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**Course Name:** Computer Networks

**Assignment Title:** Assignment#0

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**Statement:**  I, Joseph MUTANGANA, confirm that results on this report is my own, and I understand that violating academic integrity results punishments.

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# **Task A – DoD (TCP/IP) vs OSI model**

a) DoD (TCP/IP) Model – Four Layer

Application Layer (DoD)

Functionality

Typical protocol & services

Example real world operation

Transport Layer (DoD)

Functionality

Typical protocol & services

Example real world operation

Internet Layer (DoD)

Functionality

Typical protocol & services

Example real world operation

Network Access / Link Layer (DoD)

Functionality

Typical protocol & services

Example real world operation

b) Compare DoD vs OSI – structural & functionality differences

|  |  |  |
| --- | --- | --- |
| OSI 7 Layers | TCP (DoD) 4 Layers | Conceptual differences |
|  |  |  |
|  |  |  |
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|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

c) Inclusions per layer

d) OSI Model in Depth (7 layers with real-life examples)

|  |  |  |
| --- | --- | --- |
| Layer | Definition | Real-Life Examples |
|  |  |  |
|  |  |  |
|  |  |  |
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|  |  |  |
|  |  |  |

Diagram shows how data moves from sender to receiver

# **Task B – TCP vs UDP**

a) Transmission Control Protocol (TCP)

b) User Datagram Protocol (UDP)

c) Compare & Contrast

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Reliability | Ordering | Overhead | Latency | Typical use cases | Error correction handling mechanism |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

# **Task C – Module-by-Module Reflection (17 modules)**

Module 1: Communication in a connected world

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 2: Network Components, Types and Connections

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 3: Wireless and Mobile Networks

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 4: Build Home Networks

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 5: Communication Principles

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 6: Network Media

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 7: The Access Layer

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 8: The Internet Protocol

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 9: IPv4 and Network Segmentation

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 10: IPv6 Addressing Formats and Rules

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 11: Dynamic Addressing with DHCP

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 12: Gateway to Other Networks

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 13: The ARP Process

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 14: Routing Between Networks

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 15: TCP and UDP

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 16: Application Layer Services

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

Module 17: Network Testing Utilities

a) Core Concept:

b) What I observed

c) Real World example

d) one question or idea

e) Key takeaway

# **Task D – Network Topologies**

Ring

Definition and diagram

How it operates

Real World uses and examples

Advantages & Disadvantages

Observation

Recommendation

Bus

Definition and diagram

How it operates

Real World uses and examples

Advantages & Disadvantages

Observation

Recommendation

Mesh

Definition and diagram

How it operates

Real World uses and examples

Advantages & Disadvantages

Observation

Recommendation

Star

Definition and diagram

How it operates

Real World uses and examples

Advantages & Disadvantages

Observation

Recommendation

Hybrid

Definition and diagram

How it operates

Real World uses and examples

Advantages & Disadvantages

Observation

Recommendation

# **Task E – Installation evidence**

Packet Tracer

VirtualBox

EVE-NG (Community Edition)

VMware Workstation Player / Pro

Canvas Enrollment Confirmed

Canvas Profile

# **Task F - Networking Basic course evidence**

# **Task G – Agreements & Commitment Plan**

* I, Joseph MUTANGANA – 29061, commit to attend classes, participate actively, follow instructor directions, and complete assignments on time.
* I will maintain academic integrity: submit original work, cite sources, and avoid plagiarism.
* I will avoid distractions in class (like using phone or any unrelated activities).
* I understand consequences for violations (grade penalties, academic review) and accept them.

# **Appendices**