

## Object Oriented programing Lab

BSCS(Fall 2015)

### Lab # 1

Friday , feb 26, 2016

**Instructions: For support and guidance you can CONTACT ME AND TA's. Discussion with peers is strictly prohibited.**

#### Question#1:

Write a program that uses three identical arrays of just eight integers. It should display the contents of the first array, then call a function to sort the array using an ascending order **selection sort** modified to print out the array contents after each pass of the sort. Next, the program should display the contents of the second array, then call a function to sort the array using an ascending order **insertion sort** modified to print out the array contents after each pass of the sort and in the last the program should display the contents of the third array, then call a function to sort the array using an ascending order **bubble sort** modified to print out the array contents after each pass of the sort.

#### Question#2:

Repeat question #1 to sort array in descending order.

#### Question#3:

The Demetris Leadership Center (DLC, Inc.) publishes the books, DVDs, and audio CDs listed in Table 8-1.

**Table 8-1**

Product Title	Product Description	Product Number	Unit Price
Six Steps to Leadership	Book	914	\$12.95
Six Steps to Leadership	Audio CD	915	\$14.95
The Road to Excellence	DVD	916	\$18.95
Seven Lessons of Quality	Book	917	\$16.95
Seven Lessons of Quality	Audio CD	918	\$21.95
Seven Lessons of Quality	DVD	919	\$31.95
Teams Are Made, Not Born	Book	920	\$14.95
Leadership for the Future	Book	921	\$14.95
Leadership for the Future	Audio CD	922	\$16.95

The manager of the Telemarketing Group has asked you to write a program that will help order-entry operators look up product prices. The program should prompt the user to enter a product number, and will then display the title, description, and price of the product.

Required variables:

Variable	Description
NUM_PRODS	A constant integer initialized with the number of products the Demetris Leadership Center sells. This value will be used in the definition of the program's array.
TITLE_SIZE	A constant integer initialized with the maximum size of a product's title.
DESC_SIZE	A constant integer initialized with the maximum size of a product's description.
MIN_PRODNUM	A constant integer initialized with the lowest product number.
MAX_PRODNUM	A constant integer initialized with the highest product number.
id	Array of integers. Holds each product's number.
title	Array of strings, initialized with the titles of products.
description	Array of strings, initialized with the descriptions of each product.
prices	Array of doubles. Holds each product's price.

Required modules/functions:

Function	Description
main	The program's main function. It calls the program's other functions.
getProdNum	Prompts the user to enter a product number. The function validates input and rejects any value outside the range of correct product numbers.
binarySearch	A standard binary search routine. Searches an array for a specified value. If the value is found, its subscript is returned. If the value is not found, -1 is returned.
displayProd	Uses a common subscript into the <code>title</code> , <code>description</code> , and <code>prices</code> arrays to display the title, description, and price of a product.

Question#4:

Like the QUESTION#3, this is a program developed for the Demetris Leadership Center. Recall that DLC, Inc., publishes books, DVDs, and audio CDs. (See Table 8-1(Question#3) for a complete list of products, with title, description, product number, and price.) Table 8-4 shows the number of units of each product sold during the past six months.

**Table 8-4**

Product Number	Units Sold
914	842
915	416
916	127
917	514
918	437
919	269
920	97
921	492
922	212

The vice president of sales has asked you to write a sales reporting program that displays the following information:

- A list of the products in the order of their sales dollars (NOT units sold), from highest to lowest
- The total number of all units sold
- The total sales for the 1 year.

Variables needed:

Variable	Description
NUM_PRODS	A constant integer initialized with the number of products that DLC, Inc., sells. This value will be used in the definition of the program's array.
prodNum	Array of ints. Holds each product's number.
units	Array of ints. Holds each product's number of units sold.
prices	Array of doubles. Holds each product's price.
sales	Array of doubles. Holds the computed sales amounts (in dollars) of each product.

Functions /modules required:

Function	Description
main	The program's main function. It calls the program's other functions.
calcSales	Calculates each product's sales.
dualSort	Sorts the <code>sales</code> array so the elements are ordered from highest to lowest. The <code>prodNum</code> array is ordered so the product numbers correspond with the correct sales figures in the sorted <code>sales</code> array.
showOrder	Displays a list of the product numbers and sales amounts from the sorted <code>sales</code> and <code>prodNum</code> arrays.
showTotals	Displays the total number of units sold and the total sales amount for the period.