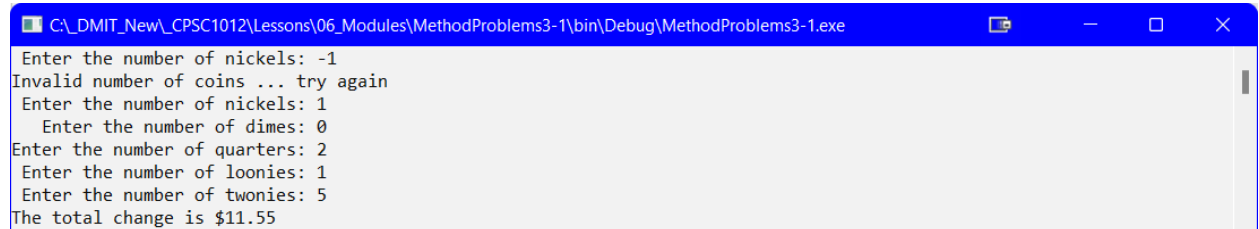# Method Problems 3

1. Write a program to tally up total change from user's pockets. The method `GetTotal()` will have number of nickels, dimes, quarters, loonies, and toonies passed into it and will return the total amount. All values entered must be integers and positive. Validation is required to ensure a negative value is not allowed.
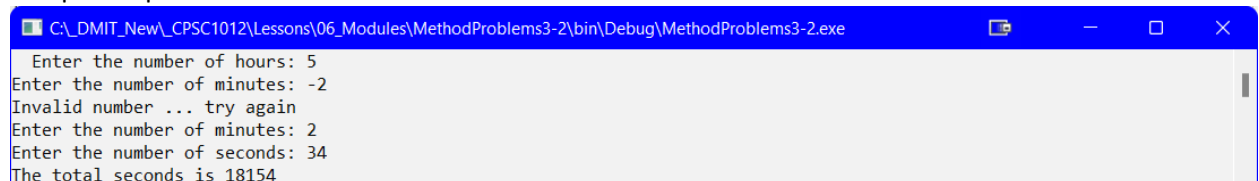
   Sample output:

   ```
   C:\_DMIT_New\_CPSC1012\Lessons\06_Modules\MethodProblems3-1\bin\Debug\MethodProblems3-1.exe
    Enter the number of nickels: -1
   Invalid number of coins ... try again
    Enter the number of nickels: 1
      Enter the number of dimes: 0
   Enter the number of quarters: 2
    Enter the number of loonies: 1
    Enter the number of twonies: 5
   The total change is $11.55
   ```

2. Write a program that will return the number of seconds from hours, minutes, and seconds. The method `CalculateSeconds()` will be passed in hours, minutes and seconds. All values entered must be integers and positive. Validation is required to ensure a negative value is not allowed.
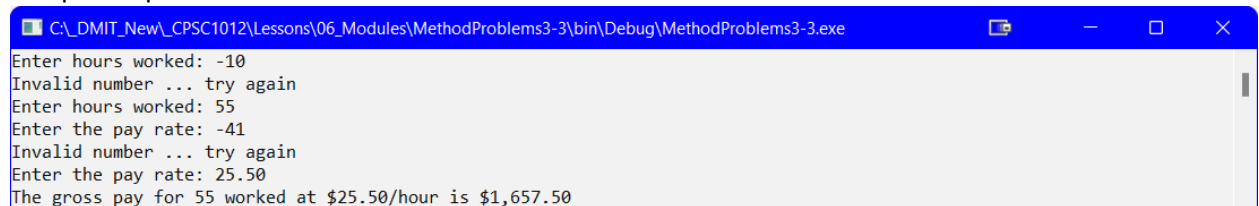
   Sample output:

   ```
   C:\_DMIT_New\_CPSC1012\Lessons\06_Modules\MethodProblems3-2\bin\Debug\MethodProblems3-2.exe
      Enter the number of hours: 5
   Enter the number of minutes: -2
   Invalid number ... try again
   Enter the number of minutes: 2
   Enter the number of seconds: 34
   The total seconds is 18154
   ```

3. Write a program to calculate pay. The method `CalculatePay()` will be passed in hours and pay rate and will return gross pay. Pay time and a half for any hours that are worked over 40 but less than 50. Pay double time for any hours that are worked over 50. All values entered must be integers and positive. Validation is required to ensure a negative value is not allowed.
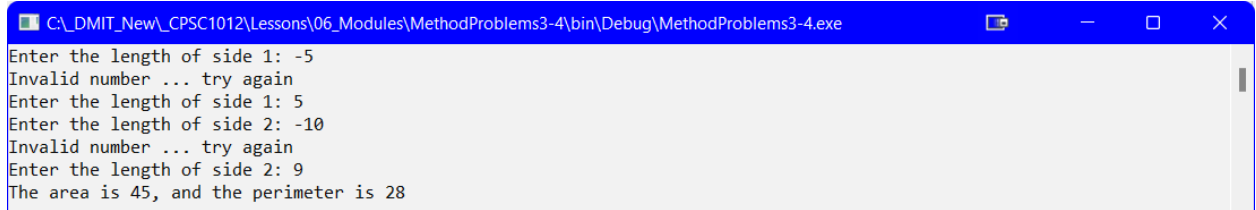
   Sample output:

   ```
   C:\_DMIT_New\_CPSC1012\Lessons\06_Modules\MethodProblems3-3\bin\Debug\MethodProblems3-3.exe
   Enter hours worked: -10
   Invalid number ... try again
   Enter hours worked: 55
   Enter the pay rate: -41
   Invalid number ... try again
   Enter the pay rate: 25.50
   The gross pay for 55 worked at $25.50/hour is $1,657.50
   ```

4. Write a program to calculate and display the area and perimeter of a rectangle. The methods `CalculateArea()` and `CalculatePerimeter()` will be passed in 2 values, length and width, and will return the appropriate value. All values entered must be integers and positive. Validation is required to ensure a negative value is not allowed.
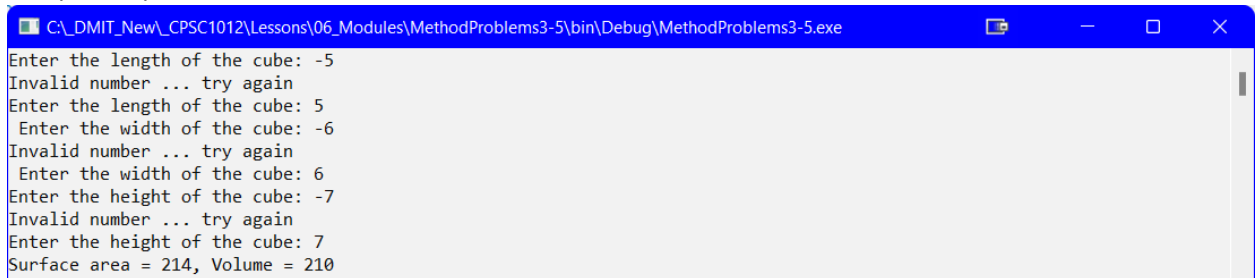
Sample output:

```
C:\_DMIT_New\_CPSC1012\Lessons\06_Modules\MethodProblems3-4\bin\Debug\MethodProblems3-4.exe
Enter the length of side 1: -5
Invalid number ... try again
Enter the length of side 1: 5
Enter the length of side 2: -10
Invalid number ... try again
Enter the length of side 2: 9
The area is 45, and the perimeter is 28
```

5. Write a program to calculate and display the surface area and volume of a cube. The methods `CalculateSurfaceArea()` and `CalculateVolume()` will be passed in 3 values, length, width, and height, and will return the appropriate value. The `CalculateSurfaceArea()` method will call the `CalculateArea()` method created above. All values entered must be integers and positive. Validation is required to ensure a negative value is not allowed.

Sample output:

```
C:\_DMIT_New\_CPSC1012\Lessons\06_Modules\MethodProblems3-5\bin\Debug\MethodProblems3-5.exe
Enter the length of the cube: -5
Invalid number ... try again
Enter the length of the cube: 5
 Enter the width of the cube: -6
Invalid number ... try again
 Enter the width of the cube: 6
Enter the height of the cube: -7
Invalid number ... try again
Enter the height of the cube: 7
Surface area = 214, Volume = 210
```

6. Write a program to keep track of revenue for your one-person taxi company. You must use a menu.

> A: Airport trip – charge is $25.00
> R: Regular fare – enter distance traveled and time of trip and calculate the fare based on the following rates:
> > Charge per kilometre: $1.10
> > Charge per minute: $0.20
> F: Flat rate – enter and charge the agreed-upon amount
> X: Exit program
>
> After each fare, enter the amount of tip paid. If no tip was given, enter $0.00 for amount of tip.
>
> At the end of the day, display Total Gross Income.
> (sample output on next page)

Sample output

```
C:\_DMIT_New\_CPSC1012\Lessons\06_Modules\MethodProblems3-6\bin\Debug\MethodProblems3-6.exe

Main Menu
        A: Airport trip
        R: Regular fare
        F: Flat rate
        X: Exit program
Option: a
Add a tip (Y/N): y
         Enter tip amount: 1.5
Main Menu
        A: Airport trip
        R: Regular fare
        F: Flat rate
        X: Exit program
Option: r
Enter kilometers travelled: 12
Enter trip time in minutes: 23
Add a tip (Y/N): n
Main Menu
        A: Airport trip
        R: Regular fare
        F: Flat rate
        X: Exit program
Option: f
    Enter agreed upon fare: 35
Add a tip (Y/N): n
Main Menu
        A: Airport trip
        R: Regular fare
        F: Flat rate
        X: Exit program
Option: x
The daily gross total is $79.30
```