

# Tutorial for University Entrance Exam Task

## Preparation

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You need to download the files needed to train the system.

1. Apply for your account on our project web site
2. Login to the web site after the application is approved.
3. Download the required files from the link "**download the problem and correct answer XML files**" on the "**My portal**" page.

## The Required Files

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When you unzip the downloaded zip file, several files and folders will be created below the "**Center-XML**" folder, containing the files relevant to the National Center Test for University Admissions. The most important among them are as follows:

### Center-XML-dtd

It contains the formal definition of the format of the XML files containing the problems. A human-readable textual definition can be found in the "**Doc**" folder.

### Center-XML-dev

It contains the training data divided by subject, in XML format. It should be sufficient to only use the files relevant to the subject the system will be handling.

### Seitouhyou

It contains the XML files of correct answers corresponding to the training data, together with their DTD files (formal format definitions).

### Center-XML-test

It contains the test data problems, in XML format.

## A Method to Construct a System

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### Analysis of Problem XML Structure

Although the details are described in the specification file, we shall explain the basics by taking the 1993 English Main Exam as an example.

There are 6 "large" questions below the exam tag in each XML file. Each "large" question contains multiple "small" questions. Besides, some "small" questions can also further contain subquestions of their own (also in a question tag).

An example of this structure might be as follows:

```
<?xml version="1.0" encoding="UTF-8">
...
<exam source="..." ...>
...
  <question id="Q1" minimal="no">
    ...
    <question anscol="A50" answer_style... answer_type=... id=... knowledge_type=... minimal=...>
      <choice ansnum="1">...</choice>
      <choice ansnum="2">...</choice>
```



```
<choice ansnum="3">...</choice>
<choice ansnum="4">...</choice>
```

Here, the "anscol" values contain unique numbers which are assigned to each answer. Moreover, the "ansnum" values correspond to each option. For each question, the system should output both of these values.

### Solving a Problem

The system is free to choose the most applicable method for each "small" question. For a simplistic example, here is a function which would choose an answer at random:

```
int solution_func(Question *q){
    int system_answer = 1+rand()%4;
    return system_answer;
}
```

### Output Format

Although a system has to submit answers with same XML format as correct answer table, it is not necessary to answer all field of correct answer table.

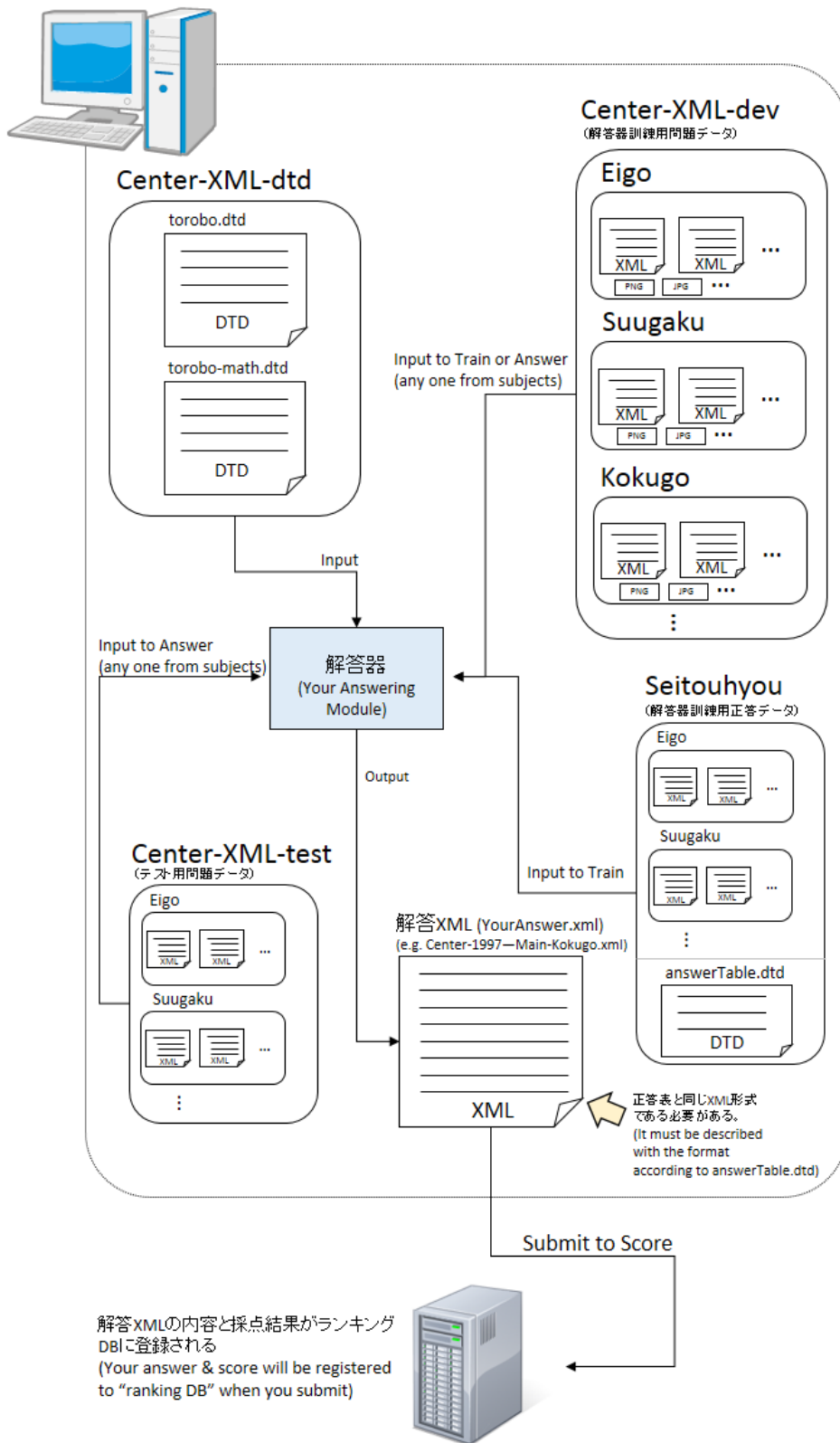
The system has to submit answers in the same XML format as the answers provided in the "Seitouhyou" folder. The root element of the XML file should be an "<answerTable>" element. The file name of the problem set, without the extension, should be assigned to its "file" attribute. Under the "<answerTable>", each answer should be contained in one "<data>" tag. This tag should contain "<answer>" and "<anscolumn\_ID>" tags. "<answer>" corresponds to "ansnum" above. "<anscolumn\_ID>" corresponds to "anscol" above. These elements are all required, and should be filled. In the example that follows, the system chose the option "1".

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE answerTable SYSTEM "http://21robot.org/answerTable.dtd">
<answerTable filename="Center-1993--Main-Eigo">
    <data>
        <answer>1</answer>
        <anscolumn_ID>A50</anscolumn_ID>
    </data>
</answerTable>
```

The system should not output <data> elements for problems it was unable to solve. More detailed explanation of the output format can be found in the "Doc" folder.

### Submission of Answer

The answer XML file has to be named in the same format as correct answer XMLs in the "Seitouhyou" folder. For example, the 1997 English main exam has to be named "Center-1997--Main-Eigo.xml". If you would like to submit your system's answers, you can upload them from the link "upload answer files" in your "My portal" page. Your answers will then be evaluated by our system.



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Figure: Flowchart of Training, Answering and Submission