Online Test Application

Introduction

The application helps conduct online quiz. It uses H2 database to store data. Command Runner is used to insert questions and their corresponding answers. The backend is made using Spring Boot and frontend is made using Angular.

The Table Entity Classes used are:

The Question class:	Stores the question Text.
The Answer Option Class	Stores the option text. 4 answeroption is mapped to one question. Thus making a many to one relationship. It stores the question_id as a foreign key
The User Class	Stores the user name and User id
The Quiz Response Class	Stores the response of the user. It consists of user_id(foreign key referencing user (Many to one)), question_id(foreign key referencing Question(Many to one)) and AnswerOption_id(foreign key referencing Answer Option(Many to one))

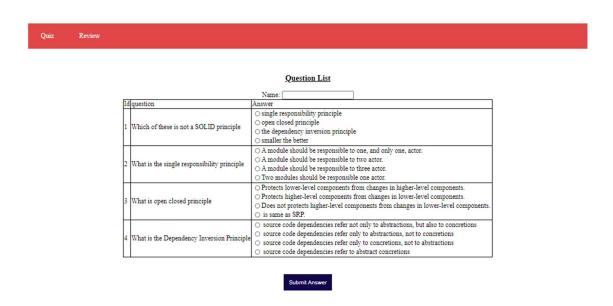The database was designed to minimize duplication of data and also minimize occurrence of nulls.
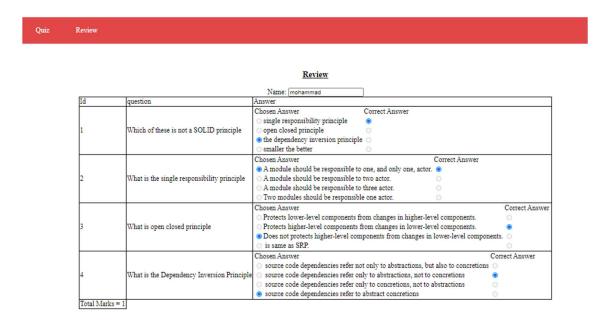
Spring Boot App

The Dao classes were used to handle data manipulations one per Entity. The controllers handle the requests to Get All Questions, Store User Response, Get responses by a specific user id. Get all users. In this way all quiz attempts are stored. Any old attempt can be viewed again.
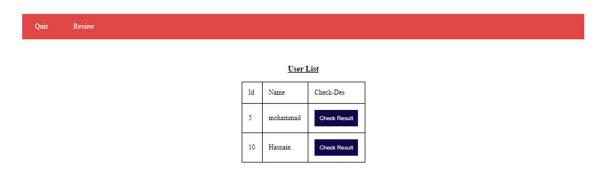
Angular Frontend

The Quiz component uses radio buttons to display the Answers. The questions are displayed besides them.

Quiz	Review

Question List

Name: [   ]

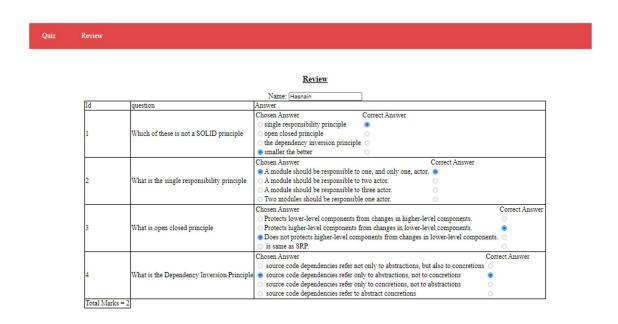| Id	question	Answer
1	Which of these is not a SOLID principle	○ single responsibility principle ○ open closed principle ○ the dependency inversion principle ○ smaller the better
2	What is the single responsibility principle	○ A module should be responsible to one, and only one, actor. ○ A module should be responsible to two actor. ○ A module should be responsible to three actor. ○ Two modules should be responsible one actor.
3	What is open closed principle	○ Protects lower-level components from changes in higher-level components. ○ Protects higher-level components from changes in lower-level components. ○ Does not protects higher-level components from changes in lower-level components. ○ is same as SRP.
4	What is the Dependency Inversion Principle	○ source code dependencies refer not only to abstractions, but also to concretions ○ source code dependencies refer only to abstractions, not to concretions ○ source code dependencies refer only to concretions, not to abstractions ○ source code dependencies refer to abstract concretions

[Submit Answer]

The Result component is directly called when the quiz is submitted and it shows the responses and the current answers side by side. Total Marks are displayed at the bottom

Quiz	Review

Review

Name: [mohammad]

Id	question	Answer
1	Which of these is not a SOLID principle	**Chosen Answer** / **Correct Answer** ○ single responsibility principle — ● ○ open closed principle — ○ ● the dependency inversion principle — ○ ○ smaller the better — ○
2	What is the single responsibility principle	**Chosen Answer** / **Correct Answer** ● A module should be responsible to one, and only one, actor. — ● ○ A module should be responsible to two actor. — ○ ○ A module should be responsible to three actor. — ○ ○ Two modules should be responsible one actor. — ○
3	What is open closed principle	**Chosen Answer** / **Correct Answer** ○ Protects lower-level components from changes in higher-level components. — ○ ○ Protects higher-level components from changes in lower-level components. — ● ● Does not protects higher-level components from changes in lower-level components. — ○ ○ is same as SRP. — ○
4	What is the Dependency Inversion Principle	**Chosen Answer** / **Correct Answer** ○ source code dependencies refer not only to abstractions, but also to concretions — ○ ○ source code dependencies refer only to abstractions, not to concretions — ● ○ source code dependencies refer only to concretions, not to abstractions — ○ ● source code dependencies refer to abstract concretions — ○

Total Marks = 1

All the attempts can be seen clicking on the **Review** button

Quiz	Review

User List

Id	Name	Check-Des
5	mohammad	Check Result
10	Hasnain	Check Result

The **check Result button** loads the responses of a specific users and shows on the Result screen

Quiz	Review

Review

Name: Hasnain

Id	question	Answer		
		Chosen Answer		Correct Answer
1	Which of these is not a SOLID principle	○ single responsibility principle		●
		○ open closed principle		○
		○ the dependency inversion principle	○	
		● smaller the better		○
		Chosen Answer		Correct Answer
2	What is the single responsibility principle	● A module should be responsible to one, and only one, actor.	●	
		○ A module should be responsible to two actor.		○
		○ A module should be responsible to three actor.		○
		○ Two modules should be responsible one actor.		○
		Chosen Answer		Correct Answer
3	What is open closed principle	○ Protects lower-level components from changes in higher-level components.		○
		○ Protects higher-level components from changes in lower-level components.		●
		● Does not protects higher-level components from changes in lower-level components.	○	
		○ is same as SRP.		○
		Chosen Answer		Correct Answer
4	What is the Dependency Inversion Principle	○ source code dependencies refer not only to abstractions, but also to concretions	○	
		● source code dependencies refer only to abstractions, not to concretions		●
		○ source code dependencies refer only to concretions, not to abstractions		○
		○ source code dependencies refer to abstract concretions		○
Total Marks = 2				

The textboxes and Radio buttons on the Result screen is disabled to avoid confusion

How to run the project:

1) Clone the repository
2) Cd to the repository root
3) Open the Spring boot app named QuizApi (reporoot/api/QuizApi) in the Spring Tool Kit.
4) Do Maven Update
5) Run as spring boot App.
6) Open the QuizAng (reporoot/ frontend/QuizAng) Angular project in Visual Studio Code(Optional)
7) Cd to reporoot/ frontend/QuizAng
8) Run command "ng serve --o" to launch the angular project in the default browser(http://localhost:4200/)
9) You can now use the Application