

Making Decisions Using `if`, `elif` and `else`

Boolean Data Types

1. What is a boolean data type?
2. Using the Python shell, assign variables `x` and `y` the values 3 and 5, then evaluate each statement.
 - a. `x == y`
 - b. `x < y`
 - c. `x > y`
 - d. `x != y`

If/Else

3. Determine if a user-entered integer is divisible by 7. Print a message if it is, and a different message if it is not.
4. Read the user's age, then display a message indicating whether or not (s)he is old enough to vote. Display two different messages depending on the answer.
5. Read three numbers from the user and determine if the third number is equal to the product of the first two numbers. Output different messages for each case.
6. Have the user input an integer, and determine whether or not it is a perfect square (a number whose square root is also an integer). Hint: what functions are available in the `math` module that you might be able to use for this?

If/Elif/Else

7. Ask the user to enter an integer. Print a message if its value is 20 or more, a different message if it is between -5 and 20 (non-inclusive), and another message for all other values.
8. Ask the user to enter an integer between 0 and 100, representing a course grade. Convert the numeric mark to a letter grade using the following ranges.
 - A: 80-100
 - B: 70-79
 - C: 60-69
 - D: 50-59
 - F: 0-49

Include messages for cases where the grade entered is too high, or too low.

9. A hotel has 400 rooms (100-499), spread evenly among four floors, where the first number of the room corresponds to the floor (e.g. room 305 is on the third floor). Rooms have different features depending on the room number:
 - Master suites are every twenty-fifth room on a floor. Master suites have one king-sized bed.
 - All odd-numbered rooms, except for master suites, have one queen-sized bed.
 - All even-numbered rooms, except for master suites, have two twin-sized beds.
 - Every tenth room, with the exception of those on the first floor, has a balcony.Given a room number entered by the user, determine the floor number, the types of beds in the room and whether or not it has a balcony. For example, room 295 has one queen-sized bed, while room 450 is a master suite with a king-sized bed and a balcony. If the room number is not valid, output only the message "Not a valid room."