WEB DESIGN TECHNOLOGIES COURSEWORK TRIMESTER A 2018/19

This module is assessed by 100% coursework.

There are three sections to the coursework this year:

- Submission 1 : a design exercise (due in week 7) worth 15% of the overall module mark
- Submission 2 : production of an interactive website (due in the middle of week 11) worth 60% of the overall module mark
- Submission 3 : a report (due in at the end of week 12) worth 25% of the overall module mark

Submission 1,2, and 3 all refer to the following scenario

You are tasked with developing a website presenting information to secondary school pupils considering a university education. The site should include information about different universities, the type of courses available, the gender split on different courses and the jobs and career paths available on graduation. You are required to create a data driven website which will appeal to pupils while informing them of the different types of jobs available and some information about them.

There are a number of sources which you should use in compiling this site.

https://github.com/Hipo/university-domains-list provides list of universities in different countries along with the url for their websites.
http://universities.hipolabs.com/search?country=United%20Kingdom gives a list of UK institutions.

https://datahelpdesk.worldbank.org/knowledgebase/topics/125589-developer-information the World Bank provides statistics on percentages of the population enrolled in tertiary education courses, proportion of male and female students and proportion of the population enrolled in different subjects as well as a huge amount of other information.

http://api.lmiforall.org.uk/ the UK CES Commission for Employment and Skills offers guidance on skills and employment issues in the UK. The information provided is extensive and wide ranging but includes data on jobs and careers, current job vacancies, future projections for the UK labour market, rates of pay in different areas of the country etc.

Your website should contain a short background introduction and should make use of data provided by these online API to produce a clearly structured and attractive interface which will present data to pupils in an appropriate format.

It is important that your site focuses on providing information in an easy to use and easy to understand format so you should use graphs and charts to display statistical information. The site should display well on a variety of screen sizes including mobile devices.

You should provide

- a short introduction
- a list of universities in the UK with working hyperlinks to their websites,
- well-presented statistics showing the number of students studying different subject areas. The tables and charts should display :

    - Enrolment in tertiary education across all programmes of study including both male and female students
    - Percentage of students in tertiary education enrolled in Agriculture programmes,
    - Percentage of students in tertiary education enrolled in Education programmes,
    - Percentage of students in tertiary education enrolled in Engineering, Manufacturing and Construction programmes,
    - Percentage of students in tertiary education enrolled in Health and Welfare programmes,
    - Percentage of students in tertiary education enrolled in Humanities and Arts programmes,
    - Percentage of students in tertiary education enrolled in Science programmes, Percentage of students in tertiary education enrolled in Services programmes, Percentage of students in tertiary education enrolled in Social Sciences, Business and Law programmes
- A page or set of pages allowing users to explore different job options for the fields listed above. This should include appropriate search facilities along with well formatted results. Emphasis should be placed on how the returned results are displayed. Additionally there should be an area of the screen which gives a dynamic display of the most popular searches. The display should give an indication of the popularity of the different search terms – so it could display them as a tag cloud or a bar chart

DATA SOURCES

http://universities.hipolabs.com/search?country=United%20Kingdom returns a list of universities in the UK along with the addresses of their websites.

The World Bank site returns data in either json or xml format. By default the information is returned in xml format.

To access the data about the percentage of students in tertiary education enrolled in Engineering, Manufacturing and Construction programmes in the UK in the years 2009 to 2015 the request to the World Bank API takes the form

http://api.worldbank.org/v2/countries/GBR/indicators/UIS.FOSEP.56.F500?date=2009:2015

where

http://api.worldbank.org/v2/ is the base url

GBR is the three digit country code for the United Kingdom, and the codes for other countries can be found at https://en.wikipedia.org/wiki/ISO_3166-1_alpha-3

UIS.FOSEP.56.F500 is the indicator code for the percentage of students in tertiary education enrolled in Engineering, Manufacturing and Construction programmes

The indicator codes for the data required for your website from the World Bank data service are as follows:

Enrolment in tertiary education, all programmes, both sexes (number)	SE.TER.ENRL
Percentage of students in tertiary education enrolled in Agriculture programmes, both sexes (%)	UIS.FOSEP.56.F600
Percentage of students in tertiary education enrolled in Education programmes, both sexes (%)	UIS.FOSEP.56.F140
Percentage of students in tertiary education enrolled in Engineering, Manufacturing and Construction programmes, both sexes (%)	UIS.FOSEP.56.F500
Percentage of students in tertiary education enrolled in Health and Welfare programmes, both sexes (%)	UIS.FOSEP.56.F700
Percentage of students in tertiary education enrolled in Humanities and Arts programmes, both sexes (%)	UIS.FOSEP.56.F200
Percentage of students in tertiary education enrolled in Science programmes, both sexes (%)	UIS.FOSEP.56.F400
Percentage of students in tertiary education enrolled in Services programmes, both sexes (%)	UIS.FOSEP.56.F800
Percentage of students in tertiary education enrolled in Social Sciences, Business and Law programmes, both sexes (%)	UIS.FOSEP.56.F300

date=2009:2015 specifies the years for which information should be returned.

You could also choose to explore the data and include other relevant statistics e.g. the percentages of male and female students studying different subject areas

http://api.lmiforall.org.uk/#/ also provides a wide range of data. The /soc/search facility which allows users to enter a general term such as computing, law or education and access data about different jobs in that area in json format. for example http://api.lmiforall.org.uk/api/v1/soc/search?q=law returns data in json format including job titles ,a description of the job, a list of tasks that would be undertaken and the qualifications needed for entry. It also includes the soc code which can be used to access other data about a given set of jobs. For example the Annual Survey of Hours and Earnings is a detailed set on pay data and http://api.lmiforall.org.uk/api/v1/ashe/estimatePay?soc=3520&age=25&coarse=false uses the soc code for law to give an estimate of the weekly pay of a 25 year old working in that field.

You may make use of jQuery, Dojo or other javaScript code libraries to help to present the information attractively. However, on this occasion, you should not use pre written framework or templates such as nodeJS, Laravel or AngularJS. Any prewritten code that you use should be appropriately licensed and clearly identified.

The emphasis should be presenting the information clearly, in an easy to use and interactive format.

SUBMISSION 1

- create development plans which include
  - identification of all the user groups expected to access the site and the tasks they will perform while using the site
  - structure charts, wireframes and sample visuals showing the 'look and feel' of the site
  - a justification of the design's suitability for the identified user groups.

SUBMISSION 2

create the interactive, data driven website

SUBMISSION 3

- produce a report which provides
  - a discussion and justification of development approach
  - an explanation the approach you have taken to accessing and displaying data from external API
  - a description of the client-side scripting techniques you have used to present the data and provide interactivity along with a discussion of alternative approaches you could have used (e.g. custom JavaScript written from scratch, jQuery, plugin)
  - an analysis of the advantages and disadvantages of using a bespoke approach to the development of this site rather than making use of templates or pre-written frameworks

The marking scheme which will be used to assess the work is appended below.

Name	Development Plans
Description	Create development plans which include o identification of all the user groups expected to access the site and the tasks they will perform while using the site o structure charts, wireframes and sample visuals showing the 'look and feel' of the site. o a justification of the design's suitability for the identified user groups.

Rubric Detail

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
Scoping of project **Weight 34.00%**	**0.00000 to 39.00000 %** Unrealistic	**40.00000 to 49.00000 %** Poor. Little evidence of understanding of the level of difficulty/ time taken for different elements of the project.	**50.00000 to 59.00000 %** Reasonable. Some attempt to develop an appropriate response to the challenge set.	**60.00000 to 69.00000 %** Good well scoped project designed to meet users' needs. Some understanding of the complexity of different elements of the project.	**70.00000 to 100.00000 %** Excellent , clearly scoped project designed to meet users needs Demonstrates an understanding of the complexity of different elements of the project and the times required to develop each Plans allow student to demonstrate competence in all technologies taught.
Logical structure **Weight 33.00%**	**0.00000 to 39.00000 %** No attention to users or required tasks.	**40.00000 to 49.00000 %** Poor. Little consideration of user and task requirements. Some inconsistencies between requirements, structure chart and wireframes. Areas of site missing.	**50.00000 to 59.00000 %** Appropriate and logical structure. Adequate attention to user and task requirements.	**60.00000 to 69.00000 %** Good mapping between user and task requirements and design. Complete and consistent structure.	**70.00000 to 100.00000 %** Excellent mapping of user and task requirements to design

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
Layout and placement **Weight 33.00%**	**0.00000 to 39.00000 %** No attention to layout. Careless presentation. Lacks detail. No attention to appearance, colour, structure or scale.	**40.00000 to 49.00000 %** Poor. Little thought given to layout and placement of information within individual screens. Lack of detail evident in plans submitted. Lack of consistency of style throughout interface.	**50.00000 to 59.00000 %** Appropriate layout and placement of information within individual screens.	**60.00000 to 69.00000 %** Good layout and placement of information within individual screens. Consistent and appropriate overall style Clear differentiation between different types of screens/ sections	**70.00000 to 100.00000 %** Excellent layout and placement. Well thought out style Appropriate and consistent design with clear differentiation between different types of screens/ sections

Name	Web site
Description	Rubric for the interactive, data driven website

Rubric Detail

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
Visual design **Weight 15.00%**	**0.00000 to 39.00000 %** No attention to layout of individual pages or to placement of information on screens.	**40.00000 to 49.00000 %** Poor. Little thought given to layout and placement of information within individual screens. No consistency of style throughout interface.	**50.00000 to 59.00000 %** Appropriate layout and placement of information within individual screens. Adequate consideration of overall style	**60.00000 to 69.00000 %** Good layout and placement of information within individual screens. Consistent and appropriate overall style	**70.00000 to 100.00000 %** Excellent layout and placement. Well thought out style Appropriate and consistent design
Site structure **Weight 5.00%**	**0.00000 to 39.00000 %** Inadequate navigation or structure. Major omissions.	**40.00000 to 49.00000 %** Poorly thought out navigation. Inefficient/inelegant structure. Occasional omissions.	**50.00000 to 59.00000 %** Reasonable structure. Necessary navigational tools provided.. All necessary areas included	**60.00000 to 69.00000 %** Good, well thought out structure. Clear, consistent navigation. Consideration of consistency and orientation	**70.00000 to 100.00000 %** Excellent
html markup **Weight 15.00%**	**0.00000 to 39.00000 %** No attention to layout. Careless presentation. Lacks detail.	**40.00000 to 49.00000 %** Occasional flaws in straightforward attempt	**50.00000 to 59.00000 %** Clear , structured markup used to create an adequate site	**60.00000 to 69.00000 %** Good, competent site correctly implemented. Built with regard to current standards	**70.00000 to 100.00000 %** Excellent website correctly implemented. Complies with current standards and built with regard to future developments

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
Use of CSS **Weight 15.00%**	**0.00000 to 39.00000 %** Content and layout not properly separated	**40.00000 to 49.00000 %** External stylesheets used. Simple style rules and common properties generally correctly applied to create a straightforward layout.	**50.00000 to 59.00000 %** Styles correctly applied to create an appropriate layout. Some understanding of specificity and cascading styles demonstrated. Some recognition of the importance of responsive design Use of pseudo classes or other more advanced features to create appropriate layout and effects	**60.00000 to 69.00000 %** Well structured stylesheets correctly applied to create a layout which shows evidence of originality and creativity. Styles used, in conjunction with javasScript, jQuery or other appropriate client side scripting tools when necessary, to create appropriate layout and effects Media queries, relative units etc used to create a responsive design	**70.00000 to 100.00000 %** Well structured stylesheets correctly applied to create original, well designed interfaces which fulfil users' needs efficiently and work well on a range of different interfaces i.e. are responsive Styles used in conjunction with javasScript, jQuery or other appropriate client side scripting tools as appropriate to create original, well designed , appropriate layout and effects
Use of external files and api **Weight 10.00%**	**0.00000 to 39.00000 %** No real attempt	**40.00000 to 49.00000 %** Local data file created using appropriate formats e.g. json Data from local file incorporated in site	**50.00000 to 59.00000 %** Ajax technologies used to fetch data from remote api External data incorporated in site	**60.00000 to 69.00000 %** Ajax technologies used to display appropriately data from remote api Local data file created to hold external data if appropriate	**70.00000 to 100.00000 %** Data from remote api incorporated into well designed, engaging interface with selected data displayed as appropriate Well formatted local data file created to hold data if appropriate

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
client side code implementation (javaScript /jQuery expected but anyappropriate technologies acceptable) **Weight 25.00%**	**0.00000 to 39.00000 %** Little attempt Significant errors	**40.00000 to 49.00000 %** Occasional flaws in straightforward attempt	**50.00000 to 59.00000 %** Site demonstrates some understanding of and competence in the technologies chosen	**60.00000 to 69.00000 %** Good attempt demonstrating a understanding of the technologies and how they can be applied to provide appropriate levels of user interaction	**70.00000 to 100.00000 %** Excellent website demonstrating a clear understanding of the technologies selected and how they can be used to enhance the user experience Well structured, elegant code used to fulfil the specification set out in the design proposal
php/mySql implementation **Weight 5.00%**	**0.00000 to 39.00000 %** Significant errors No meaningful attempt to meet specification	**40.00000 to 49.00000 %** Occasional flaws in straightforward attempt	**50.00000 to 59.00000 %** Site demonstrates some understanding of the relevant technologies	**60.00000 to 69.00000 %** Good attempt demonstrating a clear understanding of the technologies used	**70.00000 to 100.00000 %** Excellent website demonstrating a clear understanding of the technologies selected. Well structured, elegant code used to fulfil the specification
Distribution **Weight 5.00%**	**0.00000 to 39.00000 %** Site not correctly distributed Incorrect path names, missing files.	**40.00000 to 49.00000 %** Occasional mistake in a generally adequate distribution	**50.00000 to 59.00000 %** Straightforward site showing a reasonable level of file organisation	**60.00000 to 69.00000 %** Good, competent site correctly distributed. Demonstrates appropriate file organisations Suitable formats used for images, video and audio files.	**70.00000 to 100.00000 %** Excellent site which demonstrates high levels of technical competence in its distribution.

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
Project scope **Weight** **5.00%**	**0.00000 to 39.00000 %** Very limited attempt.	**40.00000 to 49.00000 %** Little attempt to provide appropriate levels of interactivity/functionality.	**50.00000 to 59.00000 %** Reasonable attempt to fulfill a adequately scoped design proposal.	**60.00000 to 69.00000 %** Good implementation of an adequately scoped specification. OR Competent attempt to fulfill a more ambitious scale of project	**70.00000 to 100.00000 %** Excellent implementation which clearly fulfills an appropriately scoped design proposal.

Name	Report
Description	The report should provide a discussion and justification of development approach; an explanation the approach taken to accessing and displaying data from external API; a description of the client-side scripting techniques used to present the data and provide interactivity along with a discussion of alternative approaches (e.g. custom JavaScript written from scratch, jQuery, plugin) and an analysis of the advantages and disadvantages of using a bespoke approach to the development of this site rather than making use of templates or pre-written frameworks

Rubric Detail

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
Discussion and justification of development approach **Weight 20.00%**	**0.00000 to 39.00000 %** None .	**40.00000 to 49.00000 %** Poor. Outline of some issues faced. Limited discussion.	**50.00000 to 59.00000 %** Adequate. Outline of main issues with some explanation of the approach taken. Some justification of changes from planning documentation, if relevant.	**60.00000 to 69.00000 %** Good discussion of development approach. Clear justification for decisions made	**70.00000 to 100.00000 %** Excellent. Thorough and detailed discussion with critical evaluation evident.
Approach taken to accessing and displaying data from an external API **Weight 20.00%**	**0.00000 to 39.00000 %** None or sketchy outline of some issues. Major omissions	**40.00000 to 49.00000 %** Poor. Outline of some issues. Limited discussion.	**50.00000 to 59.00000 %** Adequate. Discussion of how data is accessed – use of jQuery and ajax expected but other methods acceptable	**60.00000 to 69.00000 %** Good discussion with some evidence of critical evaluation. Discussion should cover how data is accessed and how it has been displayed on the page. It should also discuss alternative methods of displaying external data and provide some critical analysis of the option identified.	**70.00000 to 100.00000 %** Clear discussion of how data can be accessed from an external API Discussion could cover points such as of the use of the AJAX XMLHttpRequest, the advantages and disadvantages of using jQuery to facilitate its use, identification of different jQuery methods available along with an analysis of their advantages and disadvantages.

	Levels of Achievement				
Criteria	**Fail**	**Poor**	**Adequate**	**Good**	**Excellent**
Approach taken to client-side development **Weight 30.00%**	**0.00000 to 39.00000 %** None or sketchy outline of some issues. Major omissions.	**40.00000 to 49.00000 %** Poor. Outline of some issues. Limited discussion.	**50.00000 to 59.00000 %** Adequate. Description of how information is displayed on page along with a discussion of the use of jQuery for DOM traversal & manipulation is expected but other appropriate methods are acceptable. Comparison of ease of provision of interactivity, flexibility of different techniques, ease of customization using basic javaScript, jQuery and plugin Outline of main issues with some evidence of thought.	**60.00000 to 69.00000 %** Clear description of the scripting which has been carried out. Good discussion of alternatives with some evidence of critical evaluation of the options available	**70.00000 to 100.00000 %** Clear discussion of how information is displayed on page. Use of jQuery for DOM traversal & manipluation is expected but other appropriate methods are acceptable Clear recognition of the levels of client side interaction that can be achieved and how this can be implemented. Thorough and detailed discussion of different options available with critical evaluation
Bespoke approach to interface design vs use of templates & frameworks **Weight 30.00%**	**0.00000 to 39.00000 %** None or sketchy outline of some issues. Major omissions.	**40.00000 to 49.00000 %** Poor. Outline of some issues. Limited discussion.	**50.00000 to 59.00000 %** Adequate. Identification of templates and framework which could be appropriate in this situation. Outline of main issues with some evidence of thought.	**60.00000 to 69.00000 %** Good discussion with some evidence of critical evaluation.	**70.00000 to 100.00000 %** Excellent. Thorough and detailed discussion with critical evaluation evident.