BCS 230: Foundations of Computer Programming II
CRN 23798, 23322, 20108 Spring 2015
Instructor: Dr. Jie Li

Homework 1 — Thursday, January 29
Due Thursday, February 5, 11:55PM on Angel

Assignment Goals: To review and practice on C++ functions, reference parameters and value parameters, and control structures.

Assignment:

1. Review Chapter 1 to Chapter 7

2. Programming Exercise

Consider the definition of the function `main`:

```cpp
int main()
{
     char z;
     double hours, rate;
     double amount;
     .
     .
     .
}
```

The variables `z`, `hours`, `rate` and `amount` are the variables of the function `main`. Each of the functions described must have the appropriate parameters to access these variables. Write the following definitions:

a. Write the definition of the function `setData` that prompts the user to input the hours worked and rate per hour to initialize variables `hours` and `rate` of the function main.

b. Write the definition of the function `getPay` that calculates and returns the amount to be paid to an employee based on the hours worked and rate per hour. The hours worked and rate per hour are stored in the variables `hours` and `rate`, respectively, of the function `main`. The formula for calculating the amount to be paid is as follows: The amount to be paid equals the hours worked times rate per hour. For the first 40 hours, the rate is the given rate; for hours over 40, the rate is 1.5 times the given rate. The function `getPay` can be a value returning function or a void function.

c. Write the definition of the function `printPay` that prints the hours worked, the rate per hour, and the amount to be paid.

d. Write the definition of the function `nextCharByVal` that accepts a character `x` and returns the next character of `x`. For example, the next character of '`a`' is '`b`'. The function `nextCharByVal` has a value parameter of type `char`.

e. Write the definition of the function `nextCharByRef` that accepts a character `x` and returns the next character of `x`. The function `nextCharByRef` has a reference parameter of type `char`.

f. Write the definition of function `main` that tests each of these functions. To test `nextCharByVal` and `nextCharByRef`, initialize `z` to the space character (' ') then use a loop to print out the next 94 characters after the space character.

Name your source file as **hw1_abcd.cpp** if your email is **abcd**@farmingdale.edu.