ELEMENTS OF PROGRAMMING (CSC 1100), Sem 1 17/18
ASSIGNMENT 3: GROUP (Section 4)
DUE DATE: SAT, 16 DEC 2017 (11.55 PM)

QUESTION (SORTING A STRUCTURE & READ/WRITE FROM DATA FILES)

Table 1 shows 7 different tablets that are currently in-trend for 2017. As a salesperson, you are required to enter the specifications and sales prices in the system for Dec 2017 promotion.

Brand	Model	Color	Screen (inch)	RAM (GB)	Storage (GB)	Disc (%)	Orig Price (RM)	Sales Price (RM)
Acer	Predator8	Black	8.0	2	64	6	1,290	?
Apple	iPadPro	White	12.9	4	128	10	4,289	?
Asus	ZenPad3S10LTE	Silver	9.7	4	32	15	1,537	?
Microsoft	SurfacePro	Black	12.3	4	128	25	5,326	?
Samsung	GalaxyTabS3	Black	9.7	4	32	7	5,249	?
Huawei	MediaPadM3Lite8	Gold	8.4	3	64	5	1,364	?
Lenovo	Tab410Plus	Aurora Black	10.1	4	64	5	1,399	?

Table 1

Using the information given in the table above, write a C++ program that defines an **array of structure** named **Tablets** that stores the specifications and prices of the tablets before and after discounts. Create the following functions to manage the records:
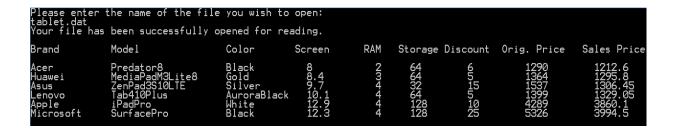
a) A `void` function named **`createRec()`** that takes the structure **Tablets** and its array size as arguments, and inserts details of each of the tablet. The function shall enable the user to interactively enter all information listed in Table 1 through the keyboard.

b) A function named **`calcSPrice()`** that takes two arguments, the structure **Tablets** and an index number **m**. The function will then calculate and **return the sales price after discount** for each type of tablet (? column) based on the original price and the discount rate at the **mth** index of the array of structure**.**

c) A `void` function named **`sortAsc()`** that compares the information in the **Tablets** structure and sort the records in **ascending order** based on **price** after discount **(Sales Price)** (refer to slides for sample codes for sorting)

d) A `void` function named **`storeRec()`** that reads the values of each structure member in c) and store them in a data file named **"tablet.dat"**. Open the file for writing using the `ofstream` object and write the contents of the structure into your **"tablet.dat"** file. The user should be able to provide the filename that they wish to use to store the details of the tablets.

e) Finally, create a `void` function named **`display()`** that does not take any argument. Declare the `ifstream` object in the function and using repetition, read the contents from your data file **"tablet.dat"** and display the contents of the file onto your screen.

*Use pointer notations to both insert and access the members of your array of structure. Call function (a) - (e) in your `main()`.

Sample of Expected Output:

```
Enter brand name : Acer
Enter model name : Predator8
Enter color : Black
Enter size of screen : 8.0
Enter size of RAM : 2
Enter size of storage : 64
Enter discount rate : 6
Enter original price: 1290

Enter brand name : Apple
Enter model name : iPadPro
Enter color : White
Enter size of screen : 12.9
Enter size of RAM : 4
Enter size of storage : 128
Enter discount rate : 10
Enter original price: 4289

Enter brand name : Asus
Enter model name : ZenPad3S10LTE
Enter color : Silver
Enter size of screen : 9.7
Enter size of RAM : 4
Enter size of storage : 32
Enter discount rate : 15
Enter original price: 1537

Enter brand name : Microsoft
Enter model name : SurfacePro
Enter color : Black
Enter size of screen : 12.3
Enter size of RAM : 4
Enter size of storage : 128
Enter discount rate : 25
Enter original price: 5326

Enter brand name : Samsung
Enter model name : GalaxyTabS3
Enter color : Black
Enter size of screen : 9.7
Enter size of RAM : 4
Enter size of storage : 32
Enter discount rate : 7
Enter original price: 5249

Enter brand name : Huawei
Enter model name : MediaPadM3Lite8
Enter color : Gold
Enter size of screen : 8.4
Enter size of RAM : 3
Enter size of storage : 64
Enter discount rate : 5
Enter original price: 1364

Enter brand name : Lenovo
Enter model name : Tab410Plus
Enter color : AuroraBlack
Enter size of screen : 10.1
Enter size of RAM : 4
Enter size of storage : 64
Enter discount rate : 5
Enter original price: 1399
```

```
Please enter the name of the file you wish to open:
tablet.dat
Your file has been successfully opened for reading.

Brand          Model          Color       Screen   RAM   Storage Discount  Orig. Price   Sales Price

Acer           Predator8      Black       8        2     64      6         1290          1212.6
Huawei         MediaPadM3Lite8 Gold       8.4      3     64      5         1364          1295.8
Asus           ZenPad3S10LTE  Silver      9.7      4     32      15        1537          1306.45
Lenovo         Tab410Plus     AuroraBlack 10.1     4     64      5         1399          1329.05
Apple          iPadPro        White       12.9     4     128     10        4289          3860.1
Microsoft      SurfacePro     Black       12.3     4     128     25        5326          3994.5
```

Sample data file (Sorted by price)

```
    [*] struct_assign3_s4._tablets.cpp    [*] tablet.dat

 1    Acer     Predator8    Black    8    2    64    6    1290      1212.60
 2    Huawei   MediaPadM3Lite8 Gold       8.4 3    64    5    1364      1295.80
 3    Asus     ZenPad3S10LTE     Silver   9.7 4    32    15   1537      1306.45
 4    Lenovo   Tab410Plus   AuroraBlack 10.1    4    64    5    1399      1329.05
 5    Apple    iPadPro White      12.9    4    128 10   4289      3860.10
 6    Microsoft    SurfacePro   Black    12.3    4    128 25   5326      3994.50
 7
```