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|  | **2013** |
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| **[** SPEC For Jeopardy System**]** |
| A SPEC For Jeopardy System |

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## Introduction

The Jeopardy System we are going to realize is mimicry of the famous American TV show “Jeopardy”. Generally, the system contains three parts, ***the jeopardy software system***, ***the students groups***, and ***the teacher***.

***The software system*** is deployed on a computer with several keyboards connected to it, the keyboards will be used by the students groups . the software interface keeps showing the questions states, groups information which includes membership, nickname and scores. It will also accept the teacher’s grading command.

For ***the students***, in each round , a group will be chosen to select a certain type of questions. After the question is ready, all the groups are ready to race answering questions by press the allocated key on their keyboard. The group who win the race will be granted to answer the question.

***The teacher*** is responsible for grading each group using the software system.

This SPEC will focus on the software function unit, as well as the implicit flow of jeopardy show. Of course, some programming notes will be covered, too.

## Overview

To keep the completeness of this SPEC, a short overview is provided.

The following chapter Content will introduce the function of Jeopardy System in a top-down way, including the two main parts of jeopardy system: Data Preparing and Show Time, as well as the details of second part Show Time. The chapter Programming Notes will cover some technics aspect, like the OO design part featuring object definition, and so on. The chapter Appendix contains some views of the software system.

## Content

Generally, the software function covers two independent part, the data(question database) preparing part and the show time part.

### Data Preparing

The jeopardy show will not prevail without various interesting questions, so we should prepare enough interesting questions, and have a basic entrance for the software system to absorb new questions. Besides, we should offer convenient ways to choose questions from different question database. This is the data preparing part.

We sketch out the general question database outline by giving a picture describing it as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common sense | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Programmer expertise | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| History & literature | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Economy & sociology | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |

From the table above, we can easily tell that, we must label questions with different types and different scores.

In my suppose, questions will be formatted as follows:

*For multiple choice question:*

|  |  |
| --- | --- |
| Question body: | the most nearest planet to the Sun is :  A. Mars B. Mercury C. Jupiter D. Venus |
| Question answer: | B |
| Question type: | common sense |
| Question score: | Score:100 |

*For filling blanks question:*

|  |  |
| --- | --- |
| Question body: | the most nearest planet to the Sun is : |
| Question answer: | Mercury |
| Question type: | common sense |
| Question score: | Score:100 |

Each time we want to change questions in the jeopardy show, we cook the formatted questions file into different database file, and offer it as Data Preparing Part’s output for the Show Time Part.

Database scheme :

Type table:

|  |  |
| --- | --- |
| t\_id int(4) | t\_name char(100) |
| 1 | Common sense |
| 2 | Programmer expertise |
| 3 | History & literature |
| 4 | Economy & sociology |

Question table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| q\_id int(4) | q\_body char(200) | q\_ans char(200) | q\_type int(4) | q\_score int(4) |
| 1 | Who invented bulb? | Edison | 1 | 100 |
| 2 |  |  |  |  |
| 3 |  |  |  |  |

### Show Time

In the show time, the whole process can be divided into two parts: group registers and answering question loop.

#### Group register part

Before really begin answering question, every group should press a certain key on their keyboard to register themselves, it works as follows:

1. The teacher press the ***Register*** button.
2. Each press a key on their own behalf , then the software show a table as follows:

|  |  |
| --- | --- |
| ***accept pressing-key ‘C’*** | |
| ***Group\_id*** | ***2*** |
| ***Group\_nick*** | ***TA\_happy-ending*** |
| ***Group\_member*** | ***Sun Zhichuang, Zhang Mengchi, Guan Xuetao*** |

Note: The teacher is responsible for fill in the table.

1. After finish register, the teacher press the finish register button to enter the next part—answering questions. And at this time information of every group is displayed as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Press A*** | ***Press B*** | ***Press C*** | ***Press D*** | ***Press E*** | ***Press F*** |
| ***Nick: apple*** | ***Nick: pear*** | ***Nick: banana*** | ***Nick: tomato*** | ***Nick: potato*** | ***Nick: radish*** |
| ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0***▲▼ |
| ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** |

#### Answering question part

The answering part is a finite loop of select question , race to answer, judge and grade. The initial question board state looks as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common sense | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Programmer expertise | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| History & literature | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Economy & sociology | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |

***Select question :***

In this section, We do not care the exact rules about who are going to select question for who, for it do not affect the software behavior, what we care about is once we need to choose a certain type of question, what the software will behave.

It generally works as follows:

1. As to someone’s will, a certain type question is chosen, that means a block, like “Common sense ;Score:200”, is pressed. Then a question of this type is shown at the below question window like what shows below:

|  |  |
| --- | --- |
| Question: | Who invent the bulb? |
| Granted Group ： | ？ |
| Judge | Right · Wrong · |

1. The question board will changed ,it looks as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common sense | Score:100  (10) | Score:200  (9) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Programmer expertise | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| History & literature | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Economy & sociology | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |

We can see that, the chosen question type has changed, question number has declined to 9

***Race to answer:***

Once the question has been shown, the groups are allowed to race to answer by pressing their key. Several group press their identifying key, the first accept key will be shown and the group will get the chance to answer the question.

Say, we have Group B get the chance, The question window will look as following :

|  |  |
| --- | --- |
| Question: | Who invent the bulb? |
| Granted Group ： | B |
| Judge | Right · Wrong · |

***Judge and grade:***

In my design, the scores can be modified in two ways, one is automated, the other is by hand. This design is fault tolerant.

After the teacher judge the answer, the score of the group will be modified automatically, if the teacher has done the wrong thing, the score can be changed by hand.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Press A*** | ***Press B*** | ***Press C*** | ***Press D*** | ***Press E*** | ***Press F*** |
| ***Nick: apple*** | ***Nick: pear*** | ***Nick: banana*** | ***Nick: tomato*** | ***Nick: potato*** | ***Nick: radish*** |
| ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0***▲▼ |
| ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** |

The above three section will loop during the answering part.

## Programming Notes

So far, we already have a basic idea of how the software system works. This part focus on the design aspect, for example, I will give a description on what classes will be defined in our python program, and the methods they own.

## Appendix

### Basic view of the Jeopardy UI:

#### Question board:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common sense | Score:100  (10) | Score:200  (9) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Programmer expertise | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| History & literature | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |
| Economy & sociology | Score:100  (10) | Score:200  (10) | Score:300  (10) | Score:400  (10) | Score:500  (10) |

#### Question window:

|  |  |
| --- | --- |
| Question: | Who invent the bulb? |
| Granted Group ： | B |
| Judge | Right · Wrong · |

#### Group information window:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Press A*** | ***Press B*** | ***Press C*** | ***Press D*** | ***Press E*** | ***Press F*** |
| ***Nick: apple*** | ***Nick: pear*** | ***Nick: banana*** | ***Nick: tomato*** | ***Nick: potato*** | ***Nick: radish*** |
| ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0*** ▲▼ | ***Score: 0***▲▼ |
| ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** | ***Member: Sun***  ***Member: Sun***  ***Member: Sun*** |

#### Register window:

|  |  |
| --- | --- |
| ***accept pressing-key ‘C’*** | |
| ***Group\_id*** | ***2*** |
| ***Group\_nick*** | ***TA\_happy-ending*** |
| ***Group\_member*** | ***Sun Zhichuang, Zhang Mengchi, Guan Xuetao*** |