

Quiz Platform

How an admin create a quiz

A CMS platform will be provided.

- 1. Write a JSON styled data structure and upload it.**

```

{
  "title": "My Quiz 1",
  "domains": [
    {
      "domainName": "Programming",
      "proportion": "25", // this domain accounts for 25% of the total score of the quiz
      "parts": [
        {
          "partName": "Python",
          "choices": [
            {
              "description": "I have never used Python.",
              "willShowSubQuestions": false
            },
            {
              "description": "I have some basic knowledge about Python.",
              "willShowSubQuestions": true
            },
            {
              "description": "I am proficient in Python.",
              "willShowSubQuestions": true
            }
          ],
          "recommendations": [
            {
              // if the user scores less than or equal to 25% of the total points of the quiz
              // he/she will be provided by the following link
              "score": 25,
              "link": "https://www.google.com"
            },
            {
              "score": 50,
              "link": "https://www.google.com"
            },
            {
              "score": 75,
              "link": "https://www.google.com"
            },
            {
              "score": 100,
              "link": "https://www.google.com"
            }
          ]
        },
        {
          // ...other part
        }
      ]
    },
    {
      // ...other domain
    }
  ]
}

```

```

    "domainName": "Tool",
    "proportion": "75", // this domain accounts for 75% of the total score of the quiz
    "parts": [
        // ...
    ],
},
],
}

```

This will initialize a basic structure of the quiz, except detailed questions, which can be added later.

2. Edit questions in the admin page

Input Quiz Title

Programming	Account for	25%	Total Points	9
-------------	-------------	-----	--------------	---

▲ Collapse

Python

delete

A

☐

I never used it.

☐ show sub questions?

delete

B

☐

I have some basic knowledge about Python

☐ show sub questions?

delete

C

☐

I am proficient in Python.

☐ show sub questions?

delete

Q1.

Some descriptions.....
What do you think ?

☐ Can select more than 1 choice

A

☐

Option A...

Score: 0

delete

B

☐

Option B...

Score: 0

delete

C

☐

Option C...

Score: 3

delete

Q2.

Some descriptions.....
What do you think ?

☒ Can select more than 1 choice

A

☐

Option A...

Score: 0

delete

B

☐

Option B...

Score: 0

delete

C

☐

Option C...

Score: 3

delete

D

☐

Option D...

Score: 3

delete

Add New Question

Add New Part

Other solutions

It will cost more time and efforts to implement the user interface for editing the quiz questions, as is shown in the picture above.

Another way is to edit the whole quiz by only writing the json file. The data structure will become more complicated. If this is acceptable, the implementation will be much easier.

Database Design

Users

```
CREATE TABLE
IF NOT EXISTS Users (
    id INT NOT NULL PRIMARY KEY,
    username VARCHAR ( 255 ),
    PASSWORD VARCHAR ( 255 )
)
```

Quizzes

```
CREATE TABLE
IF NOT EXISTS Quizzes (
    id INT NOT NULL PRIMARY KEY,
    title VARCHAR ( 255 ),# Quiz title
    tag VARCHAR ( 36 ),# Quiz tag, which will not be exposed to users. This field c
    description VARCHAR ( 255 ),# descriptions for the Quiz
    total_points INT,# a positive integer, usually set to 100
    destroyed boolean NOT NULL
)
```

Domains

```
CREATE TABLE
IF NOT EXISTS Domains (
    id INT PRIMARY KEY NOT NULL,
    NAME VARCHAR ( 255 ) NOT NULL,
    proportion INT NOT NULL,
    quiz_id INT NOT NULL,
    createdAt char(10), # 10-digit unix TIMESTAMP
    updatedAt char(10),
    FOREIGN KEY ( quiz_id ) REFERENCES Quizzes ( id )
)
```

Parts

```
CREATE TABLE
IF NOT EXISTS Parts (# eg. Python, R
    id INT NOT NULL PRIMARY KEY,
    NAME VARCHAR ( 255 ),
    title VARCHAR ( 255 ),# Quiz title
    tag VARCHAR ( 36 ),# Quiz tag, which will not be exposed to users. This field ca
    description VARCHAR ( 255 ),# descriptions for the Quiz
    total_points INT,# a positive integer, usually set to 100
    destroyed boolean NOT NULL,
    createdAt CHAR ( 10 ),# 10-digit unix TIMESTAMP
    updatedAt CHAR ( 10 ),
    domain_id INT NOT NULL,
    FOREIGN KEY ( domain_id ) REFERENCES Domains ( id )
)
```

PartChoice

```
CREATE TABLE
IF NOT EXISTS PartChoices ( # eg. Python, R
    id INT NOT NULL PRIMARY KEY,
    description VARCHAR(255),
    showSub boolean, # show sub questions if clicked
    seq INT, # sequence number eg: A B C
    createdAt char(10), # 10-digit unix TIMESTAMP
    updatedAt char(10),
    part_id int not null,
    FOREIGN KEY (part_id) REFERENCES Parts (id)
)
```

Recommendations

```
CREATE TABLE
IF NOT EXISTS Recommendations (# eg. Python, R
    id INT NOT NULL PRIMARY KEY,
    scoreProp INT,# eg. 25 : show link if final score is lower than 25% of the tota
    link VARCHAR ( 255 ),
    createdAt CHAR ( 10 ),# 10-digit unix TIMESTAMP
    updatedAt CHAR ( 10 ),
    part_id INT NOT NULL,
    FOREIGN KEY ( part_id ) REFERENCES Parts ( id )
)
```

Questions

```

CREATE TABLE
IF NOT EXISTS Questions (
    id INT NOT NULL PRIMARY KEY,
    description VARCHAR ( 1023 ) NOT NULL,# the problem descriptions
    seq INT,
    destroyed boolean,# indicates whether this question is destroyed, or whether it :
    multi_choices boolean,# indicates if user can select more than one choices
    part_id INT,
    FOREIGN KEY ( part_id ) REFERENCES Parts ( id )
)

```

Choices

```

CREATE TABLE
IF NOT EXISTS Choices (
    id INT NOT NULL PRIMARY KEY,
    description VARCHAR ( 255 ) NOT NULL,
    seq INT, # sequence number of the question, usually from 0 to 3
    question_id INT, # references a question id
    score INT NOT NULL,
    UNIQUE KEY ( seq, question_id ), # make sure sequence number is unique in the q
    FOREIGN KEY ( question_id ) REFERENCES Questions ( id )
)

```