PROBLEM SET 2: INTRODUCTION TO COMPUTER PROGRAMMING

LAB ASSIGNMENT – 2D – Selection Using SWITCH Control Structure

Overview:

Many times, it is necessary to create an interface where the user selects or chooses from a menu or predetermined configuration of products. For example, the cost of a pair of shoes based on size and color, a car based on model and option packages or a can of paint based on quantity and type. Typically, a menu of preconfigured options is presented to the user and then a selection is made with many of the necessary details predefined. This is an ideal situation to use a SWITCH statement, as a matter of reliability and maintainability.

In this assignment, the ACME Widget Parts Company is now offering ball bearings, in 3 sizes (small, medium and large) and offering 3 different materials (copper, gold and silver) of composition.

The director of distribution has presented an idea to use a menu system to aid in the distribution and handling process. Additionally, the output desired needs to be in a form that will aid in the processing as well. Her ideas are presented in the specifications and exhibits.

Objective:

Using your textbook, notes and personal research material, program a solution utilizing the attached proposals and using the C Programming language that will display the desired input selection and output on the command screen per the specifications provided. **NOTE:** Your source code/program should be well documented as outlined in Handout #2. It **MUST** contain a SWITCH statement.

Specifications:

1. Sizes offered are as follows:
    a. Small: 0.25 inches diameter
    b. Medium: 0.50 inches in diameter
    c. Large: 1.0 inches in diameter

2. Materials offered are:
    a. Copper
    b. Gold
    c. Silver

3. User Input:
    a. Quantity of bearings
    b. Selection of size and material combination

4. Cost of Shipping/Handling is:
    a. $3.50 per pound for copper
    b. $4.50 per pound for Gold and Silver

Instructions

1. Develop and test the program such that it:
    a. Generates the desired input screen as proposed by the distribution director. (See exhibit A).
    b. Clears the display screen after the data from the user is gathered. (use the command: system("cls"); from library stdlib.h)
    c. Display the output per the screen proposed by the distribution director. (see exhibit B)
2. Document your code and include your source information for the density values of the materials used (copper, gold and silver).
3. Include the necessary error checking. If an error is detected, display an error message stating the issue, such as "ERROR – Invalid quantity!" or "ERROR – Invalid Selection!"

REPORTING: Submit your executable file, documented source code and screen shots of your input screen and output in a ZIP file for proper consideration. Provide enough screen shots to show all of the input error messages of the conditions identified and the various output combinations.

EXHIBIT A – Proposed Input

```
**  ACME WIDGET PARTS COMPANY  **
**       Distribution Department       **
**      Bearing Selection Program      **
**       SELECT  Option Number         **

        1)  Copper: Small
        2)  Copper: Medium
        3)  Copper: Large
        4)  Gold: Small
        5)  Gold: Medium
        6)  Gold: Large
        7)  Silver: Small
        8)  Silver: Medium
        9)  Silver: Large

Input Selection Number >

How Many Require Shipping? >
```

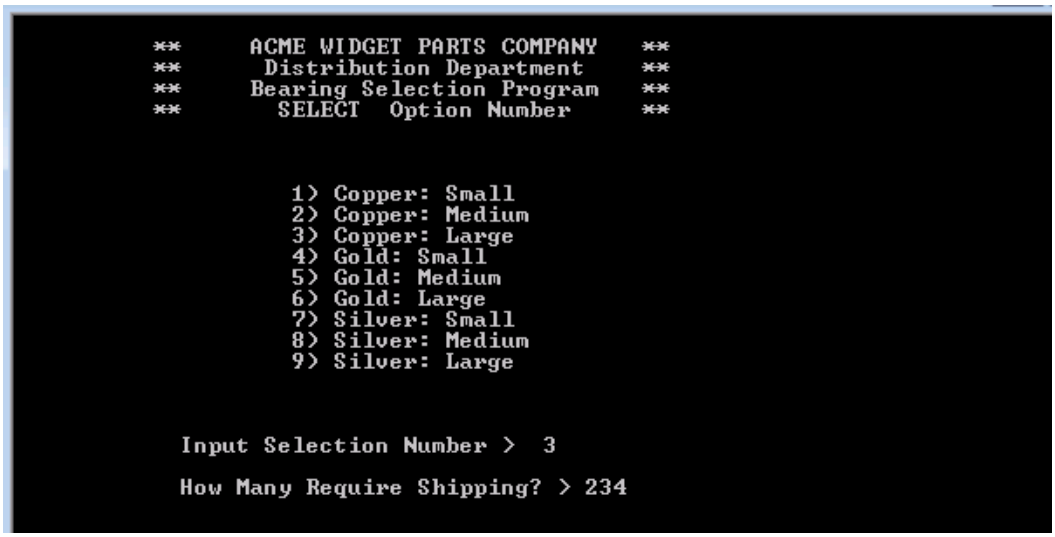

EXHIBIT B – Proposed Output

```
**    ACME WIDGET PARTS COMPANY    **
**        Distribution Department      **
**       Bearing Selection Program     **
**         SHIPPING COST DISPLAY       **

Quantity of bearings shipped:        XXXX

Size and material of bearings is:    Size   Material

Shipping cost of item selected is:   $xxxxx.xx

Total Weight of this order is:       XXXXX.XX pounds
```