ODDITIES STORE – INVENTORY PROGRAM



## Assignment Date

Monday, April 4, 2016

## Due Date

Friday, April 22, 2016 (NO LATE PROGRAMS, NO EXCEPTIONS!!)  Upload for files (odd.h, odd.cpp, functions.cpp, & inventory.txt) to the ilearn dropbox titled PROGRAM 5 by midnight!

## What's in Program 5

- Practice with c-string, string, characters
- Practice with files
- Structures (including nested structures)
- Menu based program
- Arrays
- Functions
- Working with multiple files

## Files

You will be turning in four files.

1. **odd.h** – this file should contain all the #include files, all the function prototypes, and all the structure definitions.

2. **odd.cpp** – this file should contain the main function

3. **functions.cpp** – this file should contain all the programmer-defined functions

4. **inventory.txt** – this file should contain at least 5 items that YOU add (you may use my example text file named c.txt but you must add at least 5 additional items that you come up with!)

## Structures

You will have three structures.

- Item
    - Name (name of the item)
    - Description (description of the item)
    - Cost (nested Money structure)
    - Popularity (12 element integer array containing the popularity of the item for each month)
    - Date (nested Date structure)
- Money
    - Goods Price (how much the retail store paid for the item) (float)
    - Sale Price (how much the retail store is going to sale item for) (float)
    - Profit (how much profit the store will make when selling this item) (float)
- Date
    - Month (integer)
    - Day (integer)
    - Year (integer)

## Functions

You will have SEVEN functions:

### FUNCTION: Main

- Create an ARRAY of 100 elements of data type Item. Make 100 a global constant for the program.

- Print out welcome message. If you want to do a store that is not so weird, you can choose any type of store you want with any time of store inventory….totally up to you.

```
WELCOME TO OBSCURA ANTIQUES & ODDITIES!
```

- Call the menu() function, which should return the user's choice as an integer

- If user selected choice 1, then call the add function

- If user selected choice 2, then call the printPopular function

- If user selected choice 3, then call the printItems function

- If user selected choice 4, then call the saveInventory function and then print "Goodbye!"

- Program should continue to run until user selects choice 4.

### FUNCTION: menu()

- Display menu

```
Please choose from the following options:
1.   Add weird item(s).
2.   Print most popular item.
3.   Print all items.
4.   End the program.

CHOOSE 1-4:
```

- o Validate user's choice

- o Return the user's choice from this function

## FUNCTION: add()

- o Make sure that the store's warehouse is not full (not already 100 items stored in array)

- o If not, then display add menu:

```
Do you want to....
1. Add items from a file?
2. Add one item manually?
3. Return to main menu?
CHOOSE 1-3:
```

- o Validate user's choice

- o If the user selects 1, then do the following:
  - ▪ Allow the user to type in a filename that contains inventory items.

  - ▪ Make sure the file exists before trying to read from it.

  - ▪ Using `while(!file.eof())` you will read in each piece of data, which is separated by '#' and place the data in the appropriate array element of the Item array. A sample file is below.
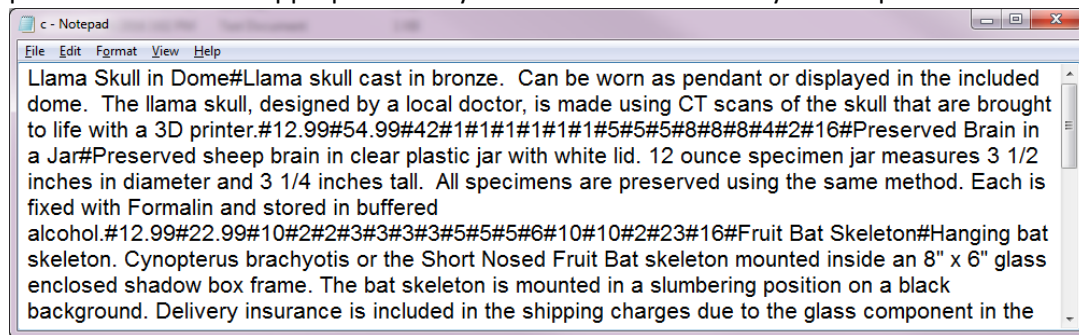


PROGRAMMING STATEMENT THAT WILL READ IN STRING UNTIL '#':
`getline(file, temp, '#');`
where file is the file I am reading from, temp is a temporary string to hold the data I am reading from the file and '#' is the delimeter that tells when to quit reading from the file.

  - ▪ Make sure to increment the number of items in your array inside this loop

  - ▪ Make sure to close the file when necessary

  - ▪ Print out a message to the user letting them know how many items were read from the file & entered into the program.

```
What is the name of the file that contains your inventory items?
c.txt

6 items from the c.txt file have been added!

Do you want to....
```

- o If the user selects 2, then do the following:
    - Print a prompt for each piece of data you need from the user. Read the data from the user and put in the Item array.

        - Make sure to validate user input for the popularity array – each value for each month has to be 1-10 (inclusive).

        - You do not need to ask the user for the profit – you should calculate this yourself by subtracting the goodsPrice from the salePrice.

    - Make sure to increment the number of items in your Item array.

    - SAMPLE OUTPUT: (user inputs highlighted in yellow)

```
Please enter the item details below:

NAME: Preserved Porcupinefish

DESCRIPTION:  Dried Porcupinefish (Diodontidae) more commonly known as the Blowf
ish. You will receive one random, dried Porcupinefish that measures between 6 an
d 7 inches. It is attached to a string with a ring on the end so it can be hung
on display. You could easily cut the string off if you wish. Blowfish vary sligh
tly in appearance. They are pointy and not reccommended for small children.

RETAIL PRICE OF GOODS (what the store paid for it):   $2.85

SALE PRICE (what the store selling it for):   $16.99

ENTER THE POPULARITY OF THE ITEM FOR EACH MONTH.
1 = unpopular and 10 = extremely popular

MONTH 1:   2
MONTH 2:   3
MONTH 3:   1
MONTH 4:   16
Oops!  The number has to be 1-10!
MONTH 4:   10
MONTH 5:   5
MONTH 6:   1
MONTH 7:   3
MONTH 8:   2
MONTH 9:   10
MONTH 10:   10
MONTH 11:   10
MONTH 12:   9

AQUIRE DATE (example:  04 02 16)
03 16 16
```

- o If the user selects 3, then end the loop & return the new number of items from this function.

```
Do you want to....
1. Add items from a file?
2. Add one item manually?
3. Return to main menu?
CHOOSE 1-3:   3

Please choose from the following
1.  Add weird item(s).
2.  Print most popular item.
3.  Print all items.
```

## FUNCTION: stringToFloat()

- o I have written this function for you!  You will need to call this function from the add() function.

```
233   /*
234         Function:    stringToFloat()
235         Purpose:     Send a string to this function and the function will convert
236                      the string to a float.
237   */
238   float stringToFloat(string str)
239   {
240         float number;
241         char convertStr[1000];
242         strcpy(convertStr, str.c_str()); //convert the string to c-string
243         number = atof(convertStr);
244         return number;
245   }
```

## FUNCTION:  printPopluar()

- o Ask the user what month they would like to choose:

```
What month would you like to investigate? (1-12)
5
```

- o Find the highest popularity rating from all the items for the 5ᵗʰ month and then print out the details of the item as in the sample output below:

```
The most popular item for month 5 is:

NAME:   Fruit Bat Skeleton

DESCRIPTION:  Hanging bat skeleton. Cynopterus brachyotis or the Short Nosed Fru
it Bat skeleton mounted inside an 8" x 6" glass enclosed shadow box frame. The b
at skeleton is mounted in a slumbering position on a black background. Delivery
insurance is included in the shipping charges due to the glass component in the
frame.

GOODS PRICE:   25

SALE PRICE:   99.99

POPULARITY PER MONTH:
        MONTH 1- 5
        MONTH 2- 2
        MONTH 3- 1
        MONTH 4- 7
        MONTH 5- 10
        MONTH 6- 9
        MONTH 7- 6
        MONTH 8- 4
        MONTH 9- 3
        MONTH 10- 2
        MONTH 11- 1
        MONTH 12- 8

AQUIRE DATE:   1/10/15


Please choose from the following options:
```

- o After this information prints out the function should end.

## FUNCTION: printItems()

- o Print out all the items in the most organized way that you can. Use the sample output below as a reference.

```
Please choose from the following options:
1.  Add weird item(s).
2.  Print most popular item.
3.  Print all items.
4.  End the program.
CHOOSE 1-4:  3

ALL ITEMS:

-----------------------------------------------------------
                                                    ITEM 1
NAME:  Llama Skull in Dome

DESCRIPTION:  Llama skull cast in bronze.  Can be worn as pendant or displayed i
n the included dome.  The llama skull, designed by a local doctor, is made using
 CT scans of the skull that are brought to life with a 3D printer.

GOODS PRICE:  12.99

SALE PRICE:  54.99

PROFIT:  42

POPULARITY PER MONTH:
          MONTH 1- 1
          MONTH 2- 1
          MONTH 3- 1
          MONTH 4- 1
          MONTH 5- 1
          MONTH 6- 1
          MONTH 7- 5
          MONTH 8- 5
          MONTH 9- 5
          MONTH 10- 8
          MONTH 11- 8
          MONTH 12- 8

AQUIRE DATE:  4/2/16
-----------------------------------------------------------
                                                    ITEM 2
NAME:  Preserved Brain in a Jar
```

.......there are 7 items so I skipped some of the sample output!

```
-----------------------------------------------------------
                                                    ITEM 7
NAME:  Preserved Porcupinefish

DESCRIPTION:  Dried Porcupinefish (Diodontidae) more commonly known as the Blowf
ish. You will receive one random, dried Porcupinefish that measures between 6 an
d 7 inches. It is attached to a string with a ring on the end so it can be hung
on display. You could easily cut the string off if you wish. Blowfish vary sligh
tly in appearance. They are pointy and not reccommended for small children.

GOODS PRICE:  2.85

SALE PRICE:  16.99

PROFIT:  14.14

POPULARITY PER MONTH:
          MONTH 1- 2
          MONTH 2- 3
          MONTH 3- 1
          MONTH 4- 10
          MONTH 5- 5
          MONTH 6- 1
          MONTH 7- 3
          MONTH 8- 2
          MONTH 9- 10
          MONTH 10- 10
          MONTH 11- 10
          MONTH 12- 9

AQUIRE DATE:  3/16/16

Please choose from the following options:
1.  Add weird item(s).
```

## FUNCTION: saveInventory()

- o If the number of items in the array is more then zero then you will want to print all the item data from the array to a file.

- o Ask the user what they want to name their inventory file.

- o Open the file based on this name.

- o Using a loop, go through each element of the Item array and print out each piece of data. Separate each piece of data with a pound sign so that it looks like the example file below.

```
c - Notepad
File  Edit  Format  View  Help
Llama Skull in Dome#Llama skull cast in bronze.  Can be worn as pendant or displayed in the included
dome.  The llama skull, designed by a local doctor, is made using CT scans of the skull that are brought
to life with a 3D printer.#12.99#54.99#42#1#1#1#1#1#1#5#5#5#8#8#8#4#2#16#Preserved Brain in
a Jar#Preserved sheep brain in clear plastic jar with white lid. 12 ounce specimen jar measures 3 1/2
inches in diameter and 3 1/4 inches tall.  All specimens are preserved using the same method. Each is
fixed with Formalin and stored in buffered
alcohol.#12.99#22.99#10#2#2#3#3#3#3#5#5#5#6#10#10#2#23#16#Fruit Bat Skeleton#Hanging bat
```

- o Close the file after you are done.