**Source Code**

1. **Code for angular quiz- “angular.json”**

{

    "id": 1,

    "name": "Angular Online Quiz",

    "description": "Angular Quiz (based on basic concepts)",

    "questions": [

        {

            "id": 1010,

            "name": "Which of the following is not a core AngularJS directive.",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "ng-app",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "ng-model",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "ng-bind",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "ng-state",

                    "isAnswer": true

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1011,

            "name": "Which of the following is true about lowercase filter?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "Lowercase filter converts a text to lower case text.",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Lowercase filter is a function which takes text as input.",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Both of the above.",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of the above.",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1012,

            "name": " Who is sometimes called as father of Angularjs?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "Brad Green",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Misko Hevery",

                    "isAnswer": true

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Brad Richardson",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "Chuck Jazdzewski",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1013,

            "name": "Which of the following is correct about TypeScript?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "Angular is based on TypeScript.",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "This is a superset of JavaScript.",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "TypeScript is maintained by Microsoft.",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "All of the above.",

                    "isAnswer": true

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1014,

            "name": "What is the decorator used for configuring your module class?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "@NgModule",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "@NgApp",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Both",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1015,

            "name": "Which angular decorator allows us to define the pipe name that is globally available for use in any template in the across application?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "pipeName",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "pipeDeco",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Pipe",

                    "isAnswer": true

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of the above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1016,

            "name": "Router is part of which of the following module?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "@angular/core",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "@angular/router",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Both",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of the above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1017,

            "name": "Which character is used for chaining multiple pipes?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "|",

                    "isAnswer": true

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": ":",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Both",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of the above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1018,

            "name": "What does AOT stand for?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "ahead-of-time compilation",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Angular Object Templates",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Angular Object Templates",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of the above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1019,

            "name": "Which of the following is correct about package.json?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "This file is used to give the options about TypeScript used for the Angular JS project.",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "This file contains information about Angular project.",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "This file contains the system files required for Angular JS application.",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "All of the above.",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        }

    ]

}

1. **Code for javascript quiz- “javascript.json”**

{

    "id": 1,

    "name": "JSON Online Quiz",

    "description": "JSON Quiz (Basic Multiple Choice Questions for Developers)",

    "questions": [

        {

            "id": 1010,

            "name": "JSON Stands for \_\_\_\_\_\_\_\_?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "Java Standard Output Network",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "JavaScript Object Notation",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "JavaScript Output Name",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "Java Source Open Network",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1011,

            "name": "Which of the following is not a type in JSON ?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "date",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "object",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Array",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "string",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1012,

            "name": "Who is the Father of JSON?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "Douglas Crockford",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Rasmus Lerdorf",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Douglas Michel",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "Dennis Ritchie",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1013,

            "name": "What extension is used to save a JSON file?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": ".json",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": ".js",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": ".javaN",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": ".on",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1014,

            "name": "JSON string have used in \_\_\_\_\_\_\_\_\_\_\_\_",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "Duoble Quote",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Single Quote",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "Both 1 & 2",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of the above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1015,

            "name": "JSON elements are separated by the \_\_\_\_\_\_",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "line break",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "Semi-Colon",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "comma",

                    "isAnswer": true

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "white-space",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1016,

            "name": "The MIME type of JSON is \_\_\_\_\_",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "application/json",

                    "isAnswer": true

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "application/x-json",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "application/javascript",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "text/json",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1017,

            "name": "What is the common usage of JSON on modern websites?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "To store information remotely",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "To send and receive bits of data",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "To store information locally",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "All of the Above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1018,

            "name": "Which of the following code will throw an error?",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "JSON.parse(‘{}’);",

                    "isAnswer": false

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "JSON.parse(null);",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "JSON.parse(undefined);",

                    "isAnswer": true

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "JSON.parse(‘[]’);",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        },

        {

            "id": 1019,

            "name": "\_\_\_\_\_\_\_ is not a valid way to parse JSON string",

            "questionTypeId": 1,

            "options": [

                {

                    "id": 1055,

                    "questionId": 1010,

                    "name": "JSON.parse()",

                    "isAnswer": false

                },

                {

                    "id": 1056,

                    "questionId": 1010,

                    "name": "JSON.eval()",

                    "isAnswer": true

                },

                {

                    "id": 1057,

                    "questionId": 1010,

                    "name": "jQuery.parseJSON()",

                    "isAnswer": false

                },

                {

                    "id": 1058,

                    "questionId": 1010,

                    "name": "None of the above",

                    "isAnswer": false

                }

            ],

            "questionType": {

                "id": 1,

                "name": "Multiple Choice",

                "isActive": true

            }

        }

    ]

}

1. **“quiz.component.ts”**

import { Component, OnInit } from '@angular/core';

import { QuizService } from '../services/quiz.service';

import { HelperService } from '../services/helper.service';

import { Option, Question, Quiz, QuizConfig } from '../models/index';

@Component({

  selector: 'app-quiz',

  templateUrl: './quiz.component.html',

  styleUrls: ['./quiz.component.css'],

  providers: [QuizService]

})

export class QuizComponent implements OnInit {

  quizes: any[];

  quiz: Quiz = new Quiz(null);

  mode = 'quiz';

  quizName: string;

  config: QuizConfig = {

    'allowBack': true,

    'allowReview': true,

    'autoMove': false,  // if true, it will move to next question automatically when answered.

    'duration': 600,  // indicates the time (in secs) in which quiz needs to be completed. 0 means unlimited.

    'pageSize': 1,

    'requiredAll': false,  // indicates if you must answer all the questions before submitting.

    'richText': false,

    'shuffleQuestions': false,

    'shuffleOptions': false,

    'showClock': false,

    'showPager': true,

    'theme': 'none'

  };

  pager = {

    index: 0,

    size: 1,

    count: 1

  };

  timer: any = null;

  startTime: Date;

  endTime: Date;

  ellapsedTime = '00:00';

  duration = '';

  constructor(private quizService: QuizService) { }

  ngOnInit() {

    this.quizes = this.quizService.getAll();

    this.quizName = this.quizes[0].id;

    this.loadQuiz(this.quizName);

  }

  loadQuiz(quizName: string) {

    this.quizService.get(quizName).subscribe(res => {

      this.quiz = new Quiz(res);

      this.pager.count = this.quiz.questions.length;

      this.startTime = new Date();

      this.ellapsedTime = '00:00';

      this.timer = setInterval(() => { this.tick(); }, 1000);

      this.duration = this.parseTime(this.config.duration);

    });

    this.mode = 'quiz';

  }

  tick() {

    const now = new Date();

    const diff = (now.getTime() - this.startTime.getTime()) / 1000;

    if (diff >= this.config.duration) {

      this.onSubmit();

    }

    this.ellapsedTime = this.parseTime(diff);

  }

  parseTime(totalSeconds: number) {

    let mins: string | number = Math.floor(totalSeconds / 60);

    let secs: string | number = Math.round(totalSeconds % 60);

    mins = (mins < 10 ? '0' : '') + mins;

    secs = (secs < 10 ? '0' : '') + secs;

    return `${mins}:${secs}`;

  }

  get filteredQuestions() {

    return (this.quiz.questions) ?

      this.quiz.questions.slice(this.pager.index, this.pager.index + this.pager.size) : [];

  }

  onSelect(question: Question, option: Option) {

    if (question.questionTypeId === 1) {

      question.options.forEach((x) => { if (x.id !== option.id) x.selected = false; });

    }

    if (this.config.autoMove) {

      this.goTo(this.pager.index + 1);

    }

  }

  goTo(index: number) {

    if (index >= 0 && index < this.pager.count) {

      this.pager.index = index;

      this.mode = 'quiz';

    }

  }

  isAnswered(question: Question) {

    return question.options.find(x => x.selected) ? 'Answered' : 'Not Answered';

  };

  isCorrect(question: Question) {

    return question.options.every(x => x.selected === x.isAnswer) ? 'correct' : 'wrong';

  };

  onSubmit() {

    let answers = [];

    this.quiz.questions.forEach(x => answers.push({ 'quizId': this.quiz.id, 'questionId': x.id, 'answered': x.answered }));

    // Post your data to the server here. answers contains the questionId and the users' answer.

    console.log(this.quiz.questions);

    this.mode = 'result';

  }

}

1. **To retrieve quiz json file - “quiz.service.ts”**

import { HttpClient } from '@angular/common/http';

import { Injectable } from '@angular/core';

@Injectable()

export class QuizService {

  constructor(private http: HttpClient) { }

  get(url: string) {

    return this.http.get(url);

  }

  getAll() {

    return [

      { id: 'data/angular.json', name: 'Angular' },

      { id: 'data/javascript.json', name: 'JavaScript' },

    ];

  }

}

1. **Quiz View (HTML Template) - “quiz.component.html”**

  <div class="row">

    <div class="col-6">

      <h2>Online Test Application</h2>

    </div>

    <div class="col-6 text-right">

      Select Quiz Type:

      <select [(ngModel)]="quizName" (change)="loadQuiz(quizName)">

        <option \*ngFor="let quiz of quizes" [value]="quiz.id">{{quiz.name}}</option>

      </select>

    </div>

  </div>

  <div id="quiz">

    <h2 class="text-center font-weight-normal">{{quiz.name}}</h2>

    <hr />

    <div \*ngIf="mode=='quiz' && quiz">

      <div \*ngFor="let question of filteredQuestions;">

        <div class="badge badge-info">Question {{pager.index + 1}} / {{pager.count}}.</div>

        <div \*ngIf="config.duration" class="badge badge-info float-right">Time: {{ellapsedTime}} / {{duration}}</div>

        <h3 class="font-weight-normal">{{pager.index + 1}}.

          <span [innerHTML]="question.name"></span>

        </h3>

        <div class="row text-left options">

          <div class="col-6" \*ngFor="let option of question.options">

            <div class="option">

              <label class="font-weight-normal" [attr.for]="option.id">

                <input id="{{option.id}}" type="checkbox" [(ngModel)]="option.selected" (change)="onSelect(question, option);" /> {{option.name}}

              </label>

            </div>

          </div>

        </div>

      </div>

      <hr />

      <div class="text-center">

        <button class="btn btn-default" \*ngIf="config.allowBack" (click)="goTo(0);">First</button>

        <button class="btn btn-default" \*ngIf="config.allowBack" (click)="goTo(pager.index - 1);">Prev</button>

        <button class="btn btn-primary" (click)="goTo(pager.index + 1);">Next</button>

        <button class="btn btn-default" \*ngIf="config.allowBack" (click)="goTo(pager.count - 1);">Last</button>

        <!-- <pagination \*ngIf="config.showPager" direction-links="false" total-items="totalItems" items-per-page="itemsPerPage" ng-model="currentPage" ng-change="pageChanged()"></pagination> -->

      </div>

    </div>

    <div class="row text-center" \*ngIf="mode=='review'">

      <div class="col-4 cursor-pointer" \*ngFor="let question of quiz.questions; let index = index;">

        <div (click)="goTo(index)" class="p-3 mb-2 {{ isAnswered(question) == 'Answered'? 'bg-info': 'bg-warning' }}">{{index + 1}}. {{ isAnswered(question) }}</div>

      </div>

    </div>

    <div class="result" \*ngIf="mode=='result'">

      <h2>Quiz Result</h2>

      <div \*ngFor="let question of quiz.questions; let index = index">

        <div class="result-question">

          <h5>{{index + 1}}. {{question.name}}</h5>

          <div class="row">

            <div class="col-6" \*ngFor="let Option of question.options">

              <input id="{{Option.id}}" type="checkbox" disabled="disabled" [(ngModel)]="Option.selected" /> {{Option.name}}

            </div>

          </div>

          <div class="p-1 m-2 alert {{ isCorrect(question) == 'correct'? 'alert-success': 'alert-danger'}}">Your answer is {{isCorrect(question)}}.</div>

        </div>

      </div>

      <h4 class="alert alert-info text-center">You may close this window now.</h4>

    </div>

    <hr />

    <div class = "text-center" \*ngIf="mode!='result'">

      <button class="btn btn-warning" (click)="mode = 'quiz'">Quiz</button>

      <button class="btn btn-info" (click)="mode = 'review'">Review</button>

      <button class="btn btn-primary" (click)="onSubmit();">Submit Quiz</button>

    </div>

  </div>

1. **For styling - “style.css”**

.btn{

    border-radius: 0;

}

.option{

    background-color:#cadaee;

    font-size:20px;

    padding:10px;

    margin:3px;

}

    #quiz .options input[type=checkbox] {

        height:22px;

        width:22px;

    }

.cursor-pointer{

    cursor: pointer;

}

.result-question{

    background-color:#eee;

    margin:4px;

    padding:6px;

}

@media only screen and (max-width: 480px) {

    h1,.h1{

        font-size:22px;

    }

    h2,.h2{

        font-size:20px;

    }

    h3,.h3{

        font-size:18px;

    }

    .option {

        font-size: 16px;

        padding: 6px;

    }

}

1. **“package.json”**

{

  "name": "quiz-app",

  "version": "0.0.3",

  "author": "Manish Kumar Arora",

  "scripts": {

    "ng": "ng",

    "start": "ng serve",

    "build": "ng build",

    "test": "ng test",

    "lint": "ng lint",

    "e2e": "ng e2e"

  },

  "private": true,

  "dependencies": {

    "@angular/animations": "^8.0.2",

    "@angular/common": "^8.0.2",

    "@angular/compiler": "^8.0.2",

    "@angular/core": "^8.0.2",

    "@angular/forms": "^8.0.2",

    "@angular/platform-browser": "^8.0.2",

    "@angular/platform-browser-dynamic": "^8.0.2",

    "@angular/router": "^8.0.2",

    "bootstrap": "^4.1.1",

    "core-js": "^3.1.4",

    "jquery": "^3.3.1",

    "rxjs": "^6.0.0",

    "zone.js": "^0.9.1"

  },

  "devDependencies": {

    "@angular-devkit/build-angular": "~0.800.3",

    "@angular/cli": "~8.0.3",

    "@angular/compiler-cli": "^8.0.2",

    "@angular/language-service": "^8.0.2",

    "@types/jasmine": "~3.3.13",

    "@types/jasminewd2": "~2.0.3",

    "@types/node": "^12.0.10",

    "codelyzer": "~5.1.0",

    "jasmine-core": "~3.4.0",

    "jasmine-spec-reporter": "~4.2.1",

    "karma": "~4.1.0",

    "karma-chrome-launcher": "~2.2.0",

    "karma-coverage-istanbul-reporter": "~2.0.5",

    "karma-jasmine": "~2.0.1",

    "karma-jasmine-html-reporter": "^1.4.2",

    "protractor": "~5.4.2",

    "ts-node": "~8.3.0",

    "tslint": "~5.17.0",

    "typescript": "3.4.5"

  }

}

**Models files:**

1. **“index.ts”**

export \* from './option';

export \* from './question';

export \* from './quiz';

export \* from './quiz-config';

1. **“option.ts”**

export class Option {

    id: number;

    questionId: number;

    name: string;

    isAnswer: boolean;

    selected: boolean;

    constructor(data: any) {

        data = data || {};

        this.id = data.id;

        this.questionId = data.questionId;

        this.name = data.name;

        this.isAnswer = data.isAnswer;

    }

}

1. **“question.ts”**

import { Option } from './option';

export class Question {

    id: number;

    name: string;

    questionTypeId: number;

    options: Option[];

    answered: boolean;

    constructor(data: any) {

        data = data || {};

        this.id = data.id;

        this.name = data.name;

        this.questionTypeId = data.questionTypeId;

        this.options = [];

        data.options.forEach(o => {

            this.options.push(new Option(o));

        });

    }

}

1. **“quiz-config.ts”**

export class QuizConfig {

    allowBack: boolean;

    allowReview: boolean;

    autoMove: boolean;  // if boolean; it will move to next question automatically when answered.

    duration: number;  // indicates the time in which quiz needs to be completed. 0 means unlimited.

    pageSize: number;

    requiredAll: boolean;  // indicates if you must answer all the questions before submitting.

    richText: boolean;

    shuffleQuestions: boolean;

    shuffleOptions: boolean;

    showClock: boolean;

    showPager: boolean;

    theme: string;

    constructor(data: any) {

        data = data || {};

        this.allowBack = data.allowBack;

        this.allowReview = data.allowReview;

        this.autoMove = data.autoMove;

        this.duration = data.duration;

        this.pageSize = data.pageSize;

        this.requiredAll = data.requiredAll;

        this.richText = data.richText;

        this.shuffleQuestions = data.shuffleQuestions;

        this.shuffleOptions = data.shuffleOptions;

        this.showClock = data.showClock;

        this.showPager = data.showPager;

    }

}

1. **“quiz.ts”**

import { QuizConfig } from './quiz-config';

import { Question } from './question';

export class Quiz {

    id: number;

    name: string;

    description: string;

    config: QuizConfig;

    questions: Question[];

    constructor(data: any) {

        if (data) {

            this.id = data.id;

            this.name = data.name;

            this.description = data.description;

            this.config = new QuizConfig(data.config);

            this.questions = [];

            data.questions.forEach(q => {

                this.questions.push(new Question(q));

            });

        }

    }

}