CIS 500 – Foundations of Software Practice
Winter 2023, Project #1

Functions in Python
Due Date: Monday, January 30th, 2023

Objectives

- Defining functions
- Working with strings

Assignment

Your task is to implement functions defined in `project1.py` file that are incomplete. Only `is_leap_year()` function is completed for you. You need to complete the rest of the functions in this file.

For each function that has a `pass` statement in its body, replace that statement with your implementation. In case of `easter_sunday()` function, replace only the "TO DO" portion of the function with your implementation.

Project Files

You are provided with two files for this project. Keep these files in a folder designated for this project. You may want to name this folder `Project1`.

- **`project1.py`:** Implement the following functions in this file:
  - `monthly_car_payment()`
  - `n_factorial()`
  - `easter_sunday()`
  - `income_tax()`
  - `bmi_category()`
  - `day_number_of_date()`
  - `decimal_to_binary()`
  - `binary_to_decimal()`
  - `is_prime()`
  - `prime_numbers()`

- **`project1_tests.py`**: This file contains unit tests for testing your implementation of the above functions in `project1.py` file. **DO NOT MODIFY THIS FILE.** My evaluation of your project will be based on how many unit tests pass when I run it against your implementation of functions in `project1.py` file (see the rubric in `Project1_Rubric.pdf` file)

Running Unit Tests

Issue the following command at command prompt from inside the project directory:

```
$ python project1_tests.py
```

Project Deliverables (VERY IMPORTANT)

1. Upload only **`project1.py`** file on Blackboard by end of day (11:59PM) on due date. Note the filename contains all lowercase letters.

2. Your project will be graded based on how many unit tests in **`project1_tests.py`** pass. DO NOT upload this file.

3. The submission time on Blackboard will be used as the official submission date/time.

4. **Late penalty (10% per day up to three days late max) applies after Monday, January 30th.**