

**UNIVERSITY OF GUYANA
FACULTY OF NATURAL SCIENCES
DEPARTMENT OF COMPUTER SCIENCE**

Course Number: CSE 2103
Course Name: Computer Networks and Data Communications I
Course Credit: 4

Scenario

“Celamz” is a media solutions company with approximately 100 employees spread across five (5) departments (Marketing, Sales, Customer Service, Human Resource and Information Technology) at their headquarters location. They have a rich digital presence with their consumer base and can be reached through many online platforms such as social media.

Employees at Celamz use either a wired or wireless connection to connect to the corporate network.

Celamz hosts a single file server locally to serve employees internally. Printing services are also done locally through each respective department printer. The networking servers they have locally are used for DNS and DHCP purposes. All other services are accessed through the Internet hence there is a heavy reliance on the Internet.

Senior management at Celamz has determined to rebuild their headquarter site at a new location and has effectively hired your company to design the entire networking solution for the location.

Requirements

- Using appropriate software, create the proposed network topology/topologies for the headquarter location. A good topology shows the physical layout of connecting network devices, printers, servers, ISP connectivity etc. You can also label the type of cables that will be used for uplinks (such as Fiber, Ethernet etc.).
- Include the proposed IP Address scheme/s that will be used at the HQ location.
- Create a budget for the network-related items. This should include items such as LAN/WAN cable costs, ISP costings, network equipment and models (switches, routers, access points, etc.), installation of various cables/devices and any other items you find necessary.
- Create a justification document for all the proposed networking equipment. The document should include the type of item proposed and reason for purchase. For example, if you propose that the marketing department requires a Cisco Catalyst 9300 24Port switch then you need to justify why this is necessary and the purpose this switch would serve in the department.

Grading Scheme

- Marks will be awarded based on the fulfillment of the requirements above.
- Marks will also be awarded for creativity and any other pertinent sections you think is necessary to include in your proposal.
- I will also mark based on the practicality of implementing your solution in a real-world scenario. Example, if you suggest connecting various departments to a network hub then

you will be awarded with low marks. Another example would be choosing an ISP that only offers 5Mbps of bandwidth to serve approximately 100 users.

Submission Details

- This project will be done in the same groups you were assigned to in the first assignment.
- Since several documents will be included in your project, it is advised that you ZIP all these documents into a single file and then submit.
- The deadline for submission is 4th January 2023 @ 11:59pm.
- Submissions must be done strictly via Moodle. I will not acknowledge any submission sent to my email address. The project submission link will be posted subsequently.
- The naming convention for the ZIP file has to be “*NameofGroup_Project*”