COA123 Web Programming

Individual Coursework (70% of the module)

Issued: March (Week 6) 2019

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The following tasks are built around creating an online website to explore data related to sports, specifically track and road cycling at the London Olympics. You will be working with a given read-only database containing two tables (Country and Cyclist), which will be used for the majority of the tasks.

There are four tasks in total; the first three being tightly specified and the fourth one allowing you room to design your own solution. Please read the individual task details and also the "Further Details" section that follows before starting your programming.

For Tasks 1, 2 and 3 you are provided with htm pages (bmi.htm, athletes.htm, details.htm) containing forms which will provide the input to your php pages. You are to ensure that your solutions work with these test pages. You should not modify these htm files, all your coding should go into your php files.

Task 1 (15%)

Write a php script (**bmi.php**) to produce an html page as result which contains an html table of BMI (Body Mass Index) values, based on the input of 4 values as follows:

‘min_weight’, ‘max_weight’ (input in kg)
‘min_height’, ‘max_height’ (input in cm)

The finished table will have rows headed by ‘min_weight’ to ‘max_weight’ (incremented in steps of 5), and columns headed by ‘min_height’ to ‘max_height’ (incremented in steps of 5). You may assume the input values are multiples of 5 and you should produce output to 3 decimal places.

The formula you should use to calculate the BMI is:

$$BMI = \frac{weight\ (kg)}{height\ (m)^2}$$

Task 2 (10%)

Write a php script (**athletes.php**) to accept as input an ISO_id ‘country_id’ and name ‘part_name’ and produce as output an html table listing the name, gender and BMI of all cyclists from ‘country_id’ whose name column contains the string ‘part_name’ from the Cyclist table (for example the input could be “GBR” for ‘country_id’ and “vic” for ‘part_name’). Your search can ignore the case of the input strings.

Task 3 (15%)

Write a php script (**details.php**) to accept as input two strings 'date_1' and 'date_2' which will echo a JSON data structure containing the name of each cyclist born between 'date_1' and 'date_2' (inclusive), together with their country's country_name, gdp and population, using the Country and Cyclist tables. Note: this script should echo the JSON data structure only.

Task 4 (60%)

Design your own webpage (starting from **view.php**), which allows a user to input two country ISO_id values and outputs a comparison of the two countries. As a minimum, the page should output the details of how many medals each country won, together with a list of names of their cyclists. You should only use the data from the MySQL database as well as the input data. You can be creative about how you compare and show the comparison (e.g. ranking) of the countries. For example you could perhaps take into account the gdp and population of the countries when ranking them - a smaller population and lower gdp may be a disadvantage to a country when trying to select top athletes to attend the Olympics, you could also demonstrate an interactive way to allow the user to use different ranking criteria.

A basic solution to this task would potentially obtain up to **38%**. For extra marks, you could consider using AJAX and JSON to make your webpage more interactive **(12% available for effective use of AJAX&JSON)**. To make your solution more flexible, you could allow the comparison of up to four countries **(10% available for implementing this functionality)**.

Further Details

Database:

You are provided with a (read only) mySQL database on sci-project server. It contains two tables as follows. You can inspect the database content using phpMyAdmin https://sci-project.lboro.ac.uk:8080/phpMyAdmin
Note: some data may be missing or dummy. The data originally came from the Datablog of the Guardian Newspaper, which we kindly acknowledge.

- Username: coa123cycle
- Password: bgt87awx
- DB name: coa123cdb

Country
- ISO_id (ISO name of country)
- gdp (recent Gross Domestic Product of the country)
- population (recent population of the country)
- country_name
- gold (number of golds received in London 2012 Olympic games)
- silver
- bronze
- total (total number of medals)

Cyclist

ISO_id
name
height (height in cm)
weight (weight in kg)
gender (M or F)
dob (stored as a MySQL Date in format yyyy---mm---dd)
sport (type of cycling events the athlete does)
Event (detailed event information)

Coding: You are permitted to use jQuery and jQuery UI and the code that was part of the COA123 lectures and labs. All other coding **must be your own**. You must NOT use any absolute directory in the code.

Submission:

All coursework files must be uploaded to sci-project.lboro.ac.uk within the coursework folder "**olympics**" (all lowercase letters). The "olympics" folder must be directly under in your "web" directory. You will receive email alert if you do not have this CW folder when the deadline of CW is close.

For the CW submission, all php files of your script and start htm files for each task must be at the root level of your "olympics" folder, although you may use sub-folders to manage other files under the "olympics" folder. (Refer to coursework lecture slides of you are not sure).

No CW folder or incorrect file naming = Zero marks

Immediately after the deadline, a script will be run which will lock you out of your coursework directory.

If you have any problem with your account on the sci-project server, please contact Mr. James Skevington science.it@lboro.ac.uk.

Marking criteria and feedback:

For all tasks you can obtain marks for:

- obtaining the correct results for queries
- attention to detail (e.g. validation of user input, use of include)
- design of interface (e.g. clarity, informative, easy to use, especially for task4)
- quality/standard of code (e.g. indenting, commenting, choice of identifiers, format consistence, use of CSS/jQuery etc. when applicable.)

For task 4 you are encouraged to be creative in designing your own user interface. You might consider using jQuery and/or jQuery UI and (copyright free) graphic images. Your webpage does not need any design consistency with the htm pages provided for previous tasks.

Coursework will be marked using Firefox on Windows. Provisional mark and feedback will be provided within 3-4 weeks and a link of feedback will be sent to you by email from Learn noticeboard.

Plagiarism:

The coursework is individual and therefore should of course be your own work. Failure to do so would leave you open to prosecution for Academic Misconduct.

If you have any questions, please ask during your lab practical sessions, or email Dr. Baihua Li (b.li@lboro.ac.uk).

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