

Lab: Conditionals (if-elif-else)

1. Create a program that asks the user when their birthday is (month and day as integers). Print a message to the user specifying whether their birthday has passed for the year, has yet to come for the year, or is today.
2. Create a program that computes the area of various shapes. Ask the user which shape they would like to compute the area of, choosing between circle, rectangle or triangle. Depending on which shape they choose, you will need to prompt them for the information necessary to compute the area; for example, if they enter "triangle", you'll need to ask the user for the base and the height of the triangle. Use an if-elif-else statement to accomplish this. Print an error message if the user enters an invalid shape name.

Hint: Your if-elif-else will need four parts: an if, two elifs, and an else.

3. Write a program to help people choose an outdoor hobby. Ask the user what kind of weather they prefer: hot, mild, or cold. The user should be able to answer either with a word, or just the first letter (h, m, or c).

If they chose hot weather, ask the user if they like water. If they say yes, tell the user they should take up swimming. If they say no, tell them to take up beach volleyball.

If they chose mild weather, ask the user if they like to run. If they say yes, tell them to take up soccer. If they say no, recommend golf.

If they chose cold weather, ask the user if they are afraid of heights. If they say yes, tell them to take up ice skating. If they say no, tell them to take up downhill skiing.

For each secondary yes/no question, the user should be able to type in the entire word or just the first letter (y/n).

4. Write a program to determine whether or not a year is a leap year. A leap year is any year that is divisible by 4, unless the year is also divisible by 100. If the year is divisible by 100, it must also be divisible by 400 to be a leap year. In other words, 1900 was not a leap year, but 2000 was.

Hint: The % operator calculates remainders. Use it like +, -, *, or /, in that asking Python to calculate $x \% y$ gives you back the remainder when x is divided by y . For instance, $11 \% 3$ returns 2 (because when you divide by 3, you get 3, with a remainder of 2). The remainder operator can be used to test for divisibility.