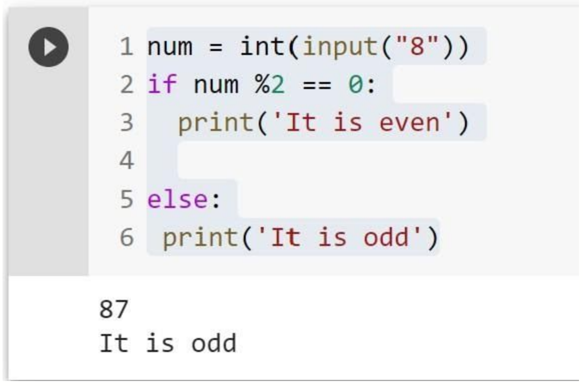
Python Project – Odd or Even

Ask the user for a number. Depending on whether the number is even or odd, print out an appropriate message to the user. *Hint: how does an even / odd number react differently when divided by 2?*

```
num = int(input("8"))
if num %2 == 0:
  print('It is even')

else:
 print('It is odd')
```



```
num = int(input("8"))
if num %2 == 0:
  print('It is even')

else:
 print('It is odd')
```

```
87
It is odd
```

Extras:

1. If the number is a multiple of 4, print out a different message.
2. Ask the user for two numbers: one number to check (call it `num`) and one number to divide by (`check`). If `check` divides evenly into `num`, tell that to the user. If not, print a different appropriate message.

```
num = ['4','8','12']
for x in num:
 if x == '12':
  print('You like the number 12!')
 if x =='8':
  print('You like the number 8!')
 if x=='4':
  print('You like the number 4!')
 elif x == '3':
  print('You have no preference!')
else:
   print
```

Modular arithmetic (the modulus operator)

We have been doing arithmetic (addition, subtraction, multiplication, division) since elementary school, and often it is useful for us to find not the answer to a division problem but the remainder when we do a division operation. This operation is called the “modulus operation.” For example, when I divide 5 by 3, the remainder is 2, and the sentence reads like this: “5 modulo 3 is 2.”

In the Python shell:

```
>>> 5 % 3
2
>>> 6 % 3
0
>>> 7 % 3
1
```

The `%` sign is exactly the modulus operator.

Conditionals

When a computer (or a program) needs to decide something, it checks whether some condition is satisfied, which is where the term **conditional** comes from. Conditionals are a fancy way of saying “if statements”. If Michele was born in New York, she has an American passport. That statement is a conditional (if statement) that in this case is true. In Python this works the same way:

```
if age > 17:
  print("can see a rated R movie")
elif age < 17 and age > 12:
  print("can see a rated PG-13 movie")
else:
  print("can only see rated PG movies")
```

When the program gets to the `if` statement, it will check the value of the variable called `age` against all of the conditions, in order, and will print something to the screen accordingly. Note that `elif` is a portmanteau of “else” and “if”. So if the variable `age` holds the value 15, the statement `"can see a rated PG-13 movie"` will be printed to the screen.

Note how the statement `elif age < 17 and age > 12` has the statement `and` - you can use `or` and `not` in the same way. Understanding a bit about logic and how it works, or being able to rationally think about logic will help you get the conditions right - oh, and a lot of practice.

Links about conditionals:

- The official Python documentation
- Python for beginners explains conditionals

Checking for equality (and comparators in general)

A fundamental thing you want to do with your program is check whether some number is equal to another. Say the user tells you how many questions they answered incorrectly on a practice exam, and depending on the number of correctly-answered questions, you can suggest a specific course of action. For integers, strings, floats, and many other variable types, this is done with a simple syntax: `==`. To explicitly check inequality, use `!=`.

```
if a == 3:
  print("the variable has the value 3")
elif a != 3:
  print("the variable does not have the value 3")
```

Notice how in this example, the condition is redundant. In the first condition we are checking whether the variable `a` has the value 3 and in the second, we are checking whether `a` does NOT have the value 3. However, if the first condition is not true (`a` is in fact not 3), then the second condition is by definition true. So a more efficient way to write the above conditional is like this:

```
if a == 3:
  print("the variable has the value 3")
else:
  print("the variable does not have the value 3")
```

The same equality / inequality comparisons work for strings.

This project was from practicepython.org