COSC2429 Intro to Programming

Lab 2: Simple Python Data

Objective: At the end of this lab, you will be able to write simple Python programs in PyCharm to solve some basic problems.

1. Evaluate the following Python numerical expressions **without** using PyCharm. You can use a calculator.
    a. 9 * 5
    b. 15 / 12
    c. 12 / 15
    d. 15 // 12
    e. 9 % 5
    f. 12 % 15
    g. 6 % 6
    h. 2 + (3 - 1) * 10 / 5 * (2 + 3)
    i. 5 ** 2
    j. 5 + (2 + 1) ** 2 ** 3

2. Write a Python program to compute the area of a circle. Prompt the user to enter the radius and print a nice message back to the user with the answer.

3. Write a Python program to compute the area of a rectangle. Prompt the user to enter the width and height of the rectangle. Print a nice message with the answer.

4. Assume that we name the days 0 thru 6 where day 0 is Sunday and day 6 is Saturday. If you go on a wonderful holiday leaving on day 3 (Wednesday) and you return home after 10 nights, you will return on day 6 (Saturday). Write a general version of a Python program which asks for the starting day number, the length of your stay, and it will tell you the number of day of the week you will return on.

5. The formula for computing the final amount if one is earning compound interest is given on Wikipedia as:

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

Where,

- P = principal amount (initial investment)
- r = annual nominal interest rate (as a decimal)
- n = number of times the interest is compounded per year
- t = number of years

Write a Python program to calculate the final amount using the above formula. The program asks the user for the principal amount **P** and the number of years **t** – the length that the money will be compounded for. Assign to **n** the value **12**, and assign to **r** the interest rate of **8% (0.08)**. Calculate and print the final amount **A** after **t** years.