Laboratory Exercise For Week of 927

1. You have been tasked with creating a program that utilizes a main function that prints out the following sets of strings “I have a message for you”, “I am Arthur”, “King of the Britons.” “Good bye”. Your program should call/reference a void function defined as main() and the messages “I have a message for you” and “good bye” should be printed within this function. In addition, the main function will reference another customized function titled message(). The message function will print the other two remaining strings. The sample output looks like this:

```
I have a message for you.
I am Arthur
King of the Britons.
Goodbye!
```

2. You are running a retail store, and your boss just instructed you to create a program that calculates the retail item’s sales price. You were told that you need to create a global constant variable named DISCOUNT_PERCENTAGE and the value of that should be 20%. In addition to that, you will need to create a main function that reference another function titled get_regular_price and store the result of that function in a variable. You will then calculate the sales price using the formula of regular price – discount(reg Price) and then print out the statement indicating “The sale price is $” X). the discount is a function that will return the value of price of the item after discount has been applied. The function of get_regular_price is simply asking the use to input a value of the item’s price using the string” Enter the item’s regular price”) and the function will return whatever the user inputted into the program.

```
Enter the item's regular price: 45
The sale price is $36.00
```

3. (optional) A prime number is a number that is only evenly divisible by itself and 1. For example, the number 5 is prime because it can only be evenly divided by 1 and 5. The number 6, however, is not prime because it can be divided evenly by 1, 2, 3, and 6. Write a Boolean function named is_prime which takes an integer as an argument and returns true if the argument is a prime number, or false otherwise. Use the function in a program that prompts the user to enter a number then displays a message indicating whether the number is prime. (Hint: Recall that the % operator divides one number by another and returns the remainder of the division. In an expression such as num1 % num2, the % operator will return 0 if num1 is evenly divisible by num2.)

```
Enter an integer: 6
The number you entered is not a prime number.
```

```
Enter an integer: 97
The number you entered is a prime number.
```

4. (optional) This exercise assumes that you have already written the is_prime function in Programming Exercise 17. Write another program that displays all of the prime numbers from 1 to 100. The program should have a loop that calls the is_prime function.

```
number   is prime
----------------------
1        prime
2        prime
3        prime
4        not prime
5        prime
6        not prime
7        prime
8        not prime
9        not prime
10       not prime
11       prime
12       not prime
13       prime
14       not prime
15       not prime
16       not prime
17       prime
18       not prime
19       prime
20       not prime
21       not prime
22       not prime
23       prime
24       not prime
25       not prime
26       not prime
27       not prime
28       not prime
29       prime
30       not prime
```