

CS2021 ASSIGNMENT 9 (Due Date: Dec 3, 2021)

Question 1

An executable file is in essence a file full of machine codes. For instance, word.exe and chrome.exe are two executable files.

- (a) To develop an executable file, which type of programming language – interpreted language or compiled language – should be applied?
- (b) State two programming languages which are compiled languages.
- (c) State two programming languages which are interpreted languages.
- (d) State a system software and an application software which have an interpreter inside.

Question 2

An operating system is a system software. Today, there are a number of families (or series) of operating systems.

- (a) State five functions which are handled by an operating system.
- (b) In the lecture, a few families of operating systems have been introduced. State three of them.
- (c) For each family stated in (b), state the names of the operating systems which are installed in (i) notebook computer and (ii) smart phone respectively.

Question 3

An operating system is able to manage multiple processes running in a computer.

- (a) Once an operating system has completed a service request from a process, how does it know which service queue the result should be sent to?

- (b) What is the purpose of a watch-dog program?
- (c) From the hardware point of view, which component is actually executing the instructions for the operating system and the application softwares?

Question 4

Imagine that a number of mobile devices, say a smart phone X and a notebook computer Y , have been connected via a WiFi access point to the Internet. Both devices have open a browser. Browser in X is accessing the webpage `www.nchu.edu.tw`, while the browser in Y is accessing the webpage `webmail.nchu.edu.tw`.

- (a) State three wireless communication technologies which have been applied in an iPhone or android phone.
- (b) Now, the web server of `www.nchu.edu.tw` has returned the webpage file to the access point. How does the access point know that the webpage file is sent to the smart phone X ?

Question 5

Bus topology is a popular network structure for connection a number of computers via a cable wire (i.e. medium). Imagine that three computers X , Y and Z are connected to the medium. Suppose computer X would like to send a message to computer Y . Describe what computer X needs to do before the message is sent to the cable.