Lab 7

Question 1:

This is a quiz system which allows students to take quizzes, get each student's quiz score and compute average score of students.

Use constructor function to implement Student, Question and Quiz.

Student:

properties:

studentId: a unique student id. it is number type.

answers: holds an array that records the student's answers for the questions.

method:

addAnswer(question) - add student's question(id, answer) to answers array.

Question: properties:

qid: unique quesiton id. it is number type.

answer: hold quiz correct answer or student's answer. It is string type.

method:

checkAnswer(answer) - used to check if student's answer is correct. It receives string value which is answer and returns boolean value.

Quiz:

properties:

questions: It's a Map which holds question id and correct answers. The key is question id, the value is the correct answer for this question. You need to convert the given array to the map data structure in the constructor function. // About Map: https://javascript.info/map-set

students: an array holds all students.

methods:

- *scoreStudentBySid(sid)*, computes the quiz score for this student
- *getAverageScore()*, computes the average score over all students

After you complete the Question, Student and Quiz classes, we may use the system as below:

Your system should return the correct result for `getAverageScore()` and `scoreStudentBySid(sid)` as the expected result.

```
const student1 = new Student(10);
student1.addAnswer(new Question(2, 'a'));
student1.addAnswer(new Question(3, 'b'));
student1.addAnswer(new Question(1, 'b'));
const student2 = new Student(11);
student2.addAnswer(new Question(3, 'b'));
student2.addAnswer(new Question(2, 'a'));
student2.addAnswer(new Question(1, 'd'));
const students = [student1, student2];
const questions =[new Question(1, 'b'), new Question(2, 'a'), new
Question(3, 'b')];
const quiz = new Quiz(questions, students);
let scoreforStudent10 = quiz.scoreStudentBySid(10);
console.log(scoreforStudent10); //Expected Result: 3
let scoreforStudent11 = quiz.scoreStudentBySid(11);
console.log(scoreforStudent11); //Expected Result: 2
let average = quiz.getAverageScore();
console.log(average); //Expected Reuslt: 2.5
```

Question 2:

Redo Question 1 using the class syntax and draw the prototypal inheritance diagram based on an implementation of the class syntax.

Question 3:
Complete the following class and test it with dummy data:

```
class Exercise3 {
    #movies = new Map();
    //key is the genre: string, value is array of movies
    // example: { thriller: [{ id: '1', title: 'The American'}, { id: '2', title: 'Arcadian'}] }

    add_genre(genre) {
        // add genre if genre does not exist
        // return true if the genre is added successfully, false otherwise

        return true;
    }

    add_movie_in_genre(genre, new_movie) {
        // add movie if movie id does not exist
        // return true if the movie is added successfully, false otherwise

        return true;
    }

    update_movie_title_by_genre_and_movie_id(genre, movie_id, new_title) {
        // update a movie within a certain genre
        // return true if the movie's title is updated successfully, false otherwise
        return true;
    }

    delete_movie_by_genre_and_movie_id(genre, movie_id) {
        // delete movie
        // return true if the movie is delete successfully, false otherwise
        return true;
    }

    get_movie_title_by_id(genre, movie_id) {
        // return the movie title
        return '';
    }
}
```

Please submit your code as a single zip file attachment to Sakai and/or push it to your github repository.

//-- Enjoy! --//