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| **COURSEWORK ASSIGNMENT** | |
| **Module Title: Platforms for Computing – Sem B** | **Module Code: 4WCM0019** |
| **Assignment Title: Assignment 2 – Pegasus Digital** | **Individual Assignment - Yes** |
| **Tutor**: Gani Nashi | **Internal Moderator**: |

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| Student ID Number **ONLY**: | Year Code: |
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| Marks Awarded %: | Marks Awarded after Lateness Penalty applied %: |
| Penalties for Late Submissions   * Late submission of any item of coursework for each day or part thereof (or for hard copy submission only, working day or part thereof) for up to five days after the published deadline, coursework relating to modules at Levels 0, 4, 5, 6 submitted late (including deferred coursework, but with the exception of referred coursework), will have the numeric grade reduced by 10 grade points until or unless the numeric grade reaches or is 40. Where the numeric grade awarded for the assessment is less than 40, no lateness penalty will be applied. * Late submission of referred coursework will automatically be awarded a grade of zero (0). * Coursework (including deferred coursework) submitted later than five days (five working days in the case of hard copy submission) after the published deadline will be awarded a grade of zero (0). * Where genuine serious adverse circumstances apply, you may apply for an extension to the hand-in date, provided the extension is requested a reasonable period in advance of the deadline. | |
| Please refer to your student handbook for details about the grading schemes used by the School when assessing your work. Guidance on assessment will also be given in the Module Guide. | |
| Guidance on avoiding academic assessment offences such as plagiarism and collusion is given at this URL: <http://www.studynet.herts.ac.uk/ptl/common/LIS.nsf/lis/citing_menu> | |

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| **ASSIGNMENT BRIEF**  ***Students, you should delete this section before submitting your work.*** | | |
| **This Assignment assesses the following module Learning Outcomes (from the module DMD):**  Successful students will typically:   * have a knowledge and understanding of:   1. [iii] the functionality of a computing platform and how that relates to the functionality of end-user software and devices.   2. [iv] the fundamentals of computer networks, how they work, and how they are structured. * be able to:   1. [v] Articulate concepts related to computing platforms, devices and end user software.  1. [viii] analyse and measure the performance of networked applications. | | |
| **Assignment Brief**  You have been employed by an IT service provider Pegasus, as a support and training provider to the company’s technicians, sales consultants and also to its clients.  Your manager has asked you to prepare materials that will be used either for training, or for pre and after sales support to clients, such as helping the company sales consultants advise clients on the most appropriate operating system to meet their needs, or the first- and second-line network engineers to provide support.  The requirements from the manager are to prepare documents of appropriate formats that will describe the features and capabilities of operating systems and will allow the sales consultants to recommend the most appropriate software to their clients, as the company has a wide variety of clients. The document must include the suitability of the software for different users, such as home or business user, expert or novice user, office, creative, retail or manufacturing environments.  In addition, you will also have to prepare some other materials for the network engineers, outlining, explaining and evaluating several aspects of computer networks, such as addressing, configuration, topologies and protocols. These materials will be prepared as part of a small networking project for a client company called Andromeda Productions. (See separate document provided – Network Requirements).  The materials will consist of two parts.  **Assignment 2 - Task 1 – Operating Systems**  The documents for this part will need to explore, describe, analyse and evaluate at least two different types of operating systems - Microsoft Windows and another one of your choice. For the second one you can choose between UNIX, different flavours of Linux, or Mac OS X.  The comparison between the two operating systems should include but may not be limited to the following:   * OS Kernel – type, features, capabilities, differences * Application Programming Interface – purpose, components, operation * File system – purpose, types, features, differences * Memory management – efficiency, memory allocation, logical and physical spaces, loading types * User Interface – types, features, functionalities   You also should describe how the choice of the operating system affects the hardware and application software requirements for a client. You can use the example of a graphic designer, and an HR consultant, as possible clients.  It is also required to include in your documentation operating system capability for data and system security, error management, and performance in relation to the user requirements.    **Assignment 2 - Task 2 - Networking**  Using computer and networking hardware, or networking simulator software that will be provided, you will need to demonstrate the configuration of a computer network, according to a set of requirements from a client, with regard to the physical topology, number and type of devices, services and IP addressing. Your tasks are as follows:   * 1. Set up and configure a network according to a simple set of requirements. The floor plan and requirements are given to you by your manager, in separate documents to clarify the task. The configured network must be accompanied by appropriate documentation (IP addressing scheme, network design diagrams, and explanations of how everything is implemented, outlining the reasons for the provided solutions).   2. The network documentation report should also include a critical evaluation that highlights and explains any potential strengths, weaknesses or constraints with regard to security, performance, hardware redundancy and expandability.   3. Network design, implementation, and support projects require knowledge of the physical environment and of the connectivity. The company management have established that the support engineers lack theoretical knowledge of networking environments. Therefore, using the designs from Task 2.1 above, you are going to prepare some training materials, where **physical and logical topologies,** **physical and logical addressing**, and OSI and TCP/IP networking models are compared and explained, including their purposes. The comparison of the two networking models should include layers and explanations of some application protocols, such as HTTP, DNS, and transport protocols such as TCP and UDP. | | |
| **Submission Requirements:**  Your deliverables for Tasks 1 and 2 will be:   * A report in Word format (or any suitable text format, uploaded onto the Canvas repository, which will include the features and functions of the operating systems as per Task 1 requirements. * A configured network in the format produced by the network simulator that you will be using (Packet Tracer for example), which fulfils the requirements. (Task 2.1) * Network documentation fulfilling the requirements for Tasks 2.1 and 2.2 – (IP addressing scheme, network design diagrams, and explanations of how everything is implemented, outlining the reasons for the provided solutions, potential strengths, weaknesses or constraints with regards to security, performance, hardware redundancy and expandability). * A set of training materials in an appropriate format, containing physical and logical addressing, an explanation and comparison of the two networking models - OSI and TCP/IP models – including explanations of network services, such as HTTP and DNS, and protocols that support them such as TCP/UDP.   If you include screenshots, then every screenshot must be properly explained and be integral part of the report.  The table below shows the word count and the weighting percentage for each section of the submission (the word count is given as a guide, so you don’t go overboard and write too much about each section): | | |
| **Marks awarded for:**  This assignment is worth **40%** of the overall mark for this module.  The table below shows the word count and the weighting percentage for each section of the submission:   |  |  |  |  | | --- | --- | --- | --- | |  | **Assignment 2 Checklist** | **Word count** | **Mark** | | Task 1 | Introduction to Operating Systems, what they are and what they do.  The mark includes technical report writing and referencing skills. | 200 | /10 | |  | Operating System 1  GUI, Kernel. API, File System | 500-600 | /15 | |  | Operating System 2  GUI, Kernel. API, File System | 500-600 | /15 | |  | The level of comparison and evaluation between the two operating systems | N/A | /10 | | Task 2 | Configuration of a computer network according to a given set of requirements and relevant documentation | 200 | /20 | |  | Comparison and relationship between HW and logical addresses | 400 | /10 | |  | A comparison of physical and logical topologies using the behavior of networking devices in each of them | 400 | /10 | |  | A comparison and evaluation of OSI and TCP/IP models, layers and services | 400 | /10 | |  | **TOTAL** | **2800** | **/100** |   A note to the Students:   1. For undergraduate modules, a score above 40% represent a pass performance at honours level. 2. For postgraduate modules, a score of 50% or above represents a pass mark. 3. Modules may have several components of assessment and may require a pass in all elements. For further details, please consult the relevant Module Guide or ask the Module Leader. | | |
| Typical (hours) required by the student(s) to complete the assignment:  **35** hours | | |
| **Date Work handed out:**  **w/c 01/03/2021** | **Date Work to be handed in:**  04/04/2021 | **Target Date for the return of the marked assignment:**  30/04/2021 |
| **Type of Feedback to be given for this assignment:**  Summative feedback will be given for the test on StudyNet, on the submission area within four weeks after you have completed the test and have submitted the evidence of test completion (screenshot) on StudyNet. | | |

Please refer to the marking scheme in the next section:

**PfC Assignment 2 Marking Scheme**

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| Numeric Score | Descriptor | Introduction to computer systems  Technical writing and referencing  (10%) | Operating System 1  (15%) | Operating System 2  (15%) | Level of analysis and comparison (10%) | Network Configuration  (20%) | HW and Logical Addresses  (10%) | Physical and Logical Topologies  (10%) | OSI and TCP/IP Model  (10%) |
| 80-100 | Outstanding  (1st) | Efficient, concise, and comprehensive introduction to operating systems, setting the scene for the rest of the report.  Outstanding reporting and referencing | Outstanding analysis of operating system components, with outstanding technical level of knowledge | Outstanding analysis of operating system components, with outstanding technical level of knowledge | Outstanding level of analysis and comparison, demonstrating outstanding skills | Outstanding level of network configuration skills, which are explained with outstanding level of clarity. | Outstanding knowledge of physical and logical addressing, and they are explained with great technical skills. | Outstanding comparison of physical and logical topologies | Outstanding level of knowledge of networking models and their differences. |
| 70-79 | Excellent  (1st) | Excellent introduction to operating systems, preparing the reader for the rest of the report.  Excellent writing and referencing skills. | Excellent analysis of operating system components, with excellent technical level of knowledge | Excellent analysis of operating system components, with excellent technical level of knowledge | Excellent level of analysis and comparison, demonstrating excellent skills | Excellent knowledge of networks and configured with excellent technical skills. | Excellent knowledge of physical and logical addressing, and they are explained with excellent technical skills | Excellent comparison of physical and logical topologies | Excellent level of knowledge of networking models and their differences. |
| 60-69 | Very good  (2:1) | Very good introduction to operating systems, with distinct paragraphs for the topic and for the rest of the report.  Very good referencing and report writing skills. | Very good analysis of operating system components, with very good technical level of knowledge  Interaction between components are very well explained. | Very good analysis of operating system components, with very good technical level of knowledge  Interaction between components are very well explained. | Very good level of analysis and comparison, of operating system components | Very good knowledge of networks and configured with very good technical skills. | Very good knowledge of physical and logical addressing, and they are explained with very good technical skills | Very good comparison of physical and logical topologies | Very good level of knowledge of networking models and their differences. |
| 50-59 | Good  (2:2) | Good introduction to operating systems, with distinct paragraphs for the topic and for the rest of the report. A good report and referencing. | Good analysis of operating system components, with good technical level of knowledge of component interaction | Good analysis of operating system components, with good technical level of knowledge of component interaction | Good level of analysis and comparison, of operating system components | Good knowledge of networks and configured with good technical skills. | Good knowledge of physical and logical addressing, and they are explained with very good technical skills | Good comparison of physical and logical topologies | Good level of knowledge of networking models and their differences. |
| 40-49 | Satisfactory  (3rd) | Satisfactory introduction to operating systems, with distinct paragraphs for the topic and for the rest of the report.  Satisfactory report writing skills. Basic referencing in place. | Satisfactory analysis of operating system components, with basic technical level of knowledge.  Interaction between components are only satisfactorily explained. | Satisfactory analysis of operating system components, with basic technical level of knowledge  Interaction between components are explained at basic level. | Satisfactory level of analysis and comparison, of operating system components | Satisfactory knowledge of networks and configured with basic technical skills. Not everything works, and explanations are very basic. | Basic knowledge of physical and logical addressing, and they are explained with satisfactory level of technical skills | Satisfactory comparison of physical and logical topologies | Satisfactory level of knowledge of networking models and their differences |
| 30-39 | Marginal fail  (Fail) | Unsatisfactory  introduction to operating systems, with vague paragraphs for the topic and for the rest of the report.  Unsatisfactory writing, with referencing errors. | Unsatisfactory analysis of operating system components, with poor technical level of knowledge.  Interaction between OS components are unsatisfactorily explained. | Unsatisfactory analysis of operating system components, with poor technical level of knowledge.  Interaction between OS components are unsatisfactorily explained. | Unsatisfactory level of analysis and comparison, of operating system components | Unsatisfactory knowledge of networks, and not configured correctly. Not everything works, and explanations are unsatisfactory. | Unsatisfactory knowledge of physical and logical addressing, and they are explained with unsatisfactory level of technical skills | Unsatisfactory comparison of physical and logical topologies | Unsatisfactory level of knowledge of networking models and their differences |
| 20-29 | Clear fail  (Fail) | Some limited introduction, with very generic statements. Not focused on the topic and the report. Poor writing skills and some attempts of referencing | Very limited attempts on the analysis of operating system components, with very poor technical level of knowledge.  Very vague attempt on explaining the interaction between OS components. | Very limited attempts on the analysis of operating system components, with very poor technical level of knowledge.  Very vague attempt on explaining the interaction between OS components. | Limited level of analysis and comparison, of operating system components | Limited knowledge of networks, and not configured correctly. Limited practical work on network configuration. Some attempt on explanations. | Limited knowledge of physical and logical addressing, and they are explained with very poor level of technical skills | Very limited comparison of physical and logical topologies | Very limited level of knowledge of networking models and their differences |
| 0-19 | Nothing of merit  (Fail) | Very difficult to follow. Too many grammatical and spelling errors. References list has incorrect citations and/or is not the recommended format. No reference list included. | Very limited attempt to write some sections on operating systems. No descriptions. | Very limited attempt to write some sections on operating systems. No descriptions. | Very limited or no evidence of work in this section. No analysis, or complete lack of understanding of the topics. | Limited or no real attempt on network configuration. Limited or no practical work on network configuration. Some attempt on explanations. | Little or no attempt is made on the topic. | Little or no attempt is made on the topic. | Little or no attempt is made on the topic. |