Project 1

Program Title: Business & Pleasure

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Course: CSC-5
Date: 4/5/06

Introduction

Title: Business & Pleasure

Business & Pleasure is designed to offer both a mental sweat on the free time and an ease of mind when calculating sales taxes. Whether if it is during tax season or before the encountering the cashier while grocery shopping. The Sales Tax Calculator useful to any shopper or accountant within the state of California. On top of this, Business & Pleasure will issue a workout to the brain of whoever accesses its academic features that is incorporated. It includes “fill in the blank”, random addition along with multiplication problems, that promises you a mental challenge to freshen your memory. Business & Pleasure has a simple menu interface, so that options can easily be chosen out of its multiply functionalities with just an enter of a character ex: “1”.

Summary

Project Size: 311 lines (approximately)

Number of variables: 21

Many aspects of this project derived from chapters 4 & 5, with its convention of the switch statement, (else) if statement, do-while and for loop. The idea came when I thought of most boring moment of my life that occurs often, and that was grocery shopping. I included math and language arts because at times I find myself forgetting the most basic equations from not reviewing too long. In addition while thinking of past grocery shopping events the one thing that occurred every time was the panic of overspending of what’s originally intended. The planning process of what to include within the project (to keep me entertained while grocery shopping with a laptop in hand) came quickly as its purpose becomes relevant. The coding took the longest as I retraced my steps to figure out the flaws.

Description

The core purpose of Business & Pleasure is to incorporate of what is to be needed when grocery shopping. I integrated different functionalities that could be accessed through a start-up menu, and then it continues on functioning as long as the user wanted it to.

Program:

```
/*
 * File:   main.cpp
 * Author: Kevin Vo
 * Purpose: Demonstrate what I have learned
 * Assignment: Project 1
 * Description: 100+ lines project
 * Problem 1 -> Tests addition skills
 * Problem 2 -> Tests multiplication skills
 * Problem 3 -> Tests Sentences Completion skills
 * Problem 4 -> Calculate the total cost while shopping after sales tax
 * Created on April 4, 2012, 11:18 AM
 */


#include <cstdlib>
#include <iostream>
#include <iomanip>
#include <string>
```

```
using namespace std;
int main(int argc, char** argv) {
 //Primitive data types for menu
   char Problem_Type, restart, restart1;
   int w;
   bool loop=true;
   do{
   //Usage of do-while loop to reload the program by user's command
   do{
      //Prompt of program
cout<<"This program will calculate the total amount paid after sales tax\n";
cout<<"and test both of your mathematics and language arts skills during free\n";
cout<<"time. Please select one of the options below to use this program.\n\n";

//Output of menu options
cout<<"Type 1 for Addition Problems.\n";
cout<<"Type 2 for Multiplication Problems.\n";
cout<<"Type 3 for Completing Sentences.\n";
cout<<"Type 4 for Sales Tax Calculator.\n";
cout<<"Type anything else to quit with no solutions.\n";
cin>>Problem_Type;

//Usage of the Switch statement for menu
switch(Problem_Type)
{
```

```
   case '1':{
      //Primitive data types for case 1
      int correct, Answer;
      unsigned seed = time(0), Number1, Number2;

      //prompt of the mini program within case 1
cout<<"This program will be testing your basic math skills. You'll be able\n"
   <<"to pick between addition or multiplication. Depending on how many "
   <<"problems you\ndo, will did you a picture award.\nWarning: "
   <<"If you enter in an incorrect answer you will be forced to restart."
   <<endl<<endl;

//Random # gen. to provide addition problems
            srand(seed);

                Number1 = rand()%999;
                Number2 = rand()%999;

            correct= Number1 + Number2;
            cout<<"Please enter in the correct answer to the problem below.\n";
            cout<<"  "<<Number1<<endl;
            cout<<"+ "<<Number2<<endl;
            cout<<"-------"<<endl;
            cin>>Answer;//Input variable from user
      //Use of if statement to determine right & wrong answers
```

```
if (correct == Answer)
{
   //Prize picture reward of sea horse after receiving correct answer
      cout<<"Congratulations, you have made it to sea horse status!\n";
      cout<<endl;
      cout<<"________$$$$.."<<endl;
      cout<<"______$$$$$$$$"<<endl;
      cout<<"______$$$$$$$_$"<<endl;
      cout<<"_____$$$$$$$$$"<<endl;
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            cout<<"_______$$$$$$$$$"<<endl;
            cout<<"__________$$$$"<<endl<<endl;
            cout<<"(Photo provided by fsymbols.com)"<<endl;
            cout<<endl;
        }
        else
        {
            cout<<"Sorry you got it wrong please restart the program and "
               <<"try again.\nWould you like to restart? (Enter Y/N). ";
            cin>>restart;
        }
    }break;

    case '2':{
        //Primitive data types for case 2
        int correct, Answer;
        unsigned seed = time(0), Number1, Number2;

cout<<"This program will be testing your basic math skills. You'll be able\n"
    <<"to pick between addition or multiplication. Depending on how many "
```

```
<<"problems you\ndo, will did you a picture award.\nWarning: "
<<"If you enter in an incorrect answer you will be forced to restart."
<<endl<<endl;
   //Random # gen. to provide multiplication problems
         srand(seed);


              Number1 = rand()%99;
              Number2 = rand()%99;


         correct= Number1 * Number2;
         cout<<"Please enter in the correct answer to the problem below.\n";
         cout<<"  "<<Number1<<endl;
         cout<<"x "<<Number2<<endl;
         cout<<"-------"<<endl;
         cin>>Answer;//Input variable from user
//Use of if statement to determine right & wrong answers
   if (correct == Answer){
      //Prize picture reward of dolphin after receiving correct answer
         cout<<"Congratulations, you have made it to dolphin status!\n";
         cout<<endl;
         cout<<"_____ ##"<<endl;
         cout<<"_____###*"<<endl;
         cout<<"_____.*#####"<<endl;
         cout<<"_____*######"<<endl;
         cout<<"_____*#######"<<endl;
```

```
        cout<<"__________*########."<<endl;
        cout<<"_________*#########."<<endl;
        cout<<"_________*#######*##*"<<endl;
        cout<<"________*#########*###"<<endl;
        cout<<"_______*##########*__*##"<<endl;
        cout<<"_____*###########_____*"<<endl;
        cout<<"____############"<<endl;
        cout<<"___*##*#########"<<endl;
        cout<<"___*_____########"<<endl;
        cout<<"__________#######"<<endl;
        cout<<"___________*######"<<endl;
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        cout<<"_________________*####"<<endl;
        cout<<"___________________*##*"<<endl;
        cout<<"____________________*##"<<endl;
        cout<<"____________________*##."<<endl;
        cout<<"____________________.#####."<<endl;
        cout<<"_________________.##########"<<endl;
        cout<<"_________________.####*__*####"<<endl;
        cout<<"(Photo provided by fsymbols.com)"<<endl;
}
else
{
        cout<<"Sorry you got it wrong please restart the program and "
```

```
            <<"try again.\nWould you like to restart? (Enter Y/N). ";
        cin>>restart;
    }
}break;

case '3':{
    //primitive data types for case 3
    char answer1, answer2, answer3;
    cout<<"Complete the sentence active."<<endl<<endl<<endl;

    //Output of question# 1
    cout<<"1) There is a ____ cat sleeping on the couch."<<endl;
    cout<<setw(6)<<"A. black"<<endl;
    cout<<setw(6)<<"B. plane"<<endl;
    cout<<setw(6)<<"C. apple"<<endl;
    cout<<setw(6)<<"D. feel"<<endl;

    cin>>answer1;//Input variable from user

    //if statement for right/wrong answer
    if (answer1 == 'A' || answer1 == 'a')
    {
       cout<<"Good Job!"<<endl;
    }
    else
```

```
 {
    //Requests user to restart program
     cout<<"Sorry you got it wrong please restart the program and "
       <<"try again.\nWould you like to restart? (Enter Y/N). ";
       cin>>restart;
 }
//Pauses program and waits for user to continue
 cout<<"Please press Enter to answer the next question... ";
 cin.ignore();
 cin.get();

 //Output of question# 2
 cout<<"2) The fish ____ across the lake."<<endl;
 cout<<setw(6)<<"A. hopped"<<endl;
 cout<<setw(6)<<"B. ran"<<endl;
 cout<<setw(6)<<"C. swam"<<endl;
 cout<<setw(6)<<"D. googled"<<endl;

 cin>>answer2;//Input variable from user

 //if statement for right/wrong answer
 if (answer2 == 'C' || answer2 == 'c')
 {
      cout<<"Good Job!"<<endl;;
 }
```

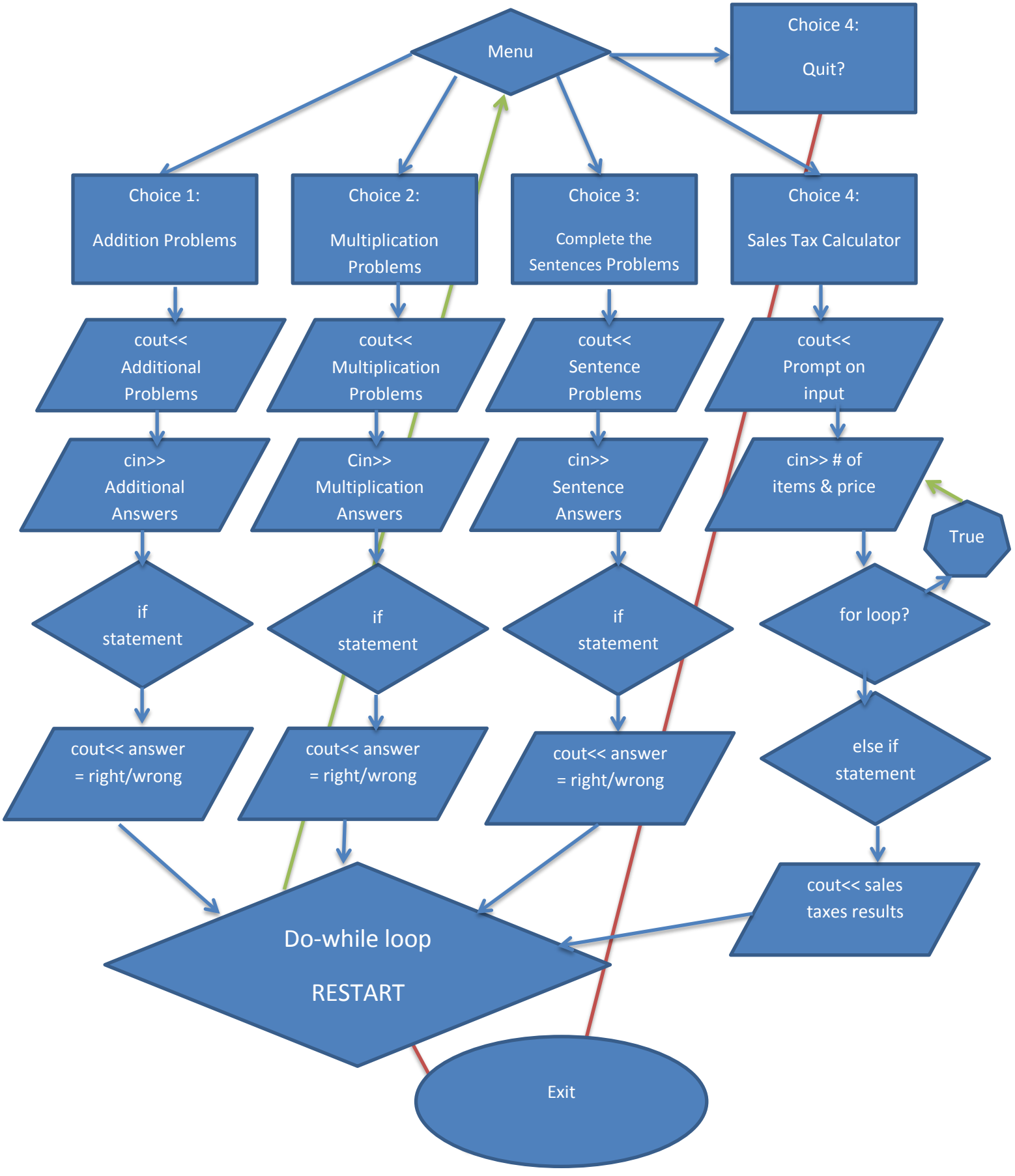
```
else
{
    cout<<"Sorry you got it wrong please restart the program and "
       <<"try again.\nWould you like to restart? (Enter Y/N). ";
      cin>>restart;
}

//Pauses program and waits for user to continue
cout<<"Please press Enter to answer the next question... ";
cin.ignore();
cin.get();

cout<<"3) ____ phones are very portable."<<endl;
cout<<setw(6)<<"A. Bat"<<endl;
cout<<setw(6)<<"B. Cell"<<endl;
cout<<setw(6)<<"C. Diamond"<<endl;
cout<<setw(6)<<"D. Foot"<<endl;

cin>>answer3;//Input variable from user

//if statement for right/wrong answer
if (answer3 == 'C' || answer3 == 'c')
{
      cout<<"Good Job!"<<endl;
}
```

```
    else
    {
       //Requests user to restart program
        cout<<"Sorry you got it wrong please restart the program and "
          <<"try again.\nWould you like to restart? (Enter Y/N). ";
          cin>>restart;
    }
}
case '4':{
    //primitive data types for case 4
    int count;
    float total = 0.0,subtotal, b, Num_items, item, prediction;
    const float sale_TAX = 0.0725;//constant variable
    //Output prompt for sales tax calculator
    cout<<"This program will calculate the total amount paid in sales tax "
       <<"and includes the total cost.\nNote: This program will only be "
       <<"valid in the state of California."<<endl<<endl;

    cout<<"How many items did you purchased?: ";
    cin>>Num_items;
    //Stores data and letter informs the user if they over spend
    cout<<"How much are you expecting to spend?: ";
    cin>>prediction;

    //For Loop to repeat and store values
```

```
for (count=1;count<=Num_items;count++)
{
   cout<<"Price of Item "<<count<<": ";
   cin>>item;
   total += item;
}
//Equation for stored data
b = total * sale_TAX;
subtotal = total + b;
//Use of else if statement mathematical expressions for result
if(subtotal>prediction)
{
//Output Results
      cout<<"Sales Tax: $ "<<showpoint<<fixed<<setprecision(2)<<b<<endl;
      cout<<"Price w/ sales tax included: $ "<<showpoint<<fixed<<
            setprecision(2)<<subtotal<<endl;
      cout<<"Uh-oh you have spend more than what you expected too."<<endl;
}
else if(subtotal<prediction)
{
      cout<<"Sales Tax: $ "<<showpoint<<fixed<<setprecision(2)<<b<<endl;
      cout<<"Price w/ sales tax included: $ "<<showpoint<<fixed<<
            setprecision(2)<<subtotal<<endl;
      cout<<"Congratulations you have spend less than what you expected too."<<endl;
}
```

```
        else
        {
            cout<<"Sales Tax: $ "<<showpoint<<fixed<<setprecision(2)<<b<<endl;
            cout<<"Price w/ sales tax included: $ "<<showpoint<<fixed<<
                setprecision(2)<<subtotal<<endl;
            cout<<"Congratulations you have exactly meant your expectation ."<<endl;
        }
        //Requests user to restart program
          cout<<"\nSorry you got it wrong please restart the program and "
          <<"try again.\nWould you like to restart? (Enter Y/N). ";
          cin>>restart;
    }
}
}while (restart == 'Y' || restart == 'y');//end of the do-while loop
    }while(loop);
    return 0;
}
```

Flow Chart


Menu
Choice 4:
Quit?
Choice 1:
Addition Problems
Choice 2:
Multiplication Problems
Choice 3:
Complete the Sentences Problems
Choice 4:
Sales Tax Calculator
cout<< Additional Problems
cout<< Multiplication Problems
cout<< Sentence Problems
cout<< Prompt on input
cin>> Additional Answers
Cin>> Multiplication Answers
cin>> Sentence Answers
cin>> # of items & price
True
if statement
if statement
if statement
for loop?
cout<< answer = right/wrong
cout<< answer = right/wrong
cout<< answer = right/wrong
else if statement
cout<< sales taxes results
Do-while loop
RESTART
Exit