; willing to permit students decision with the normal presentation destinations given it brings about the suitable learning results. The student ought to pose inquiries, look for extra data from sound sources, reflect frequently, and cooperate with different students in scholarly talk identified with the internet learning goals. Having an online local area where students can work together in a protected and regarded learning climate will help close the hole of the new computerized partition, and in doing so assists with making a culture of advanced locals helpful for successful e-learning

II. ARCHITECTURE OF SPRING FRAMEWORK

Fig 1.1 represents the architecture of spring.
The architecture of spring has seven modules.
The modules are as follows [1]

- The core container
- Spring context
- Spring AOP

- Spring DAO
- Spring ORM
- Spring Web Module
- Spring MVC framework.

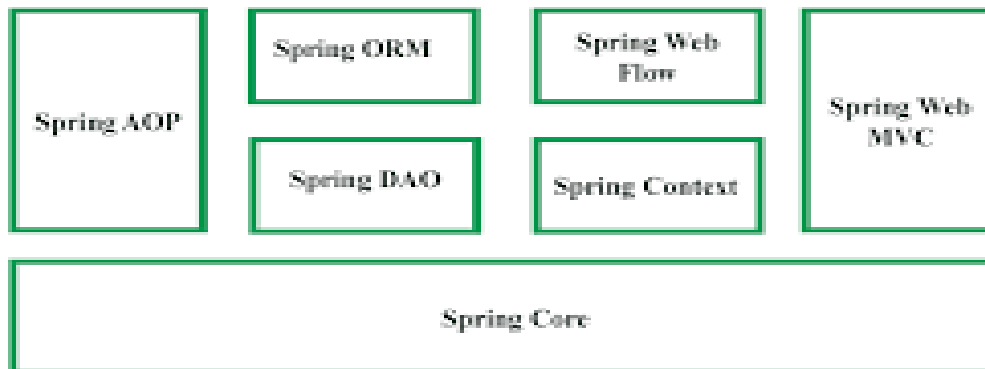


Fig: 1.1 architecture of spring

III. FEATURES OF SPRING MVC

Spring MVC (Model-View-Controller) gives model view Controller design and contains parts that are utilized to assemble the adaptable web application. The Spring Framework gives its own MVC model. The significant parts of Spring MVC as follows [2]

- Dispatcher Servlet-It is really the servlet and gets the solicitation - moved to it by web.xml record.
- Controller-It handles the solicitation and is made by client. They are objects that can react to the moves a client makes like structure filling or clicking a connection. The Controller is liable for handling User Requests and Building Appropriate Model and passes it to the view for delivering
- View- It can be thought of as a way of representing the output to the end users. The view is responsible for rendering the model data and it generates HTML Output that the client's browser can interpret.
- Model and View-The Model encapsulates the application data, and they will consist of POJO. They are used for increasing the readability and reusability of a program. Whenever a request come it's the job of Model and View to associate the view to the particular request. Controller creates model and view, and it returns data and name of the view when it executes.
- View Resolver- It tries to resolve the view based on output given by Model and View and select the output media.
- Handler Mapping- Whenever Dispatcher Servlet receives incoming requests it associates the request to individual controllers with the help of this component.

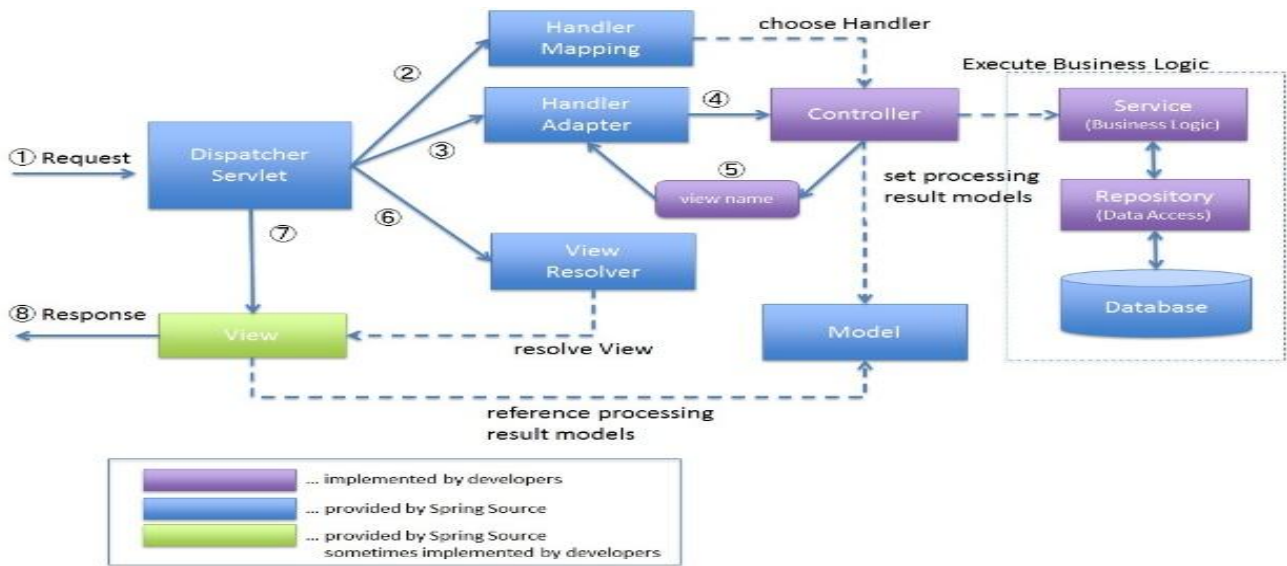


Fig:1.2 workflow of spring MVC

IV. THE DISPATCHER SERVLET

Fig: 1.3 shows the cycle work stream of spring web MVC dispatcher servlet. At the point when the https demand is gotten dispatcher servlet is the overseer planning to arrive at the fitting regulator. The regulator gets the solicitation and arrives at the proper assistance techniques like get or post strategy. In light of the characterized business rationale the assistance strategy will set the model information. It sends the name of the view to the dispatcher servlet. The dispatcher servlet looks for help from see resolver to take up the characterized see for the solicitation. When the interaction arrives at the end the dispatcher servlet passes the model information which is delivered to the view

Parts of web application contexts are

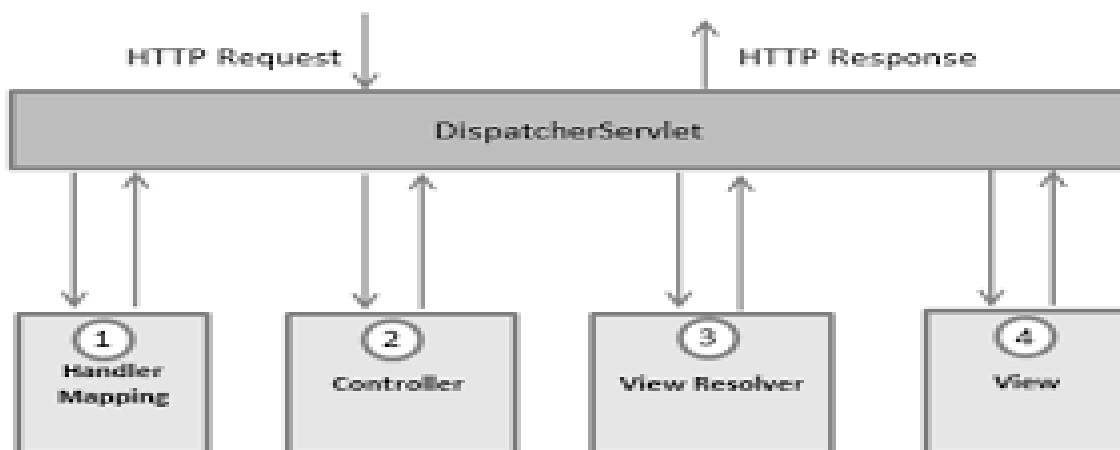


Fig: 1.3 Dispatcher Servlet

- Handler Mapping
- Controller
- View Resolver

V. HANDLER MAPPING

Handler mapping can be utilized to plan approaching web solicitations to fitting controllers. The essential usefulness of controller planning is conveying of a Handler Execution Chain that contains the Handler that coordinates with the conveyance demand. At the point when any solicitation comes in, the Dispatcher Servlet will surrender to the controller planning to examine the approaching solicitation and gives a suitable Handler Execution Chain. At that point the Dispatcher Servlet will execute the controller and interceptors in the chain. A few instances of controller mappings are as per the following.

- Bean Name Url Handler Mapping -It is an incredible controller planning. It maps the approaching HTTP solicitations to names of the beans which are as of now characterized in the web application setting.
- Simple Url Handler Mapping -It is more impressive than the past controller planning. This is configurable in the application setting. It has subterranean insect Style way coordinating with abilities.

VI. CONTROLLER

The admittance to the application conduct is given by the regulators which is characterized by an assistance interface. Regulators decipher client include and change it to a reasonable model which will be addressed to the client by see. Spring executes a regulator in a theoretical manner, which empowers you to make a wide assortment of regulators. The @Controller explanation shows that a specific class serves the part of a regulator. The @RequestMapping comment is utilized to plan a URL to either a whole class or a specific controller strategy. A few instances of regulators are order based regulators, structure explicit regulators.

VII. VIEW RESOLVER

All MVC frameworks for web applications provide a way to address views. In spring the view resolver helps you to render models in a browser unlike other platforms ties you to a specific view technology. The two main interfaces which are important are *View* and *ViewResolver*.

- The *view* interface addresses the preparation of the request and then hands the request to one of the view technologies.
- The *ViewResolver* provides a mapping between view names and actual views.

All controllers in spring MVC framework return a Model And View instance. In spring views are addressed by a view name and view resolver resolves it. Some of the view Resolvers are Abstract Caching View Resolver, Xml View Resolver, Resource Bundle View Resolver, Velocity View Resolver, Internal Resource View Resolver, Url Based View Resolver

VIII. ADVANTAGES OF SPRING MVC

There are numerous design advantages of Spring structure. They can be portrayed as follows [3]:

- Spring Framework can be viably utilized with different structures like swaggers, sleep.
- Spring gives simple admittance to data set by utilizing sleep structure and staying away from the treatment of blunder system.
- Applications created utilizing this system relies upon not many APIs.
- Due to its Inversion of Control include the measure of time required for testing the code is less.
- Because spring is a layered engineering client can choose which of its segments can be utilized.
- The Spring Web MVC structure is powerful, adaptable and very much intended for quickly creating web applications.
- Spring Web MVC gives regulators so that treatment of numerous solicitations from UI gets simpler.

- Spring Framework can work adequately with J2EE for creating applications in a compelling way.

IX. PROPOSED SOLUTION

The underneath fig1.4 addresses the block diagram of the proposed system. Here the Admin/User can Register/Login. Assuming the client is new they need to enlist at first, they can login. The login id, encrypted passwords are put away in the data set which can be overseen by the administrator. In the dashboard the administrator has choices to oversee courses. Administrator can add/delete courses, view student details, manage activity log details, client authorizations, etc.

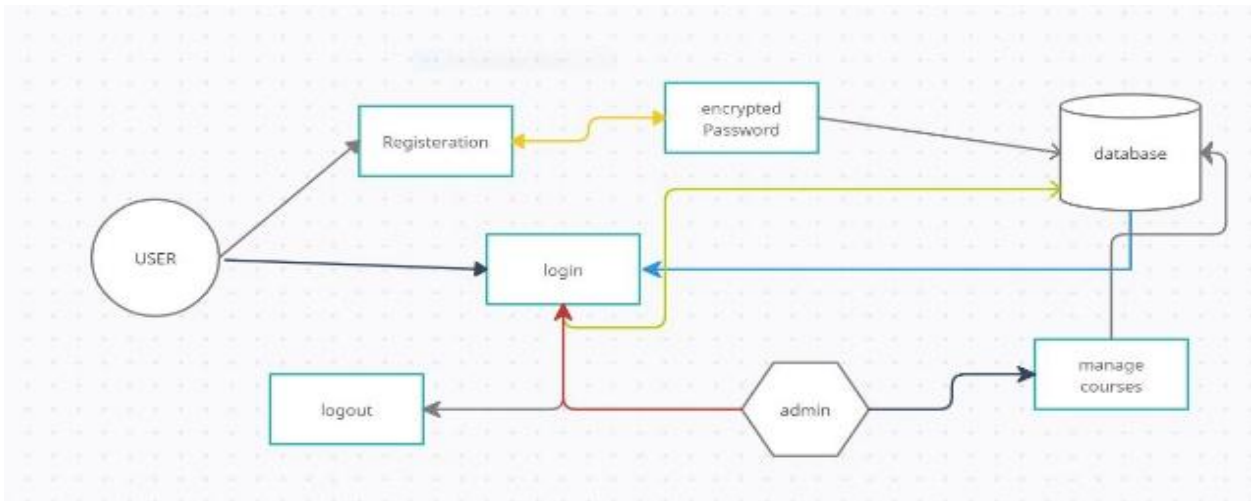


Fig:1.4 Proposed Solution

The instructors are given the authority to oversee and add courses, study materials and can conduct assessments. The student can select and learn courses. They additionally can explore into different segments like test modules, task modules. This platform is free for all the users. Thus, all requirements of the students for learning is integrated in this single platform.

X. CONCLUSION

With the advancement of the web in the period of information driven economy, e-learning is encountering fast development. The online learning through websites is drawing more attention as well. Since our proposed solution is based on current acceptance model, we are providing all the requirements for learning. So that the students can meet all their requirements in one single platform. e-learning isn't simply an amendment of technology. it's a part of a definition of however we tend to as a species transmit data, skills, and values to younger generations of staff and students.

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