Task A – Design a five page website

1 Prior to designing your website it is important that you understand exactly what is required.

Firstly you need to interview the head of marketing for your chosen Town or City (the

Assessor), you will need to gain the following information from the interview:

• the aim and content of the website

• any user requirements

• timescales for completing the website.

Once you have this information you will need to produce a **short** plan that outlines the details

you have learned.

2 The head of marketing has asked you to design a **five** page website that advertises their

Town or City to tourists. The designs need to show the following:

• layout of each page

• a navigation diagram/storyboard

• the format of content including CSS

• any interactive features

• an email link for enquiries

• images

• any animation.

**The plans can either be hand drawn or drawn using ICT.**

Task B – Build a functioning five page website

1 Using the plans created in Task A, build a functional **five** page website that advertises the

Town or City that you have chosen.

Ensure your finished website includes the following:

• **five** functional pages

• any images

• navigation between each page

• **two** interactive features

• an email link for enquiries

• **one** animation.

Task C – Test a functioning five page website

1 Now that your website is complete, ask the assessor to observe you whilst you complete the

following tests:

• functionality testing, open your website in **two** different web browsers

• test your navigation, demonstrating the functionality of **each** link

• test your interactive features.

Task D – Knowledge

1 Describe **three** hardware and **three** software components that enable access to the web.

Hardware:

* Telephone Modem

A telephone modem is a device that converts the signals from your computer into a series of sounds and transmits them across the phone line. A telephone modem on the other side of the connection converts these sounds back to a signal the computer can understand, allowing the computers to communicate. Dial-up connections are still widely in use despite faster connections being available to 89 percent of the U.S. population. Referred to as narrowband connections, these connections are slower and usually do not stay connected at all times.

* Wired Access Points

Computers using a NIC and Ethernet cable connect through an access point. Access points are generally either routers, cable modems, or DSL modems that provide a link between the Internet service provider and your physical computer. NIC-based connections are widely used in local area networks, such as groups of computers in businesses. They can be used in homes, but many users prefer to use wireless connections for the added mobility.

* Router

A router is a physical or virtual appliance that passes information between two or more packet-switched computer networks - analyzing a given data packet's destination IP address, calculating the best way for it to reach that destination and then forwarding it accordingly.

Software:

* Operating System

Without operating system we would not be able to do anything with computer, and it is needed to connect to the internet.

* Internet Browser

It is a software to locate, retrieve the components from the world wide web and display it on the users screen.

* Firewall

A firewall is a network security system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented as both hardware and software, or a combination of both. Network firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet.

2 Explain the role of the following protocols:

• TCP/IP including IPv6

Short for transmission control protocol/Internet protocol, TCP/IP is a set of rules (protocols) governing communications among all computers on the Internet. More specifically, TCP/IP dictates how information should be packaged (turned into bundles of information called packets), sent, and received, as well as how to get to its destination. TCP/IP was developed in 1978 and driven by Bob Kahn and Vint Cerf. Routing within an IPv6 network is similar to routing within an IPv4 network except for the difference in IPv6 address lengths.

• HTTP

Hypertext Transfer Protocol, HTTP is a set of standards that allow users of the World Wide Web to exchange information found on web pages. When accessing any web page entering http:// in front of the address tells the browser to communicate over HTTP. Today's browsers no longer require HTTP in front of the URL since it is the default method of communication.

• SMTP

Simple Mail Transfer Protocol, SMTP is an Internet standard for the sending of e-mail messages over port 25. While it is mostly used for transfer from one mail server to another, some client mail applications use SMTP for relaying messages; whereas receiving happens via POP or IMAP.

3 Explain the role of the following:

• Internet Service Provider

ISP (Internet service provider) is a company that provides Internet access to users or subscribers of its service. An ISP gives you an Internet account (access to the Internet).

• Domain name registrar

A domain name registrar is a company or organization whose purpose is to conduct the registration of domain names.

• Web hosting service

Without hosting, your website can’t go live on the internet. Hosting providers give you the tools and server space you need to get your site hosted, live, and ready for visitors!

4 Identify and briefly describe **four** types of web functionality.

* Online Credit Card Processing

In its simplest form, online credit card processing is the method in which you accept customer payments, via debit/credit cards (such as Visa, MasterCard, Discover and American Express), directly through your online store. Just as you swipe your card when making a payment at your local gas station, online shoppers must also “swipe” when purchasing through an ecommerce site. Of course, the main difference is that there isn’t a physical terminal to facilitate the transaction, which is where online processing comes into play.

* Shopping Cart

A shopping cart on an online retailer's site is a piece of software that facilitates the purchase of a product or service. It accepts the customer's payment and organizes the distribution of that information to the merchant, payment processor and other parties.

* Easy to remember URL

One of the most common mistakes in website design is choosing a proper domain name. Your domain name should be easy to remember and easy to spell. By this simple step you could have a lot more visits to your website than similar business with more difficult web address.

* Website must work in all browsers

Today there are various Internet browsers that people prefer to use. Thus, it becomes imperative that your website be able to load on any browser – whether that be Internet Explorer, Firefox, Safari, Google Chrome or Opera.

5 Explain the use of **two** different Mark-Up languages.

**Markup languages** are languages that are not in any way executed or used to perform actions but they are used to structure data, identify data or present data as the case may be.

* HTML - Hypertext markup language is used to create electronic documents (called pages) that are displayed on the World Wide Web. Each page contains a series of connections to other pages called hyperlinks. Every web page you see on the Internet is written using one version of HTML code or another.
* XML is a language that’s very similar to HTML. It’s much more flexible than HTML because it allows you to create your own custom tags. However, it’s important to realize that XML is not just a language. XML is a meta-language: a language that allows us to create or define other languages. For example, with XML we can create other languages, such as RSS, MathML (a mathematical markup language), and even tools like XSLT. More on this later.

6 Explain the use and functionality of:

• Web runtime environments

Web runtime environment implements part of the core behaviour of web based languages such as Java-script which utilises the core behaviour a computer language. JavaScript is often used to create responsive interfaces which improve the user experience and provide dynamic functionality without having to wait for the server to react and direct to another page.

• Web application programming languages

Web application program language is something that mimics a traditional desktop application within a web page. For example, using PHP you can create forms and tables which use a database similar to that of Microsoft Excel.

• Databases including SQL

A database in SQL Server is made up of a collection of tables that stores a specific set of structured data. A table contains a collection of rows, also referred to as records or tuples, and columns, also referred to as attributes. Each column in the table is designed to store a certain type of information, for example, dates, names, dollar amounts, and numbers.

• PHP

PHP is a server side scripting language that is used to develop Static websites or Dynamic websites or Web applications. PHP stands for Hypertext Pre-processor, that earlier stood for Personal Home Pages. PHP scripts can only be interpreted on a server that has PHP installed. The client computers accessing the PHP scripts require a web browser only.

7 Identify **one** typical stack combination that can be used for web development.

Most common web stack is **LAMP** (Linux, Apache, MySQL, PHP) – The Old-school Stack

Pros

LAMP deserves to be at the top of this list simply because it’s stayed strong as one of the top contenders since it gained dominance around the year 2000. It’s incredibly popular because it’s completely open source (thus free) and easy to customize: you can take it and change it without owing anybody anything.

Each component of the LAMP stack is the king of its field. Linux is the best operating system for web development because it was built by developers for developers. Most websites are run on Apache, a program that hosts servers and is also free and open source (though actual hosting can cost money). MySQL is popular because of its legacy. The majority of the web continues to use LAMP today. It’s a proven method for hosting websites and there’s strong community support.

Cons

Each aspect of the LAMP stack is popular, but each has been challenged in the last ten years by other languages such as Ruby. LAMP is difficult to learn because it requires mastery of a few unrelated languages, along with knowing everything about Linux and Apache server. Developers tend to have a love/hate relationship with PHP due to its many holes. Compatibility issues and inconsistencies are the nature of a language so old.