**Extra Practices 7\_Functions**

***Theoretical Questions***

1. Find any errors in the following function definition:

**a.**

*void fun (int x, int y){*

*int z ;  
 ….  
 return z ;}/\*fun\*/*

***b.***

*int fun (int x, y)  
{  
 int z ;  
 ……  
 return z ;}/\*fun\*/*

***c.***

*int fun(int x, int y){  
 ….*

*int sun (int t){*

*…..  
 return (t+3);  
}  
…….  
 return z;  
/\*fun\*/*

*}*

1. Find any errors in the following prototype statements:  
   *a . int sun ( int x, y);*

*b . int sun (int x, int y);*

*c. void sun (void, void);  
d. void sun (x int, y float);*

1. *Find any errors in the following function calls:*
   1. *Void fun();*
   2. *fun (void);*
   3. *void fun (int x, int y) ;*
   4. *fun () ;*

***\*\*Questions marked challenge are those which need an extra bit of creativity or mathematical background: Ask if you would like to learn how to solve them***

***Programming Questions***

1. Write a program to read in 3 integer values and then print them out in ascending order and in descending order.

* In each case, the main function should read the values, call helper function(s) to determine the highest and lowest values, calculate the middle value (a + b + c – min – max), and print the values in ascending order.
* In the program you should use two helper functions,  
  **int minof3(int a, int b, int c);**  
  **int maxof3(int a, int b, int c);**

2. The ration between successive speeds of a six-speed gearbox (assuming that the gears are evenly spaced to allow for whole teeth) is:

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√ M/m

Where M is the maximum speed in revolutions per minute and m is the minimum speed. Write a function *speeds\_ratio*  that calculates this ration for any maximum and minimum speeds. Write a function that prompts maximum and minimum speeds (rpm), calls *speeds\_ratio* to calculate the ratio, and displays the results in a sentence of the form:

**The ration between successive speeds of a six-speed gearbox with maximum speed \_\_\_\_\_\_ rpm and minimum speed \_\_\_\_\_\_\_\_\_\_ rpm is \_\_\_\_\_\_\_\_\_\_\_ .**

1. Write a program to take a depth (in kilometers) inside the earth as input data; compute and display the temperature at this depth in degrees Celcius and degrees Fahrenheit. The relevant formulas are

*Celcius = 10(depth)+20  
 Fahrenheit = 1.8 (Celcius)+32*

Include two functions in your program.Function *celcius\_at\_depth* should compute and return the Celcius temperature at a depth measured in kilometers. Function *Fahrenheit* should convert a Celcius temperature to Fahrenheit.

1. Write a program consisting of a main and helper function named *prime.* The main passes a number entered by the user to thefunction *prime. Prime* determines if that number is a prime number or not. *Prime* thus returns ‘y’ or ‘no’ to the main function. Main then prints the result to the user.
2. **\*\*\*\*Challenge:** Write a c program to reverse a number entered by the user. Create function *reverse* to reverse numbers.

* Example: if the user enters number **5689,** the output of your program will be number **9865**.