

**student
assessment tasks**



ICTWEB513

Build dynamic websites

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RTO Works

www.rtoworks.com.au

hello@rtoworks.com.au

0452 157 557

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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.



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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	1. An excellent website needs to clarify the purpose of the website creation, let customers know the purpose of the website, and meet the needs of stakeholders, so that users can be satisfied.
Principle of simplicity	The content of the website is simple and easy to understand, so that stakeholders can easily understand the content of the website when reading the website and attract customers. Keep your website design simple and clean so it's clear and easy to use. Don't use unnecessary details or elements.
Principle of quick Responsive	Users want to see your site quickly, so you need to make sure it's responsive. Ensure that the site page jump speed is fast, improve the efficiency of customers using the site.

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

efficiency	The time to read the website is very short, and the efficiency of users to read the website is often very different, will be very high or very low, which determines the customer's understanding of the content of the website.
bounce rates	Whether there is a good bounce rate is analyzed by the number of visitors your website receives, the average number of pages per visit, and the time on site. Low rebound rate proves that the website is good and popular with users, while high rebound rate indicates that the website is not popular with users.
conversion rate	The conversion rate of the web page is also a factor to be considered. The conversion rate is the core of whether the website can make profits eventually. Improving the conversion rate of the website is the result of the comprehensive operation strength of the website. If conversion rates are low, problems can arise, such as loss of potential customers. High conversion rate, it means that the website income has a certain guarantee.

3. Define the term programming control structure.

Answer: For the definition of the term programming control structure, the control structure is a method for the control flow in the program, so that the algorithm or program in the programming

can be clearer, which is easier to understand than the case without control. For example, sequential logic is to arrange programs in the order of the first step and the second step through order, which is easier to understand and correct errors.

4. List three types of programming control structures.

Answer:

Sequential logic or sequential flow; Sequential logic

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. Commands must be executed in strict order, otherwise errors will occur.

Select logical or conditional flow:

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

Iterative logic or repeated flow:

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. The loop can repeat the same operation over and over again until the desired result is reached.

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

Answer: 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 identity authentication function is to identify and verify who the person or system is when a web page contact person accesses the web page information. The web server will be authenticated through the authentication function, and you can use the web page. There are many ways of authentication, such as account password, magnetic card swiping authentication, fingerprint authentication, etc. These are all important ways of authentication.
b. Web Security	Network security is what every person who obtains information through the Internet needs to pay attention to. It is defended through multiple defense measures. Information assets and information products are crucial to our daily life and the normal operation of the whole society. Network security is simply the ability to identify and eliminate unsafe 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. It is an application layer protocol, and HTML is one of HTTP. It is a protocol that clients and servers interact by exchanging their own messages. HTTP is stateless. For example, in the same connection, there is no relationship between two successful requests.
d. Session Management	A Web session is a sequence of network HTTP request interaction and reply transactions related to the same user. For example, in order to realize a certain function, for example, when using the shopping function, the browser and the server may generate multiple requests and responses. From the time when the browser is opened to access the server to the time when the browser is closed, the multiple requests and responses generated during

	this period together are called a session between the browser and the server.
e. Stateless programming	Stateless programming means that during the transmission of data operated by operators, all data in these operations will be transferred back as output data. It is a data structure that cannot be modified and shared, and data objects are not labeled. They also cannot use global variables, and all inputs and outputs need special processing. Websites that provide simple static pages are a good example of the stateless model. The server receives the request for the page it hosts, and sends the page data to the requesting browser, just like a short order chef cooking for a diner.

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

Answer: Client script language refers to the script program running on the client. The client script is the code put into the standard HTML page, processed and generated by the client and output. The client page can only contain the client script used to develop the page. JavaScript and VB scripts are typical client scripts.

The design of dynamic web pages is the integration of the most basic HTML syntax specification, PHP, Java, Python and other program languages, databases and other technologies, in order to achieve efficient, dynamic and interactive management of website content and style. Therefore, it can be understood that all web pages generated by web page programming technology combined with advanced programming languages other than HTML and database technology are dynamic web pages. So client script is also a part of dynamic web page design.

Dynamic websites can rely on the database to transfer data to the website, the website can also collect data back to the database

7. Explain the use HTML in dynamic website development.

Answer: Dynamic website is a website containing variable data. It uses client or server scripts to generate variable content. Like a static website, it also contains HTML data. Dynamic HTML allows developers to generate effects on the page. You can use HTML to make dynamic pages change according to the location of visitors, the time they visited the site, security settings, and previous pages viewed by visitors. Dynamic web sites can set up a form in an html page to collect data for transfer to a database connected to the dynamic web site

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

Answer: Users can use css to change the layout of web pages and the display mode of HTML elements. CSS allows developers to control the style and layout of multiple web pages at once. Through the preparation of CSS code, so as to get the desired web page style, can make a website appearance design that meets the needs. There are two types of style sheets in Dreamweaver: internal style sheets and external style sheets. The internal stylesheet stores all CSS code for style rules in the active HTML document. This type of style sheet applies only to this document. An external style sheet is its own document that can be attached to any or all pages of the site.

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

Answer: 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. Dynamic websites have a large number of data interaction with the database, so sometimes there may be more levels than static websites, good hierarchical structure, conducive to users in the use of dynamic websites can be easier to learn, more quickly use dynamic websites to complete the purpose of users

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

Answer: 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. The use of user interface prototypes is very important in dynamic websites, a good dynamic website, must have the database and website connection and interaction, and the website and database data interaction link on the website has a certain step display, often the final link of data display or the beginning of data transmission. A good user

interface prototype can make it more comfortable and convenient for users to use when using dynamic websites.

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

Answer: User interface requirements for dynamic web pages

Content presentation: The first basic requirement for the user interface of dynamic web pages is the presentation of content. Designers have great freedom in organizing and presenting information. Various rendering modes can be used, such as digital rendering mode. When appropriate, you can allow users to change the chart type, switch between tables and chart presentations, etc. For example, some users may prefer a pie chart that quickly conveys percentages and trends, while others may prefer a grid that provides values and supports complex analysis. You should have a clear understanding of your application's target audience so that you can design appropriate and effective content presentations.

Application navigation: This is one of the basic elements of dynamic web pages. The application design should include backward and forward links between pages. The application Home page may link to all other pages in the application and provide an appropriate location to notify users of application features and enhancements.

User help: In the design of dynamic web pages, it is more difficult and operable to run dynamic web pages than static web pages. Therefore, a user help button should be designed, such as a customer service button, to help customers solve difficulties when using web pages or design a page dedicated to answering common questions and solutions for users in the use of the site, and create a community for them to discuss together.

12. Explain the concept of website architecture.

Answer: Website architecture refers to that designers accurately locate the target group of the website according to the analysis results of customer needs, design the overall structure of the website, plan and design website columns and content, formulate the process and schedule of website design, and maximize the efficiency of resource allocation and management. The architectural design of the website reflects whether the website designer understands the purpose of the website and the needs of stakeholders, and a good website architecture can deeply reflect the website designer's understanding of the project.

The website architecture includes strategies for creating and displaying websites, and ultimately includes website design. This is how the content on your website is organized. If you do not have proper website architecture knowledge and a good web page framework, you may eventually create a completely confusing website. Then it is easy to have unclear content expression when

making a web page, which will have a bad impact on the presentation of the page, and even the content itself may be lost and inaccessible.

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

Answer: 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. When storing data, it is important to ensure that the data is stored in the correct database and that the database is properly connected to the dynamic website. You need to ensure that data can be transferred in front of and behind the backend. 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.

14. Describe the testing process for a dynamic website.

Answer: Test dynamic websites, taking Taobao (a shopping website) as an example

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

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

(3.) Cookie test: test whether the cookie is encrypted. Check the login session and user statistics after the session ends. Check the impact on application security by deleting cookies.

(4.) Database test: click Purchase 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 any database related functions.

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

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

Answer: 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)

16. 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.

"Https" secured protocol.	<p>Hypertext Transfer Protocol Secure (HTTPS) is a protocol that protects communication and data transmission between and between websites when users browse websites using a web browser. HTTPS is the secure version of the Hypertext Transfer Protocol.</p> <p>The protocol protects users from eavesdroppers and man-in-the-middle (MitM) attacks. It also protects legitimate domains from Domain Name System (DNS) spoofing attacks.</p> <p>HTTPS plays an important role in securing websites that are processed or transferred.</p>
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Assessment Task 1: Checklist

Student's name: Grey (Wenhao Weng)			
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:	<input type="checkbox"/> Satisfactory <input type="checkbox"/> 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.



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 of 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:			
	Completed successfully?		Comments
Did the student:	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:	<input type="checkbox"/> Satisfactory <input type="checkbox"/> 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: _____