

UNNATI-The Exam Portal

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Abstract: *The life after pandemic has been most of us working from the comforts of our home, every single task that we used to do daily has become much more difficult because of the pandemic. We all know that work will never be the same, even if we do not yet know all the ways in which it will be different. One of things which all students did was, giving examinations. In today's pandemic affected world we are trying to bring ease to this painstaking process by introducing a safe and reliable exam hub-UNNATI to the students as well as teachers who are in dire need of a reliable option for the given purpose. This solution is also very environment friendly as it is online and results in saving a lot of paper. Also, it will provide a single destination for all examination needs at a minimum cost for the students and institutes.*

Keywords: Examination, Technology, Pandemic

I. INTRODUCTION

Most examination solutions present in the market today are either non proctored or if they are proctored, they are very expensive to use. Every student cannot afford and should not have to afford such basic needs when it comes to testing their knowledge. UNNATI, provides them a great solution.

- Anyone can use this system as it is not client centric, but it will be more beneficial and basically for testing needs.
- All examination processes' related work for the user can be done using this system.
- It will provide all the papers in one place both for the teachers and students
- Application Support & Maintenance after deployment to production.
- Provides a robust network between the teachers and students.
- Students can easily analyze his/her strong and weak areas with the help of UNNATI.

II. LITERATURE REVIEW

Ghonge, Bag and Singh (2020) say that education has been a needed since dawn of the society and it to test whether the education has been imparted properly, the role of testing it becomes even more important. The approach to education in earlier times was way different than what it is today. In 21st century practical knowledge is considered way more important for students. Along with education, the way of teaching and the way of conducting these examinations has also changed [1].

Earlier students used to stay at their guru's house, known as the gurukul and give the examination. Today students go to schools, colleges or universities to give their examinations. But when the pandemic hit us, it created a huge question in front of everyone as their was no alternative solution ready and if the solution was ready, most people were unfamiliar with how to use it.

Rangat, Singh, Jamadar, Salunke and Chavan (2018) concluded that Online Examination System is a computerized system which gives instant results and saves time. It is implemented by web based online examination software or through Intranet variance .It decreases the need of supervision during the exam is being examine or taken using web based Online Examination System gives a high level of clarity as opposite of traditional method. Most of Online Examination System gives the result and instantly. In schools and colleges, Online Examination System is able to reduce the workload of teachers by using automated test paper exams and marking schemes [2]

Bucea Manea-Tonis (2016) found in her research on **Angular JS-The newest technology in creating web applications** that Angular JS makes developing single page web applications easy even for those not accustomed with JavaScript or jQuery. Even more it provides the separation of application logic, data models and views a task that is needed employment

of large frameworks in the past. It is also very suitable for service integration and inherits dependency injection design patterns from the various aspects of oriented programming.[3]

Use of automation tools like Maven has enhanced the overall working of the website. JPA helped us in managing and persisting the data between our Java objects and its use along with hibernate helped us store the data in RDBMS.

III. PROBLEM FORMULATION

The current systems for examination have some advantages and disadvantages like, the ones that are proctored are expensive, and the ones that are cheap and affordable, have no way of controlling malpractise.

After the coronavirus pandemic students are not going to schools and colleges and therefore, they cannot give exams in pen-paper mode. The system is made in such a way that it counts every choice made as an ingredient in a recipe and all these ingredients come together to make a great dish. We ourselves have been through that process and wanted to come up with a solution that would help not only us but the future generations.

Many institutes were faced with the problem of conducting examination once the pandemic hit and this solution will be useful long after the pandemic is over.

Thus, the system implemented has the following objectives-

- **Objective 1-** A user friendly examination platform for both the teachers and students.
- **Objective 2-** Reduce the cost of the conducting examinations online .
- **Objective 3-** Getting rid of scattered data for both teachers and students.

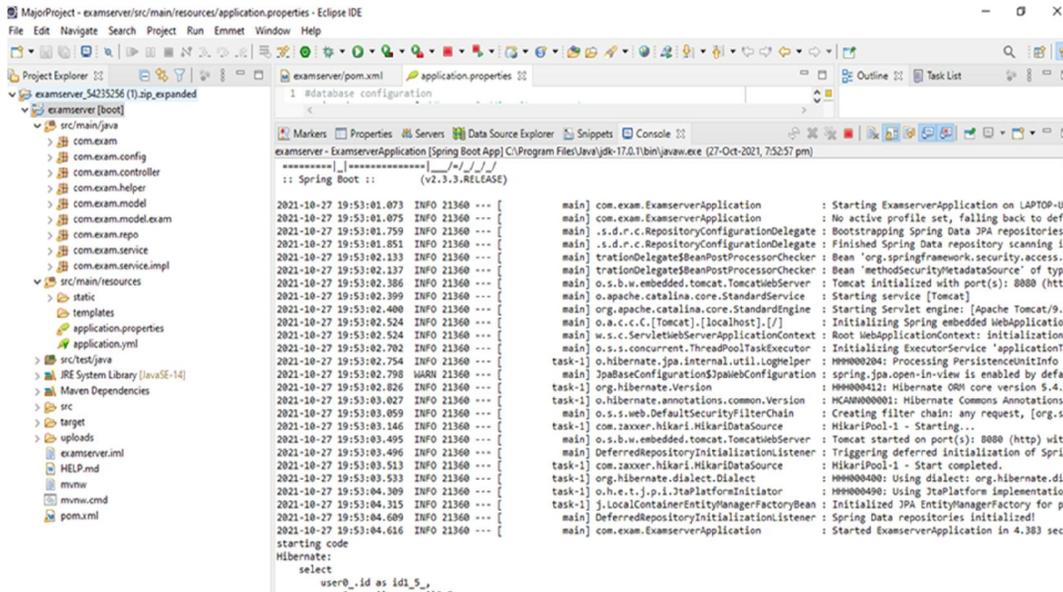
IV. METHODOLOGY

We used tools like sublime and eclipse to create the user interface in such a way that it is attractive and easy to use for the end user alongside being convenient and the for the creating the various classes such as controller, service, repository along with the test classes eclipse IDE was used. The use of tools like eclipse and proper naming convention made sure that we were working at industry standards.

To train and test the system properly multiple inputs were given from both the admin and the user side in this case multiple quizzes with multiple number of questions were fed into the system and attempted in a given amount of time to check the correctness usability and implementation of the system.

Various tools were used for backend implementation such as eclipse. Visual Studio, swagger ui and many more. Using multiple tools provided us great sense of flexibility as using multiple aspects of these tools helped us in creating the best possible version of our project.

We had to take care of service storage in this case as multiple teachers would feed multiple quizzes or multiple examination papers into the system and multiple students would give answers to those papers this would result in abundance of data which could create a problem in the server therefore the server storage was one of our main priorities and it was studied and tested in a great manner. So in this case MySQL was the best possible option. We used swagger UI initially to test our database and then went onto link the frontend and backend of the project. This ensured that all the data storage components were working smoothly before the final implementation.



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examserver - ExamserverApplication [Spring Boot App] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (27-Oct-2021, 7:52:57 pm)
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:: Spring Boot ::
(v2.3.3.RELEASE)

2021-10-27 19:53:01.073 INFO 21360 --- [main] com.exam.ExamserverApplication : Starting ExamserverApplication on LAPTOP-U
2021-10-27 19:53:01.075 INFO 21360 --- [main] com.exam.ExamserverApplication : No active profile set, falling back to def
2021-10-27 19:53:01.759 INFO 21360 --- [main] s.i.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories
2021-10-27 19:53:01.851 INFO 21360 --- [main] s.i.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning i
2021-10-27 19:53:02.133 INFO 21360 --- [main] trationDelegatesBeanPostProcessorChecker : Bean 'org.springframework.security.access
2021-10-27 19:53:02.137 INFO 21360 --- [main] trationDelegatesBeanPostProcessorChecker : Bean 'methodSecurityMetadataSource' of typ
2021-10-27 19:53:02.386 INFO 21360 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8080 (htt
2021-10-27 19:53:02.399 INFO 21360 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2021-10-27 19:53:02.400 INFO 21360 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.
2021-10-27 19:53:02.524 INFO 21360 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded Webapplicatio
2021-10-27 19:53:02.524 INFO 21360 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initializ
2021-10-27 19:53:02.702 INFO 21360 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'application
2021-10-27 19:53:02.754 INFO 21360 --- [task-1] o.hibernate.jpa.internal.util.LogHelper : HHH000204: Processing PersistenceUnitInfo
2021-10-27 19:53:02.798 WARN 21360 --- [main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by defa
2021-10-27 19:53:02.826 INFO 21360 --- [task-1] org.hibernate.Version : HHH000412: Hibernate ORM core version 5.4.
2021-10-27 19:53:03.027 INFO 21360 --- [task-1] o.hibernate.annotations.common.Version : HCANN000001: Hibernate Commons Annotations
2021-10-27 19:53:03.059 INFO 21360 --- [main] o.s.s.web.DefaultSecurityFilterChain : Creating filter chain: any request, [org.s
2021-10-27 19:53:03.146 INFO 21360 --- [task-1] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Starting...
2021-10-27 19:53:03.495 INFO 21360 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http) wit
2021-10-27 19:53:03.496 INFO 21360 --- [main] DeferredRepositoryInitializationListener : Triggering deferred initialization of Spr
2021-10-27 19:53:03.513 INFO 21360 --- [task-1] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Start completed.
2021-10-27 19:53:03.533 INFO 21360 --- [task-1] org.hibernate.dialect.Dialect : HHH000400: Using dialect: org.hibernate.di
2021-10-27 19:53:04.309 INFO 21360 --- [task-1] o.h.e.t.j.p.i.JpaPlatformInitiator : HHH000400: Using JpaPlatform implementatio
2021-10-27 19:53:04.315 INFO 21360 --- [task-1] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for p
2021-10-27 19:53:04.609 INFO 21360 --- [main] DeferredRepositoryInitializationListener : Spring Data repositories initialized!
2021-10-27 19:53:04.616 INFO 21360 --- [main] com.exam.ExamserverApplication : Started ExamserverApplication in 4.383 sec
  
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Figure 1: Implementation in Eclipse (Source-Self Generated)

V. RESULTS

We created an interface that is resultant of integration of Angular and Hibernate with Java ,that is going to turn out very useful for a students and teachers on different stages of their educational career.

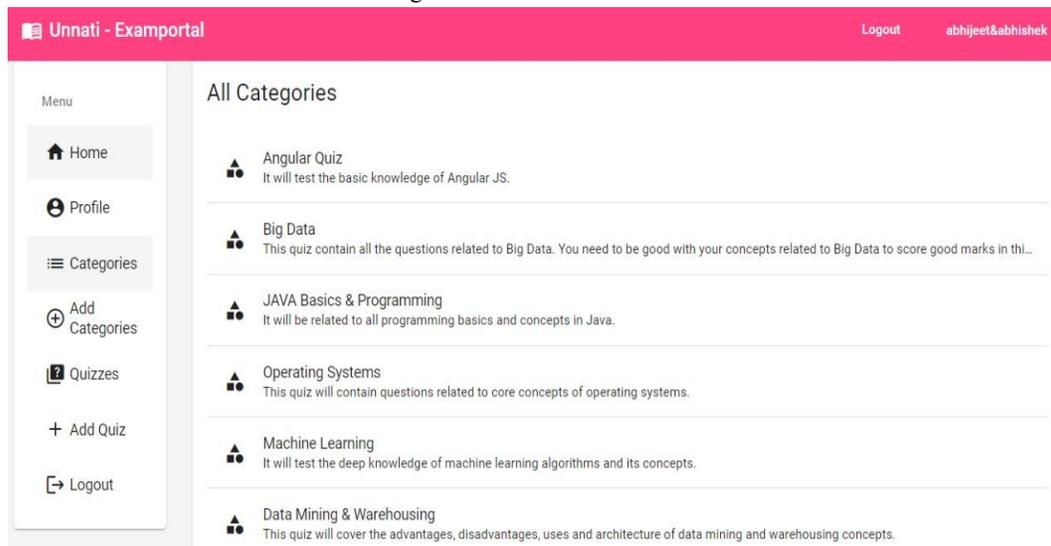


Figure 2: User Interface (Source-Self Generated)

VI. CONCLUSION

The aim of the project was to create an online examination portal that is reliable on all fronts for the teachers as well as the students using it. We want to make sure that the teachers conducting the examination are sure that this platform is safe from student malpractice. Students also have a reliable platform where at one place they will be able to get all the tests and their result. This concise solution will save them time and space.

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