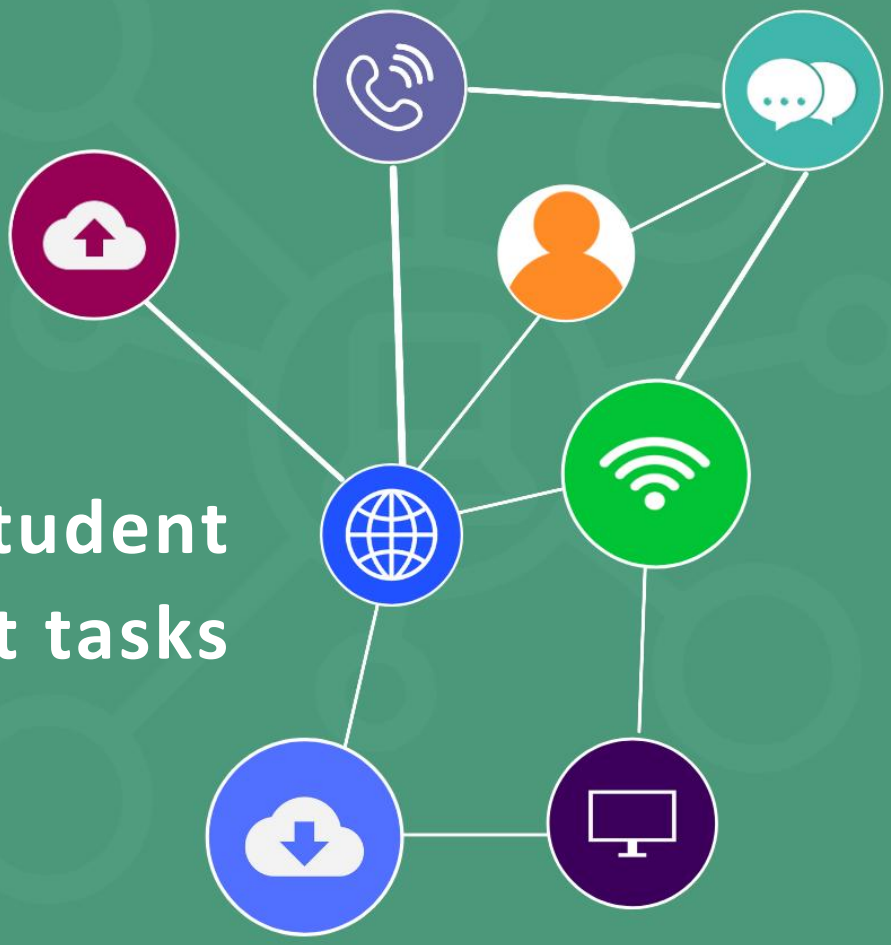

student assessment tasks

ICTWEB513

Build dynamic websites

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IT Works is a series of training and assessment resources developed for qualifications within the Information and Communications Technology Training Package.

CONTENTS

Introduction

The assessment tasks for *ICTWEB513 Build dynamic websites* are outlined in the assessment plan below. These tasks have been designed to help you demonstrate the skills and knowledge that you have learnt during your course.

Please ensure that you read the instructions provided with these tasks carefully. You should also follow the advice provided in the *IT Works Student User Guide*. The Student User Guide provides important information for you relating to completing assessment successfully.

Assessment for this unit

ICTWEB513 Build dynamic websites describes the skills and knowledge required to analyse and design websites to meet technical requirements.

For you to be assessed as competent, you must successfully complete two assessment tasks:

- Assessment Task 1: Knowledge questions – You must answer all questions correctly.
- Assessment Task 2: Project – You must work through a range of activities and complete a project portfolio.

Assessment Task 1: Knowledge Questions

Information for students

Knowledge questions are designed to help you demonstrate the knowledge which you have acquired during the learning phase of this unit. Ensure that you:

- review the advice to students regarding answering knowledge questions in the *IT Works Student User Guide*
- comply with the due date for assessment which your assessor will provide
- adhere with your RTO's submission guidelines
- answer all questions completely and correctly
- submit work which is original and, where necessary, properly referenced
- submit a completed cover sheet with your work
- avoid sharing your answers with other students.

Assessment information

Information about how you should complete this assessment can be found in Appendix A of the *IT Works Student User Guide*. Refer to the appendix for information on:

- where this task should be completed
- the maximum time allowed for completing this assessment task
- whether or not this task is open-book.

Note: You must complete and submit an assessment cover sheet with your work. A template is provided in Appendix C of the Student User Guide. However, if your RTO has provided you with an assessment cover sheet, please ensure that you use that.

Questions

Provide answers to all of the questions below:

1. List and describe three principles of good website design.

Principle of purpose of the site	An excellent website needs to be clear about the purpose of the website, so that customers can clearly know the purpose of the website, meet the needs of stakeholders, and provide help to stakeholders.
Principle of simplicity	The website content is simple and easy to understand. Stakeholders can easily understand the website when reading the website. Simple and concise website content can better attract customers.
Principle of quick Responsive	Ensure that the jump speed between website pages is fast, and improve the efficiency of customers using the website. More efficient operation can give users a better use experience.

2. List and describe three factors that should be taken into consideration when analysing a website to determine its effectiveness.

efficiency	The time taken for reading the website is short and the efficiency is high or low, which determines how well customers understand the content of the website.
bounce rates	Whether there is a good high bounce rates is analyzed by the number of visitors received by your website, the average number of pages visited each time, and the on-site time.
conversion rate	The conversion rate of the web page is also a factor to be considered, because if the conversion rate of the web page is low, there may be problems, such as the loss of potential customers.

3. Define the term programming control structure.

For the definition of the term "program control structure", since the control structure is the method of controlling the flow in the program, the algorithm and program in the program can be more explicit, which is easier to understand than when there is no control. For example, sequential logic can sort programs in the order of the first and second steps to facilitate the understanding of errors.

4. List three types of programming control structures.

1. Sequence logic or sequence flow sequence logic

Sequence logic follows a sequence flow according to instructions given to the computer. Unless new instructions are given, the modules will run in an obvious order.

2. The selection of logical flow or conditional flow is only related to certain conditions or parameters, and some write conditions depend on these conditions and parameters. The structures that use these types of logic are called conditional structures

3. Iterative logic or iterative process Iteration is a group of instruction codes or the process of repeatedly executing specified statements. Iteration logic uses loops that contain iteration statements, and then uses modules called loops.

5. Define the term programming design structure and steps that should be followed for programming design structure.

Programming design structure

This is a standard way to organize the component structure, data structure and control structure of a single user application. It usually reads data, stores it in the data structure, calculates the data, and writes the results.

Sequential logic follows a sequential flow, which depends on the instructions you give the computer. Unless new instructions are given, the modules will execute in an obvious order.

Only some conditions or parameters are involved, and several write conditions depend on these conditions and parameters. The structures that use these types of logic are called conditional structures

Iteration is a group of instruction code or the process of repeatedly executing specified statements. Iteration logic uses a loop containing repeated statements, followed by a module called loop body

It is divided into four steps:

1. Determine the overall objectives of the project. Identify what your program does. What is the purpose of your plan.

2. Identify any limitations or requirements of the procedure.

3. Determine what tools you want to use.

4. Start writing. Write the code of main functions and fill in functions.

5. Test your program. You need to test your program often. Every time you implement a new function, you need to see if it works properly.

6. Solve any problems you encounter.

7. Complete your program.

6. Complete the following table.

Web programming concept	Explanation of the concept
a. Authentication	The authentication function is to identify and verify who the person or system is when the web contact accesses the web information. The web server is authenticated through the authentication function and can use this web page. There are many verification methods such as account password, magnetic card verification card and fingerprint verification, but these are all important verification methods.
b. Web Security	Network security needs the attention of all people who obtain information through the Internet. It is defended by various defensive strategies. Information assets and information products are crucial to our daily life and the normal operation of the whole society. Network security is just the ability to identify and eliminate non security factors in the network environment.
c. Hypertext transfer protocol (HTTP)	HTTP is an application protocol used to transmit hypermedia documents. HTTP was designed in the early 1990s and is an extensible protocol. This is an application layer protocol. HTML is one of HTTP. This is the protocol that the client and server interact by exchanging their own messages. HTTP has no status. For example, the same connection has no relationship between two successful requests.
d. Session Management	Web session is the interaction and reply of a group of network HTTP requests associated with the same user. For example, in order to implement certain functions, for example, in the case of using the shopping function, browsers and servers can generate multiple requests and responses. Open the browser, access the server, and then close the browser. The multiple requests and responses generated during this process are called sessions between the browser and the server.

e. Stateless programming	Stateless programming means that all data in these operations will be transmitted as output data during the data transmission of operator operations. The data structure cannot be changed or shared, and the data object does not have a tag. In addition, global variables cannot be used. All inputs and outputs require special handling. Websites that provide simple static pages are a good example of the stateless model. The server receives the request for the host page and sends the page data to the requested browser. It's like a short menu cook for diners.

7. Explain the term client-side scripting and how it relates to dynamic website design.

Client script language refers to the script program running on the client. Client script is the code generated by client processing and output to standard HTML page. The client page can only contain client script used to develop the page. JavaScript and VB scripts are typical client-side scripts.

Dynamic web page design is the integration of basic HTML syntax, PHP, Java, Python, other program languages, databases and other technologies for effective, dynamic and interactive management of website content and style. Therefore, it can be understood that all Web pages generated by Web programming technology combined with advanced programming languages other than HTML technology and database technology are dynamic Web pages. Therefore, client script is also a part of dynamic web page design.

8. Explain the use HTML in dynamic website development.

Dynamic websites are websites that contain variable data. Generate variable content using client or server scripts. It also includes HTML data, just like a static website. Dynamic HTML allows developers to generate effects on the page. With HTML, you can change dynamic pages based on the location of your visitors, the time they visited the site, security settings, and the pages they previously saw.

9. Explain the use of cascading style sheets in dynamic website development.

Users can use css to change the page layout and display mode of HTML elements. Css allows developers to control the style and layout of multiple web pages at the same time. The Drawer has two style sheets: an internal style sheet and an external style sheet. The internal stylesheet stores all CSS code for style rules in the active HTML document. This style sheet applies only to this document. An external style sheet is your own document that you can attach to any or all pages of a Web site.

10. Explain the purpose of producing a hierarchy of a dynamic website.

Web site hierarchy is called site hierarchy. It can enable users to find a well designed website through the menu built by the website map. Placing the write element according to the correct hierarchy can prevent mixing. Allow users to navigate hierarchically around the site

11. Explain the use of user interface prototyping in dynamic website design.

User interface (UI) prototyping is an iterative development technology. Prototypes are used as examples of how a website looks and how users browse it. It can be functional or non functional. In the design process, it includes the layout of the web page, which is related to the navigation menu, header and footer, text and image placeholders. It can also be in the form of a mind map that outlines interaction and design

12. List three typical user interface requirements for dynamic website design.

Dynamic Web User Interface Requirements

Content rendering - The first basic requirement for a dynamic Web user interface is to render content. Designers have great freedom in organizing and displaying information. You can use various rendering modes, such as digital rendering mode. If applicable, you can change the chart type or switch between tables and chart presentations. For example, some users prefer a pie chart that quickly transmits percentages and trends, while others prefer a grid that supports complex analysis values. You must have a clear understanding of your application's target audience in order to design appropriate and effective content presentations.

Application navigation is one of the basic elements of dynamic web pages. The application design shall include backward and forward links between pages. The application home page will link to all other pages in the application and provide an appropriate location to inform users of the features and extensions of the application.

User help: Dynamic web page design is more difficult to run dynamic web pages than static web pages, and it is easier to operate. Therefore, in order to solve the difficulties in using web pages, it is necessary to design user help buttons such as customer service buttons.

13. Explain the concept of website architecture.

The website architecture refers to that the designer accurately locates the website target group according to the analysis results of customer needs, designs the overall structure of the website, plans and designs the website columns and contents, and formulates the website design process and schedule, which means maximizing the efficiency of resource allocation and management.

The website architecture includes strategies for creating and displaying websites, and ultimately website design. This is the structure of the website content. Without proper knowledge of website architecture and good website framework, you can eventually create a completely confusing website. When creating a web page, it is easy to have unclear content expression, which will have a negative impact on the display of the page, and the content itself may be lost or inaccessible.

14. Explain considerations relating to data storage when building a dynamic website.

The most common storage method is to use a relational database to store data. Generally, data access objects (DAO) and PHP data objects (PDO) are used. Database integration and website design are a difficult part. Data structures can be different, simple or complex.The website needs to use the storage function of the database to store data, and the database needs to use the website interface to display the data on the visual interface.

15. Describe the testing process for a dynamic website.

Test mobile websites and take Taobao as an example

1. Function test: click the product connection on the web page to check whether the jump function is normal.

2. Form test: check all forms on the web page, and check all validation items and default values in each field. Intentionally use the wrong input to detect whether it can be recognized, such as entering text in the product quantity.

3. Cookie test: test whether cookies are encrypted. After the session ends, check the login session and user statistics. Delete cookies to check for impact on application security.

4. Database test: click the [Purchase] button to submit the purchase order and check whether the database connection is normal. Check data integrity and errors when editing, deleting, modifying forms, or performing database related functions.

5. Usability test: check whether the appearance of the webpage is simple, whether there is a navigation bar and whether it is easy for users to use.

16. List two methods that can be used for debugging a dynamic website.

Tests can include front-end elements (i.e. content, links) and back-end elements (databases and functions used in code).

1.We can inspect the hover/focus styles with browser dev tools. Press the button in the Rules (Firefox) or Styles (Chrome) tab and activate the pseudo class；

2.Another way to inspect dynamic styles is to break on DOM tree modifications:

Right-click the button in the DOM inspector.

Select "Break on" and "attribute modification".

Trigger the effect (hover or focus the button)

17. Document one cyber security procedure and one protocol that should be followed to ensure a secure dynamic website.

Cyber security procedure/protocol	Description
Cyber Security Standardized Operating Procedures	Cyber Security Standardized Operating Procedures (CSOP). A very special aspect of CSOP is its adoption through the NIST NICE Cybersecurity Staff Framework. The goal is to streamline cybersecurity roles and responsibilities. This is adopted in CSOP because the work roles directly affect the program. Help guide the work of employees and contractors by assigning job roles that minimize assumptions about who is responsible for certain cybersecurity and privacy tasks. Improving cyber security.
Encryption protocol	Data breaches occur because passwords are substandard, stolen or lost. One of the best things you can do for your organization is to use password encryption In addition, encrypting sensitive data can prevent serious damage in the event of a data breach. It provides an extra layer of security that makes it more difficult for intruders to exploit stolen data and keep users' information safe.

Assessment Task 1: Checklist

Student's name:Blank			
Did the student provide a sufficient and clear answer that addresses the suggested answer for the following?	Completed successfully?		Comments
	Yes	No	
Question 1			
Question 2			
Question 3			
Question 4			
Question 5			
Question 6a			
Question 6b			
Question 6c			
Question 6d			
Question 6e			
Question 7			
Question 8			
Question 9			
Question 10			
Question 11			
Question 12			
Question 13			
Question 14			
Question 15			

Question 16			
Question 17			
Task outcome:	☐ Satisfactory		☐ Not satisfactory
Assessor signature:			
Assessor name:			
Date:			

Assessment Task 2: Project Portfolio

Information for students

In this task, you are required to demonstrate your skills and knowledge by working through a number of activities and completing and submitting a project portfolio.

You will need access to:

- a suitable place to complete activities that replicates a business environment including a meeting space and computer and internet access
- your learning resources and other information for reference
- a development environment including server, database server, hardware and software required for building dynamic websites
- libraries and frameworks required for building dynamic websites
- range of web browsers and devices
- website testing and debugging tools
- ICTWEB513 Simulation Pack, including client requirements
- *Project Portfolio* template.

Ensure that you:

- review the advice to students regarding responding to written tasks in the *IT Works Student User Guide*
- comply with the due date for assessment which your assessor will provide
- adhere with your RTO's submission guidelines
- answer all questions completely and correctly
- submit work which is original and, where necessary, properly referenced
- submit a completed cover sheet with your work
- avoid sharing your answers with other students.

i	**Assessment information** Information about how you should complete this assessment can be found in Appendix A of the *IT Works Student User Guide*. Refer to the appendix for information on: • where this task should be completed • how your assessment should be submitted. *Note*: You must complete and submit an assessment cover sheet with your work. A template is provided in Appendix B of the Student User Guide. However, if your RTO has provided you with an assessment cover sheet, please ensure that you use that.

Activities

Complete the following activities:

1. Carefully read the following:

This project requires you to build a dynamic website according to requirements.

This project is to be based on the requirements for a dynamic website ICTWEB513 Simulation Pack. Speak to your assessor to get approval if you want to base this on another business or client requirements for a dynamic website.

Vocational education and training is all about gaining and developing practical skills that are industry relevant and that can help you to succeed in your chosen career. For this reason, basing your project on real requirements will mean that you are applying your knowledge and skills in a relevant, practical and meaningful way!

You will be collecting evidence for this unit in a Project Portfolio. The steps you need to take are outlined below. Before you begin, complete page 4 of your Project Portfolio.

2. Preparation

Make sure you have decided which website you will be creating for this assessment.

Read through the Simulation Pack that includes standards and procedures that you must follow for dynamic website development.

Complete *Page 4* of your Project Portfolio for this unit.

Read through the requirements of *Section 1, 2 and 3 of your Project Portfolio* which include detailed guidance relevant to all the assessment activities.

3. Dynamic website preparation

You are now to complete Section 1 of your Project Portfolio by:

- Identifying legislation, standards and procedures applicable to dynamic web site development.
- Describing the website you are going to build, including its purpose, expectations for the website and the required functionality.
- Based on the business' requirements, analyse and then describe user interface design requirements, including user needs, design principles and operating systems
- Planning the dynamic web site by developing and documenting a hierarchy for the website (including navigation) to show how it will be built.

- Developing and documenting a prototype for the user interface.
- Determining and documenting the dynamic website architectural requirements.
- Designing the data storage requirements as per the requirements or the website.

Complete Section 1 of your Project Portfolio.

Submit your Portfolio to your assessor as you will need to confirm with your assessor prior to proceeding to the building your website that your design for the content is logical and accessible to the target user and meets business requirements

4. Website development

You are now to complete Section 2 of your Project Portfolio by:

- Downloading the software you will use to create the HTML code for the website. Your trainer/assessor will advise the software which you are to use. For example, this may include software such as Notepad ++ or Visual Studio Code or Atom.
- Installing this software and then using it to write the HTML code.
- Developing all of the agreed components for the website, including styling.
- Testing each component to make sure it is working.
- Integrating components to produce the final dynamic website.

Complete Section 2 of your Project Portfolio.

Submit your Portfolio to your assessor.

5. Test and finalise dynamic website.

The final part of this assessment requires you to test and finalise your dynamic website. You will be required to:

- Check your completed website to make sure it addresses the business' requirements and make changes required.
- Check that your completed website is secure and bug free
- Confirm that the dynamic website works on least two:
  - different types of browsers
  - different types of devices
- Provide your dynamic website to your assessor for feedback and incorporate their feedback.

Complete Section 3 of your Project Portfolio.

6. Submit your completed Project Portfolio

Make sure you have completed all sections of your Project Portfolio, answered all questions, provided enough detail as indicated and proofread for spelling and grammar as necessary.

Submit to your assessor for marking.

Assessment Task 2: Checklist

Student's name:			
Did the student:	Completed successfully?		Comments
	Yes	No	
Identify legislation and standards applicable to dynamic website development?			
Follow procedures applicable to dynamic website development?			
Determine and document the purpose, expectations and functionality of the dynamic website?			
Based on the business' requirements for the website, analyse and then describe user interface design requirements, including user needs, design principles and operating systems?			
Plan the dynamic web site by developing a hierarchy for the website (including navigation) to show how it will be built.?			
Develop a prototype for the user interface for the dynamic website?			
Determine and document the architectural requirements for the dynamic website?			
Design the data storage requirements for the dynamic website according to the business' requirements for the website?			
Confirm with you (the assessor) that their content is logical and accessible to the target user according to the business' requirements for the website?			

Create the software components of website according to the business' requirements for the website and using the downloaded software to create the code?			
Test each required component of the dynamic website following procedures?			
Integrate all components to produce they dynamic website?			
Test the website to make sure it meets the specified business requirements and make required changes?			
Complete checks to make sure the website is secure and bug free and following procedures?			
Test website functionality on two different browsers and two different devices and make changes as required?			
Obtain feedback from you (the assessor) and update the website based on feedback?			
Complete Portfolio in full to demonstrate completion and documentation of website design structure?			

Task outcome:	☐ Satisfactory ☐ Not satisfactory
Assessor signature:	
Assessor name:	
Date:	

Final Results Record

Student name:	
Assessor name:	
Date	

Final assessment results

Task	Type	Result		
		Satisfactory	Unsatisfactory	Did not submit
Assessment Task 1	Knowledge questions	S	U	DNS
Assessment Task 2	Project Portfolio	S	U	DNS
Overall unit results		C	NYC	

Feedback

☐ My performance in this unit has been discussed and explained to me.

☐ I would like to appeal this assessment decision.

Student signature: _____ Date: _____

☐ I hereby certify that this student has been assessed by me and that the assessment has been carried out according to the required assessment procedures.

Assessor signature: _____ _____Date: