**DataBase Structure**

In general there are 3 tables that you need manipulate:

- *tree*

- *topics*

- individual topic table i.e. *algebra*, *mechanics* etc

these 3 tables roughly equate to the three visual entities on the web page. *tree* governs the panel on the left hand side that contains all the topics in a tree type structure (hence the name), *topics* governs what you see in the main panel (the one with the list of questions in it), and lastly *the individual topics table* contains the actual questions that pop up when you click on a question from the list in the main panel.



[figure 1]

tree

The *tree* table looks like:

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| id | pid | name | url | root |qtable |

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| 1 | -1 | maths e.g. | | 0 | |

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| 2 | 1 |Algebra | | 1 | |

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| 800| 2 |adding polynomials | main.jsp?parent\_ID=800 | 2 |algebra|

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* The *id* column is the primary index, it MUST contain a unique value(within the table).
* The *pid* column contains the id of the parent topic, e.g. the *adding polynomials* topic is a sub topic of algebra, hence its *pid* is the *id* of *algebra*.
* The *name* column is fairly self explanatory, it is the name that is displayed in the tree panel.
* The *url* column defines whether or not a particular topic contains questions of just other topics e.g. *Algebra* contains no questions so it has no url value, however *adding polynomials* does contain questions and hence a url value. if the topic contains questions then the value of the url is "main.jsp?parent\_ID= <*the id of the topic*>" i.e. the id of the adding polynomials topic is 800 hence "main.jsp?parent\_ID=800".
* The *root* column takes a value equal to the depth at which it is nested within the tree, i.e. *Algebra* only has *maths e.g.* as a parent hence it has a root value of 1, it is a first order nesting, but *adding polynomials* has *Algebra* as a parent, which in turn has *maths e.g.* as a parent hence its root value of 2 as it is a second order nesting.
* The *qtable* column, like the *url* column, only takes a value if that topic contains questions, and its name must match the individual topic table (e.g. *Algebra* etc) that contains the questions for that topic. i.e. there is a table called *algebra* that contains all the questions for the *Algebra* topic, *adding polynomials* is part of the *Algebra* topic and so its *qtable* value is *algebra*.

topics

The *topics* table looks like:

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|ID|pid|Description |tname |topic |difficulty |syllabus|level|root\_id|

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|1 |800|add two polynomials (up to ...|algebra|Algebra\Adding polynomials|Intermediate|A-Level |C1 |800 |

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|2 |800|a\*polynomial + b\*polynomial...|algebra|Algebra\Adding polynomials|Hard |A-Level |C1 |800 |

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* The *id* column is the primary index and MUST contain a unique value(within the table).
* The *pid* column contains the *id* of the parent topic from the *tree* table, so in this case as both these questions are part of the *adding polynomials* topic they must contain the *id* value of the *adding polynomials* topic from the *tree* table (800).
* The *Description* column contains a text description of the question, as displayed in the question list(see figure 1).
* The *tname* column holds the value of the table name that contains the actual question data i.e. the *individual topic table*. So In this case it is *algebra*.
* The *topic* column contains a text descption of the topic path i.e. as *adding polynomials* is contained within the *algebra* topic the path is *Algebra\Adding polynomials*.
* The *difficulty* column dictates what is displayed in the difficulty column of the question list(see figure 1)
* The *syllabus* column dictates what is displayed in the syllabus column of the question list(see figure 1)
* The *level* column dictates what is displayed in the level column of the question list(see figure 1)
* The *root\_id* column, I am not actually entirely sure what this does, but i've been using the same value as the pid and things seem to work fine.

individual topic table

The Individual tables (*algebra*, *differentiation*, etc) look something like:

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|Question\_ID| QML\_D | Description |parent\_ID| Parent\_Topic |

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| 1 |<SCRIPT>...|add two polynomials (up to powe...| 800 |Algebra/Adding polynomials |

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| 2 |<SCRIPT>...|a\*polynomial + b\*polynomial (up...| 800 |Algebra/Adding polynomials |

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| 3 |<SCRIPT>...|Find A, D and E in A/(Bx+C)+(Dx...| 46 |Algebra/Algebraic fractions/...|

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* The *Question\_ID* column contains the *id* of the question as defined in the *topics* table (above) e.g. if the question in the *topics* table has an *id* of 1234, then *Question\_ID* must also be 1234.
* The *QML\_D* column contains the actual question data, the javascript.
* The *Description* Column is a text description normally matching the value in the *description* column of the *topics* table.
* The *parent\_ID* column contains the *id* of the parent topic as defined in the *tree* table, just like the *pid* column of the *topics* table(above).
* The *Parent\_Topic* column dictates what is displayed at the top of the page when you click on a question, normally it is the topic path.

nb// as you can see in the last entry in the example above, the *parent\_ID* and *Parent\_Topic* contain different values from the first two entries, this is because the question belongs to a different topic than the first two entries

**EX.1) How To Add Subjects/Topics to MathsEG**(*tree* table only)

1. Identify the parent topic *id* for your new topic (from the *tree* table), in the case it is a first order topic(i.e. no parent) the id is 1. If you wanted to add a new topic under *Algebra* the *id* would be 2. If you wanted to add it under *adding polynomials* it would be 800, and so on.
2. Create a new entry in the *tree* table with a unique value for the *id*.
3. The *pid* for this entry would be the value you identified in step 1.
4. The *name* is the name of the topic you wish to add.
5. Add a *url* value if the topic is to contain questions or leave it blank if it is just to contain other topics (see *tree* table description)
6. Add a value for *root* equal to the level of nesting of the topic, i.e. if it has one ancester then the value would be 2, if it has no ancestors the value would be 1 and so on (see *tree* table description)
7. If the topic is to contain questions i.e. you have given it a *url* value that is not null, then *qtable* should contain the name of the *individual topic table* holding the actual question data.
8. apply these values.

**EX.2) How To Add Questions To MathsEG**(*topic* table and *individual topic table*)

1. Identify the parent topic of the question you wish to add(from the *tree* table), e.g. for *algebra* use a value of 2, for *adding polynomials* use a value of 800 etc.
2. create a new entry in the *topics* table with a unique value for the *id*.
3. Use the value identified in step 1 to populate the *pid* and *root\_id* columns of the *topics* table
4. Use appropriate values for *Description*, *difficulty*, *syllabus* and *level*.
5. Use an appropriate value for the *topic* column, i.e. to add a question to *adding polynomials* the value would be Algebra\Adding polynomials etc.
6. For the *tname* column use the name of the *individual topic table* holding the question data, i.e. for *adding polynomials* the correct value would be *algebra*.
7. apply the values
8. create a new entry in the *individual topic table* associated with this topic in our example *algebra* the Question\_ID should take the value used in step 2.
9. use the value identified in step 1 to populate the *Parent\_ID*.
10. add a *Description* and appropriate *Parent\_Topic*.
11. Insert the javascript question data into *QML\_D*
12. Apply these values
13. voila question added.

**EX.3) How To Move Questions between Subjects/Topics**(*topic* table and *individual topic table*)

1. Identify the entries in the topic table and the individual topic table that correspond with the question you wish to move.
2. Identify the id of the topic that you wish to move the question to (from the tree table)
3. modify the entries you identified in step 1 so that the *pid*(*topics* table), *root\_id*(*topics* table) and *parent\_ID*(*individual topic table*) are the same as the value from step 2.
4. modify the entries you identified in step 1 so that the *Parent\_Topic*(*individual question table*) and *topic*(column in *topics* table) contain appropriate values.
5. apply changes.