**Designing the program**

Before beginning the development of the program, I need to design some algorithms and pseudocode.

Here is a basic flow chart outlining the program structure:

In this program, some of the key algorithms are centred on the program interfacing with the database. This will be done using PHP incorporated in the java code. One such algorithm is getting the questions from the database according to topic. To represent the programs, they will have to be used as classes and methods, similarly to object oriented programming.

e.g.

Class Question

Method getQuestion

User inputs topic x

Query: All questions with topic x

New Question = question1

New Question = question2

Etc.

Then,

Method displayQuestion

Long answer:

Label = question

TextField = user’s answer

Multiple Choice:

Label = question

Checkboxgroup = user’s answer

It will return an answer to be checked with the mark scheme. In the case of a long answer question, the mark scheme will be shown to the user for them to check themselves and enter their score.

The user interface is an important part of the design as it enables the user to use the program efficiently and with ease.

Here are the initial designs for the UI.

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