Python for Programmers
Ibri College of Technology, November 11, 2019

Problem 6. Mystery

Program: `mystery.py`

Write a program named `mystery.py` that implements a function name also mystery. The function should accept two integers `a` and `b` greater than zero and return an integer as well. The function should implement the flowchart given in Figure 1. Write code to test the function by calling multiple times on different value. Below sample output produced by calling function through a program that accepts two command line argument.

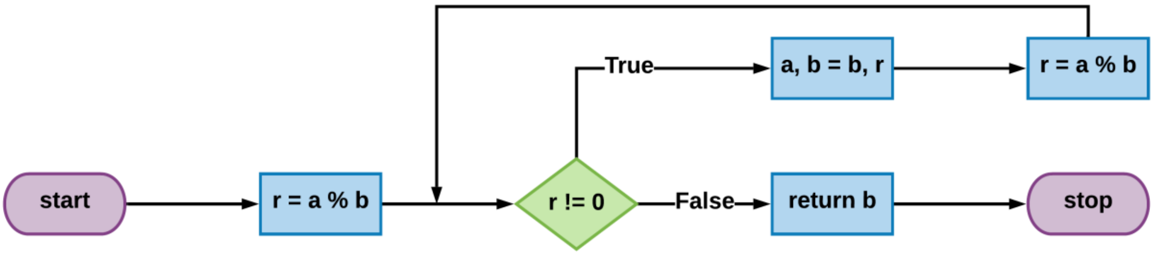

FIGURE 1: FLOWCHART OF OUR MYSTERY FUNCTION

```
% python mystery.py 45 27
The value of mystery(45, 27) is 9

% python mystery.py 112 98
The value of mystery(112, 98) is 14

% python mystery.py 856 1024
The value of mystery(856, 1024) is 8
```

FIGURE 2: SAMPLE OUTPUT FOR PROBLEM 6

Problem 7. Converter

Program: `converter.py`

Write a program named converter that provides the means for doing temperature and time conversion. The program should accept input from the commands line and outputs a message should the conversion based on the user input specification. The output of the program should look like the following.

```
% python converter.py f0
0.00 degrees Fahrenheit is equivalent to -17.78 degrees Celsius.

% python converter.py f32
32.00 degrees Fahrenheit is equivalent to 0.00 degrees Celsius.
```

```
% python converter.py f212
212.00 degrees Fahrenheit is equivalent to 100.00 degrees Celsius.

% python converter.py c-40
-40.00 degrees Celsius is equivalent to -40.00 degrees Fahrenheit.

% python converter.py c-300
-300.00 degrees Celsius is equivalent to -508.00 degrees Fahrenheit.

% python converter.py c37
37.00 degrees Celsius is equivalent to 98.60 degrees Fahrenheit.

% python converter.py t15
15 seconds in hh:mm:ss format is 00:00:15.

% python converter.py t1999
1999 seconds in hh:mm:ss format is 00:33:19.

% python converter.py t99999
99999 seconds in hh:mm:ss format is 27:46:39.
```

FIGURE 3: SAMPLE DIALOG FOR THE PROGRAM OF PROBLEM 7

Problem 8. Calendar

Program: `cal.py`

Write a program `cal.py` that takes two command line argument `m` and `y` and writes the monthly calendar for the `m`th month of the year `y` as in the example below. Implement functions common and repetitive tasks to ensure code readability and maintainability

Hint: Utilize the programs you written for `Problem 4` and `Problem 2`.

```
% python cal.py 2 2015
February 2015
 S  M Tu  W Th  F  S
 1  2  3  4  5  6  7
 8  9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
```

Acknowledgements

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References

Scobey, P. (2019). CSCI 1227 Computer Programming and Problem Solving. Retrieved November 10, 2019, from http://cs.stmarys.ca/~porter/csc/227/2019/

Sedgewick, R., Wayne, K., & Dondero, R. (2015). *Introduction to Programming in Python* (1st ed.). Addison-Wesley Professional.