CS2020 FALL Assignment 9

November 27, 2020

Instructions: In this assignment, there are eight questions. Each carries 10 marks. You need to answer all of them. For some questions, you might need to answer in support with diagrams. If it is the case, you can attach the diagram files with file names conforming to the following format. For instance, a figure is needed for the answer of Question 4. The filename of this figure file should be specified like the following.

`cs2020fall-assignmentXX-studentID-Q4-fig01`

In case two figures are needed for the answer, the last five characters of the first figure file are 'fig01'. The last five characters of the second figure are 'fig02'.

The due date of this assignment is **December 4, 2020**.

Question 1

Microsoft Windows operating system has provided a number of simple application software for use.

(a) State five application software that has been introduced in the class of the date November 27, 2020. [5 marks]

(b) Besides, describe what they are used for. [5 marks]

Question 2

Suppose that a new file is open by using Wordpad. A sentence "This is a text file." is added and the file is saved in the default file format. Now, a new file is open by using Notepad. The sentence is added and the file is saved in the default file format.

(a) What are the default formats [4 marks] and the file extensions [2 marks] of the document files which are created by using Wordpad and Notepad respectively?

(b) Which file will have a larger size and why? [2 marks]

(c) Apart from Notepad, which application software are possible to open the file used to be created and edited by Notepad? [2 marks]

Question 3

To reduce the time in search for a frequent-access file, it is better to create a short cut for it and then cut-and-paste the short cut on the desktop. Afterward, the user could simply click on the icon of the short cut to open the file.

(a) What is the file extension of this short-cut file [2 marks]

(b) What is the name for this special type of files? [2 marks]

(c) To make this short cut work, two important information have to be included. What are they? [4 marks]

(d) Once the short-cut has been clicked. Renaming or deleting the file is not allowed. Explain the reason why? [2 marks]

Question 4

With an aid of diagram, describe in detail how an operating system handles multitasking. That is to say, describe how an operating system serves multiple application software. [5 marks for diagram and 5 marks for description]

Question 5

Describe the reasons why we have the following arguments.

(a) Machine codes are machine dependent. [2 marks]

(b) Operating system design is machine dependent. [2 marks]

(c) There is an interpreter in an operating system. [2 marks]

(d) Once a new Windows-based computer has been purchased, it is not able to add new functions to the operating system. [2 marks]

(e) Windows operating system is relatively insecure as compared with other open-source operating systems, like Linux and Unix. [2 marks]

Question 6

Service is an important concept in computer science. Long in the history, it has been introduced in describing the working principles of an operating system and Internet. Client-server computing is thus a key idea in the design of either an application software or a system software.

(a) For an application software, which party plays a role as a client of it? [2 marks]

(b) For an application software, which party plays a role as a server of it? [2 marks]

(c) For an operating system, which party plays a role as a client of it? [2 marks]

(d) Once an application software, like the *text-command user interface*, has been invoked, the operating system will assign an unique ID for it. What is the technical name for this ID [2 marks] and what is it used for [2 marks]

Question 7

File Explorer, its icon looking like a folder, is a file management system provided by Windows operating system to manage the file system of a computer. Once it has been clicked, a graphical user interface will be prompted. Suppose, the following path has been entered on the address bar.

`C:\Users\John Sum\Desktop\`

The files and folders under the 'Desktop' directory will be shown.

(a) Which program has been invoked once the icon has been clicked? [2 marks]

(b) State the steps (at least three) in which the program has to do in order to show the results on the *File Explorer* window. [6 marks]

(c) Once a file, say 'johnsum.pdf', has been cut and pasted in the same directory, the *File Explorer* will automatically assign this new file as 'johnsum.pdf - Copy'. Explain the reason why the *File Explorer* has to do that? [2 marks]

Question 8

To ready an executable file for solving a particular problem, a number of materials have to be prepared.

(a) What is an algorithm? [2 marks]

(b) What is the use of a pseudo-code program? [2 marks]

(c) What is a source code program? [2 marks]

(d) What is the major difference between a pseudo-code program and a source code program? [2 marks]

(e) If the program is implemented by C language, what type of translator is needed for converting the source code to machine code? [2 marks]