**Assignment: Web Development**

For Learner Use:

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| Date of Test Given | 26/07/2021 |
| Location / Branch | iStudent Academy, Cape Town |

For Assessors Use:

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| Name of Branch | Cape Town |
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| Mark Allocation | 140 |
| Mark Obtained |  |
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| Unit Standards MICT Seta | 115368 , 115372 |

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| Candidates Signature | BABALO MBULAWA | Date of Submission | 05/07/23 |
| Assessors Signature |  | Date Marked |  |

**Assignment set up:**

This assignment is made up of **four** tasks:

• Task A – Design a five page website

• Task B – Build a functioning five page website

• Task C – Test a functioning five page website

• Task D – Knowledge

**Grading criteria**

**Pass –** Candidates must achieve 84

**Merit –** Candidates must achieve 105

**Distinction–** Candidates achieve 120

**Scenario**

A local IT company has recently been set up in your home town which specialises in building high specification computers for gamers. They also sell computer games.

This company has asked if you could build a website to advertise their products and the top 10 computer games on the market at the moment.

Read all of the instructions carefully and complete the tasks in the order given.

**Task A – Design a five page website (45)**

1 Prior to designing your website it is important that you understand exactly what is required of the website. Firstly, you will need to interview the owner of the computer shop to gain the following information (the assessor will act as the owner): (10)

• the aim and content/pages of the website

• any user requirements

•implementation of the website

• 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.

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| **INTERVIEW QUESTIONS**  1. What particular, unique image do you wish your website to show to the public audience?   * *The company logo must stand out so customers can notes it any time*   2. Whom amongst the public audience are your target audience?   * *Gamers and digital content creaters*   3. What pieces of the information generated would you identify as the most crucial?   * *The companies pation for buildin computers and the brand name*   4. What would be the budget of this website?   * *R 40 000*   5. What would be the timeline of this website?   * *4 weeks*   6. What about your rivals’ websites do you find appealing?   * *The postionin of image and well structured layout* |

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| **IMPLEMENTATION PLAN (based on answers)**  **WEEK1 (DRAW UP IMAGE)**  In this week ill design up a image of how th website will look  The image will take in to consiteration the wishes of the client (the p[ostioning of images and well strcture)  In the forth day of the week client will receive the drawn sacatch of the website an ill await for his recponse and make changes where where client wants.  **WEEK 2( DESIGNING )**  In this week building of the websit will commence. The data need to be display will be collaceted and inserterd in the construction  data such as images, prices and information about the producted.  This is where we wil ensure that the color theme of the website is related to the productes being soled  **WEEK 3 ( bacground )**  In this week will be building the backend of the website. We will ensure the there are no errors and that all the feature work properly  **WEEK 4(test and present)**  In this week i will test the website. I will test it on mulitpile web browsers to see if works properly  i will also test its features  after all the testing i wil; present it to the client to get his approval |

2 The computer company has initially asked you to design a five page website that advertises the products and the top 10 computer games. The designs need to show the following: (35)

• layout of each page

• a navigation diagram/storyboard/flowchart showing navigation between pages when items are clicked

• the format of content including CSS

• at least 3 different interactive features

• at least ten images

• Any animation feature

***\*The plans can either be hand drawn or drawn using ICT. These will be additional digital or screenshot attachments to be submitted.***

**Screenshots ( \myproject\images\planing )**

**Task B – Build a functioning five page website. (35)**

1 Using the plans created in task A, build the functioning **five** page website that advertises the products and shows the top 10 computer games.

Ensure your finished website includes the following:

• suitable CSS styling on each page

• **five** functioning structured pages

• At least ten images of products and **all** of the games

• navigation between each page

• **three** interactive features

• **one** animation.

***\*The actual code will be assessed as well as the functioning website. You need not build the website on a functioning registered domain – it can be local. This must be shown in Task C.***

website location ( \myproject) folder

**Task C – Test a functioning five page website (10)**

1 Now that your website is complete, complete the following tests: (10)

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

• test your navigation, demonstrating the functionality of each link

• test your interactive features.

Record any issues encountered for each below. Provide Screenshots.

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| CHROME test issue     * Home page navigation after clicking were taking the user to the incorrect page.   Salution   * To fix this , I looked in to the the home page html and found that incorrect page links were add to the navigaton menu. I then corrected the erro .   Chrome test screenshot()  Microsoft edge test issue (no issues incounted )  microsoft test screenshot ()  screenshot location  chrome screenshots ( \myproject\google chrome test)  Edge screenshots ( \myproject\microsoft edge test) |

**Task D – Theory (50)**

Task D1: Describe **three** hardware and **three** software components that enable access to the web. (12)

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| Hardware   * NIC- Network Interface Card(wired/ wireless) facility is the most important hardware required to connect Internet. For example, the Laptop can be connected Internet through the wired/wireless. * Wi-Fi router or Hotspot is used to connect the Internet using wired /wireless network (MUST BE CONNECTED TO INTERNET SERVICE PROVIDER). * Computer with a display divice ( moniter ,tv ) or cellphone   Software   * The operating system should support TCP (Transfer Control Protocol) / IP (Internet Protocol), SMTP (Simple Mail Transfer Protocol), FTP (File Transfer Protocol), HTTP (Hyper Text Transfer Protocol) and HTTPS (Hyper Text Transfer Protocol Secured) protocols. * Browsers and other Internet clients access to the web applications such as Outlook, Gmail, Whatsapp, Facebook, Twitter and etc.     REF (https://www.brainkart.com/article/Hardware-and-Software-Requirements-for-Internet-connection\_36836/#:~:text=To%20connect%20the%20Internet%2C%20any%20one%20of%20the%20following%20is%20mandatory.&text=Modem%20is%20used%20to%20connect%20Internet%20thorugh%20Telephoneconnection.&text=NIC%2D%20Network%20Interface%20Card(wired,Internet%20through%20the%20wired%2Fwireless.) |

Task D2: Explain the role of the following protocols: (6)

* TCP/IP including IPv6
* HTTP
* SMTP.

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| 1. TCP/IP - TCP/IP specifies how divices communicate over the internet ,provides end to end comunications that identify how it should be broken into packets, addressed, transmitted, routed and received at the destination.  2. HTTP -HTTP is an application layer protocol designed to transfer information between networked devices and runs on top of other layers of the network protocol stack. A typical flow over HTTP involves a client machine making a request to a server, which then sends a response message.  3. SMTP- SMTP (Simple Mail Transfer Protocol) is a TCP/IP protocol used in sending and receiving email. SMTP is used most commonly by email clients, including Gmail, Outlook, Apple Mail and Yahoo Mail.SMTP can send and receive email, but email clients typically use a program with SMTP for sending email.  ref  -https://www.techtarget.com/searchnetworking/definition/TCP-IP#:~:text=TCP%2FIP%20stands%20for%20Transmission,(an%20intranet%20or%20extranet).  -https://www.cloudflare.com/learning/ddos/glossary/hypertext-transfer-protocol-http/  -https://www.techtarget.com/whatis/definition/SMTP-Simple-Mail-Transfer-Protocol#:~:text=SMTP%20(Simple%20Mail%20Transfer%20Protocol)%20is%20a%20TCP%2FIP,with%20SMTP%20for%20sending%20email. |

Task D3: Explain the role of the following: (6)

* Internet Service Provider
* Web hosting service
* Domain name registrar.

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| 1 Internet Service Provider - An internet service provider (ISP) is a company that provides access to the internet. ISPs can provide this access through multiple means, including dial-up, DSL, cable, wireless and fiber-optic connections.    2 -Web Hosting Service - Web Hosting Service is an online service that makes your website’s content accessible on the internet. When you purchase a hosting plan, you are renting space on a physical server to store all the website’s files and data.  3 -A domain name registrar is a business that handles the reservation of domain names as well as the assignment of IP addresses for those domain names.  REF  1 - https://www.verizon.com/about/blog/isp-meaning#:~:text=An%20internet%20service%20provider%20(ISP)%20is%20a%20company%20that%20provides,mobile%20carriers%2C%20and%20telephone%20companies.  2 - https://www.hostinger.com/tutorials/what-is-web-hosting/?ppc\_campaign=google\_search\_generic\_hosting\_all&bidkw=defaultkeyword&lo=1029006&gclid=CjwKCAjwkeqkBhAnEiwA5U-uM5GJNEektKpLkM6L1oQVAOW9Fe5ZeiTJXaCQdWqDB2f39pV9RoTBLhoCX84QAvD\_BwE    3 -https://www.cloudflare.com/learning/dns/glossary/what-is-a-domain-name-registrar/ |

Task D4: Identify and briefly describe **four** types of web functionality. (8)

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| Search Engine or Search Page  Searches keywords in the website or an area of the website. A search page can be modified, added or removed from the website by any MoST user.  Site Map  This is an auto-updating page based on the website's document structure and descriptions. This tool helps with SEO (search engine optimisation) and user navigation.  Shopping Cart  This comprehensive cart allows for e-commerce on websites, using a real-time payments system. The shopping cart allows users to browse your site for items to purchase, has an automated facility for adding purchases and applying discounts if necessary, can be linked to the client database, can handle multiple currencies, and more.  Events Calendar  This facility allows you to enter event details in the back-end of your site, which will automatically display on an events calendar. Clients or members can then view and book for events.  Ref (https://expert.services/blog/managing-your-website/most-tutorial/most-website-features-and-functionality) |

Task D5: Explain the use of **two** different Mark-Up languages. (4)

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| HTML  HTML is heavily used for creating web pages displayed on the world wide web. Every page contains a set of HTML tags, including hyperlinks used for connecting to other pages. Every page that we witness on the world wide web is written using a version of HTML code.  Xml  Extensible Markup Language (XML) is a markup language and file format for storing, transmitting, and reconstructing arbitrary data.  Ref  1https://www.educba.com/uses-of-html/  2 https://en.wikipedia.org/wiki/XML |

Task D6: Explain the use and functionality of: (8)

* Web runtime environments
* Web application programming languages
* Databases including SQL
* PHP

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| **1 Web runtime environments**   * To test a programmes ability ro run in different environment * runtime environments are used to improve the programmes performance   **2 Web application programming languages**   * Front end development languages are the programming languages used to develop the part of a website a user can see, these are some for the languages used (HTML, CSS, and sometimes JavaScript) * The back end of a website is the part a user can’t see.When you fill out a form, the backend handles it. The back end is built with PHP, Python, Java, and much more   **3 Databases including SQL**   * A database is an organized collection of structured information, or data, typically stored electronically in a computer system. * A database is usually controlled by a database management system (DBMS) such as SQL.   **4 PHP**   * PHP is a programming language used to script websites that are dynamic and interactive. * its use as a dynamic scripting language that works hand-in-hand with HTML.   ref  2 <https://loopstudio.dev/best-languages-for-web-development/>  3 [https://www.oracle.com/za/database/what-is-database/#:~:text=A%20database%20is%20an%20organized,database%20management%20system%20(DBMS](https://www.oracle.com/za/database/what-is-database/" \l ":~:text=A database is an organized,database management system (DBMS)).  4 https://www.codecademy.com/resources/blog/what-is-php-used-for/ |

Task D7: Identify **one** typical stack combination that can be used for web development. (2)

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| LAMP The LAMP stack consists of:   * Linux (OS) * Apache (server) * MySQL (database) * PHP/Perl/Python (programming language)   REF (https://www.educative.io/blog/choose-a-web-development-tech-stack) |

Task D8: What is an API and describe a scenario where it would be required. (4)

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| An API is a software intermediary that allows two applications to talk to each other. In other words, an API is the messenger that delivers your request to the provider that you’re requesting it from and then delivers the response back to you.  Social logins use APIs to allow users to authenticate themselves as a valid user. This, in turn, gives information like email, name, and user id for the developers to store in the database  Ref(Task D8: What is an API and describe a scenario where it would be required. (4)) |
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