

**Name:**  
**Course:** CMPSC  
**Due Date:** Wednesday, August 9th by 11:59pm  
**Topic:** Final Project

## I. Application overview

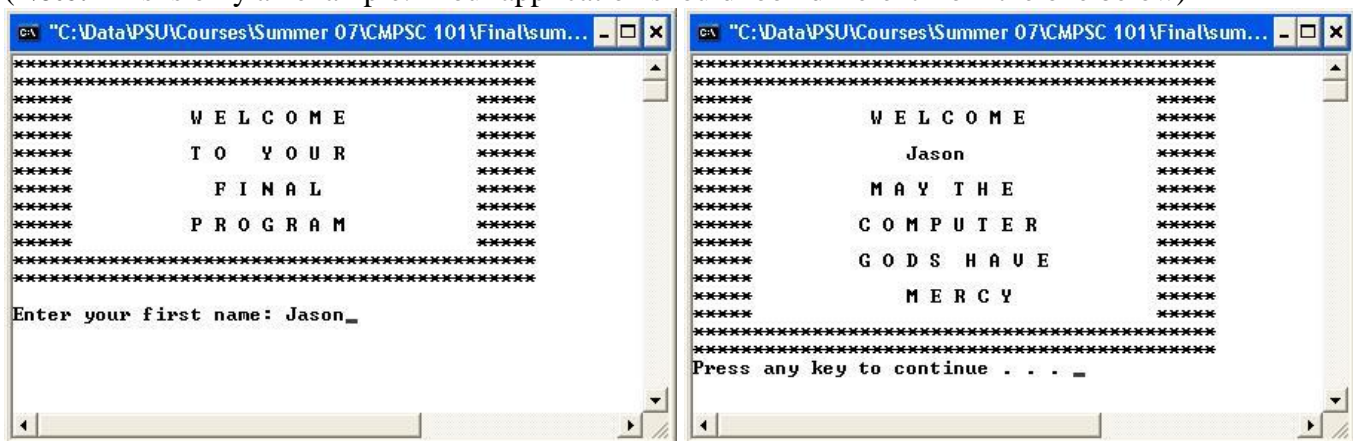
You are going to create an application that will run 4 different programs. This program will be driven by a menu screen. The user will be able to choose which program to enter using the menu screen. Also, the user will only be able to exit using the menu screen.

## II. Application Components

### A. Welcome Screen

Most applications welcome a user before the start of the application. You will create a welcome screen. The figures below are examples of welcome screens.

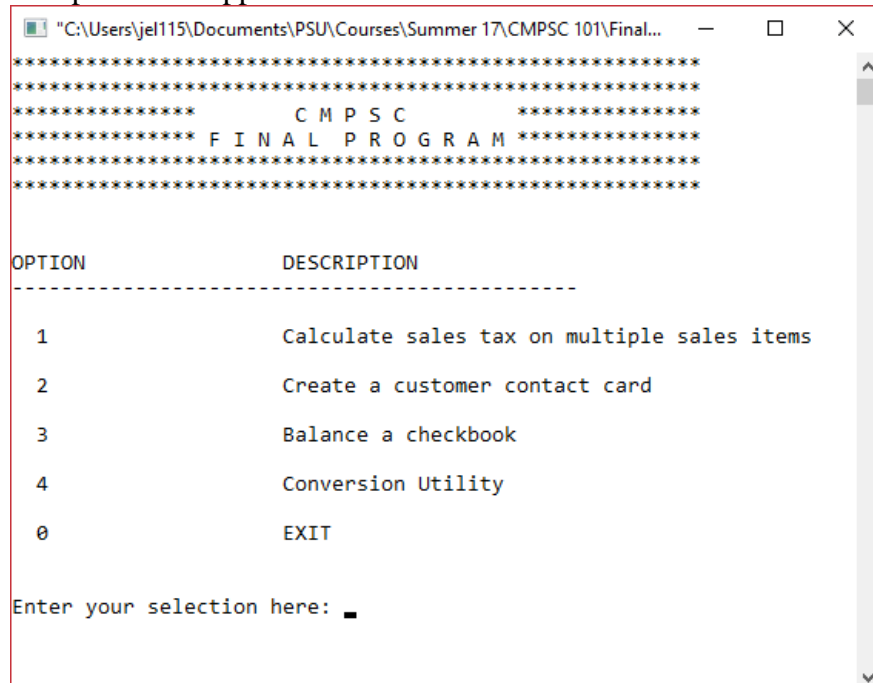
(Note: This is only an example. Your application should look different from the one below)



### B. Menu

This application is driven by a menu. You also should have some sort of error checking. Below is an example of the menu screen:

(Note: This is only an example. Your application should look different from the one below)



### C. Calculate Sales Tax on Multiple Items

This component will calculate the sales tax on multiple items.

#### Needed:

1. Introduction screen
2. The user will enter the number of items
3. The user will enter the name of the items
4. The user will have the ability of entering in the sales tax rate
5. The sales receipt will display the name and price of each item
6. It will display to the user the total sales price before taxes
7. It will display to the user the total sales price after taxes
8. Ask the user to run the this component again

Below is an example of the menu screen:

(Note: This is only an example. Your application should look different from the one below)

```
*****
*          S A L E S   R E C E I P T   P R O G R A M          *
*                                                                 *
*  This program will Print out a detailed reciept that will display .... *
*      1:  the name of item followed by price                    *
*      2:  the total sales price                                  *
*      3:  the amount of sales tax                               *
*      4:  the total purchase price                             *
*                                                                 *
*****
Press any key to continue . . . _
```

```
*****
**          R E C E I P T   O F   S A L E S          **
*****
** Item                      Price                      **
** -----
** Books                      $    45.00              **
** Pens                      $    60.00              **
**                               **
*****
**                               **
** Total Sales                $   105.00              **
** Sales Tax                  $     6.30              **
** Grand Total                $   111.30              **
**                               **
*****

How many sales items do you have? : 2
Enter the name of sales item 1 : Books
Enter the price of the Books : $45
Enter the name of sales item 2 : Pens
Enter the price of the Pens : $60

Enter in the sales tax percentage
(Enter 10 for 10%): 6_

Do you want to run this program again? (Y/N):
```

## D. Entering Customer's Address

This component will have the user enter in a customer's address and output the customer's address in form of a record.

Below is an example of the output for this component

(Note: This is only an example. Your application should look different from the one below)

```
C:\ C:\Data\PSU\Courses\Fall 04\CMPS 101\Final\Final_new\Debu
Homer's contact card will look as follows:

#####
#####          H S          #####
#####
##### Homer Simpson
##### 141 1st Street
##### Spring Field, SD  12345
##### 814-555-1212
#####

Do you want to enter another customer card? <Y/N>:
```

### Needed:

1. The user will be asked to enter-in the following information
  - a. Full Name
  - b. Street Address
  - c. City
  - d. State
  - e. Zip code
  - f. Phone number
2. Output the customer's initials at the top
3. Output the customer's name
4. Output the customer's address information
5. Phone number
6. Ask the user to run the this component again

## E. Balance Check Book

In this component, you will create a program that will balance the user's checkbook. The user will enter the necessary information needed to balance a checkbook.

### Needed:

1. The user will be asked to enter-in the necessary information to balance a checkbook. (e.g. beginning balance, etc)
2. Print a balance sheet report to the screen. (Below is an example of the report)
3. Print a copy of the balance sheet report to a file
4. Ask the user to run the this component again

Below is an example of the output for this component

(Note: This is only an example. Your application should look different from the one below)

```
C:\ "C:\Data\PSU\Courses\Fall 04\CMPS 101\Final\Final_new\Debug\project.exe"
#####
##### CHECKBOOK BALANCESHEET #####
#####
DEPOSITS          Withdrawls          BALANCE
#####
          300.00
          400.00
                                400.00
                                700.00
                                1100.00
                                1050.00
                                1010.00
                                1000.00
#####
#####
Do you want a copy of the check book balance sheet on file? <Y/N> :
```

## F. Conversion Utility

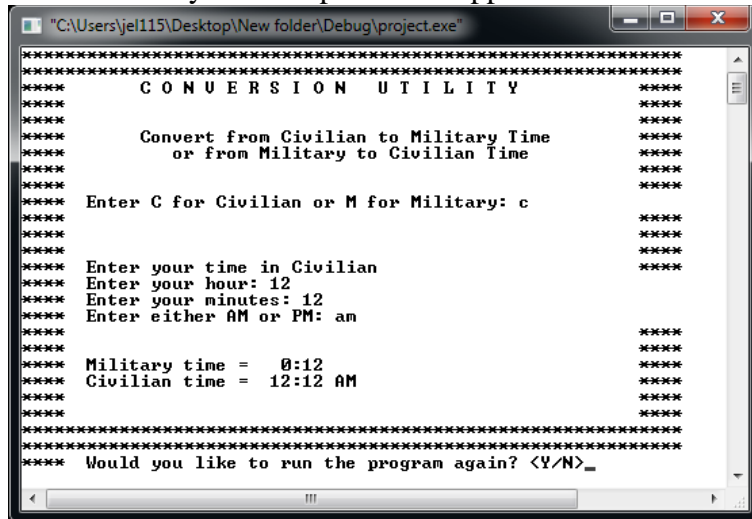
This program will convert time from Military to Civilian or from Civilian to Military times.

### Needed:

1. Ask the user to either a time in Military or Civilian (As seen in the figure below)
2. Show both time in Military or Civilian
3. Ask the user to run the this component again

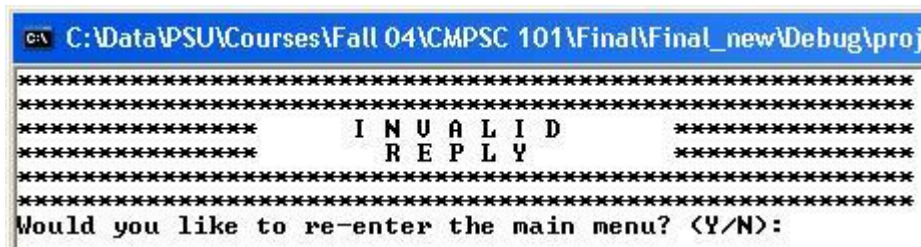
Below is an example of the output for this component

(Note: This is only an example. Your application should look different from the one below)



## G. Error Checking

Your application will need to have an error checking component. If the user types in an invalid entry, they will need to be notified of this and ask to re-enter the Main Menu.



## H. Thank You Screen

Your application is required to have a screen thanking the user for using your application.

```
*****
*****
*****      THANK YOU      *****
*****    COME AGAIN    *****
*****
*****
Press any key to continue . . . _
```

## Final Program: Deliverable

Submit only the CPP file.

### Rubric

	Description	Points
1	Welcome Screen/Menu	5 Pts
3	Calculate Sales Tax on Multiple Items	20 Pts
4	Entering Customer's Address	20 Pts
5	Balance Check Book	20 Pts
7	Conversion Utility	20 Pts
9	Error Checking	5 Pts
10	Thank You screen	5 Pts
11	Documentation	5 Pts
	<b>Total</b>	<b>100 Pts</b>