

KING SAUD UNIVERSITY
COLLEGE OF COMPUTER AND INFORMATION SCIENCES
Computer Sciences Department

CSC 111:
Introduction to Programming- I

Final Lab

1st Semester 1442

Develop a java program to help in managing a hard drive. Consider the below UML and description:

Folder
- size : double - name : String - files : String[] + <u>numFolders: int</u> + Folder (String FName, int numFiles) +readFiles () : void +countFileType (String ext): int +getSize(): double +getName():String +display():void

HardDrive
- <u>content: Folder[]</u> + <u>main (String [] args): void</u> + <u>displayLargerThan(double: size):void</u>

1. Implement Class Folder

Attributes:

- size: a double storing the size of the folder in Mega Byte (MB). All new folders have an initial size of 0.0
- name: a String representing the name of the folder.
- files : an array of String containing the names of the files in the folder.
 - Each file name has the following format : *name.ext* : which is the name of the file followed by a dot followed by the extension. Both name and extension can be of any length and vary from one file to another.
- numFolders: a class attribute that counts the number of folders created.

Methods:

- **Folder (String FName, int numFiles):** A non-default constructor that receives the folder name and number of files in the folder.
- **readFiles() :** This method reads from the user information about the files in the folder; according to the number of files contained in the folder. For each file t reads the file name (including extension) and size of each file and saves the name in the files array and adds the size of the file to the folder size.
- **countFileType (String ext):** This method receives an extension, the method counts and returns the number of files that have that same extension.
- **getSize():** Returns the size of the folder.
- **getName():** Returns the name of the folder.
- **display() :** This method prints the information of the folder as follows:

Name: <folder name >

size: <folder size > **MB**

Contains the following files:

<file names and extensions each in a separate line>

KING SAUD UNIVERSITY COLLEGE OF COMPUTER AND INFORMATION SCIENCES Computer Sciences Department		
CSC 111: Introduction to Programming- I	Final Lab	1st Semester 1442

2. Create an application class named `HardDrive` according to the above UML.

- a. Create an array named ***content*** that can hold up to 50 folders.
- b. Write the method ***displayLargerThan(double: size)***. This method displays the information of all folders having a size greater than the received size.
- c. In the main method:
 - i. Read the information of three folders from the user (including files they contain) and add them to the array *content*.
 - ii. Display the information of all folders having a size greater than 250 MB
 - iii. Read a folder name from the user, then display a summarized statistic of that folder which contains:
 - How many files it contains having “.exe” extension
 - How many files it contains having “.doc” extension
If the folder does not exist in the hard drive display an appropriate message (Assume names are unique).
 - iv. Print the number of folders created, DO NOT use a counter or loops in `HardDrive` class.