*Individual assignment.*

*Submit this work on Wednesday during the lecture hours.*

**UML EXERCISE**

Question 1:

A company consists of departments. Departments are located in one or more offices. One office act as a headquarter. Each department has a manager who is recruited from the set of employees. Your task is to create a class diagram model which consists of all the classes in your system their attributes and operations, relationships between the classes, multiplicity specifications, and other model elements that you find appropriate. You are not restricted to make feasible assumptions.

Question 2:

A token-ring based local-area-network (LAN) is a network consisting of nodes, in which network packets are sent around. Every node has a unique name within the network, and refers to its next node. Different kinds of nodes exist: workstations are originators of messages; servers and printers are network nodes that can receive messages. Packets contain an originator, a destination and content, and are sent around on a network. A LAN is a circular configuration of nodes.

Task:

Draw a class diagram which consists of all the classes in your system their attributes and operations, relationships between the classes, multiplicity specifications, and other model elements that you find appropriate.

Question 3:

Model a LAN in which we find two kinds of printers: ASCII printers can only print ASCII documents. PostScript printers can print either ASCII or Postscript documents. The documents are sent around as content of packets.

Task:

Adapt the class diagram from the previous example to support this behavior. Don’t forget attributes and operations, relationships between the classes, multiplicity specifications, and other model elements that you find appropriate.

Question 4:

Token-ring LANs form a (closed) ring. Star-based networks, as commonly used with UTP based solutions, feature a central node to which all other nodes are connected (the” hub”). Apart from this topological change there is no difference in behavior between token-ring and star-based networks.

Task:

Adapt your class diagram to support Star-based networks. Don’t forget attributes and operations, relationships between the classes, multiplicity specifications, and other model elements that you find appropriate.