

Python Scripting Built In Functions

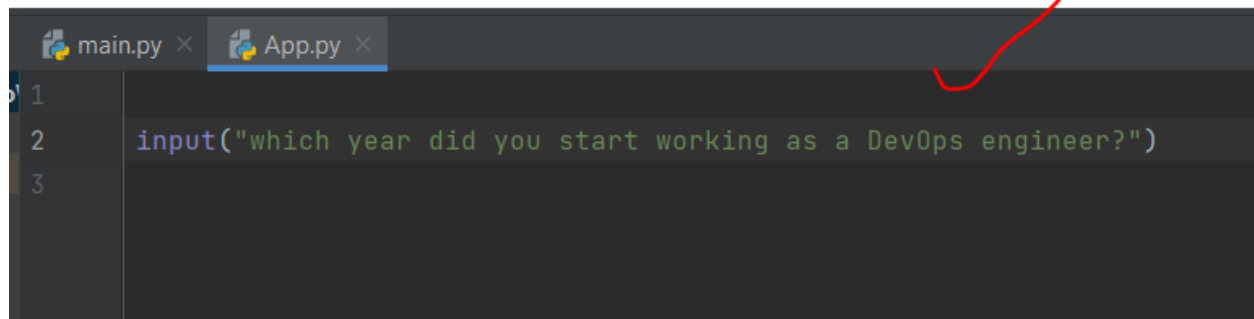
Input built in function in Python

We saw this in session 1.

It is used to collect information from the clients.

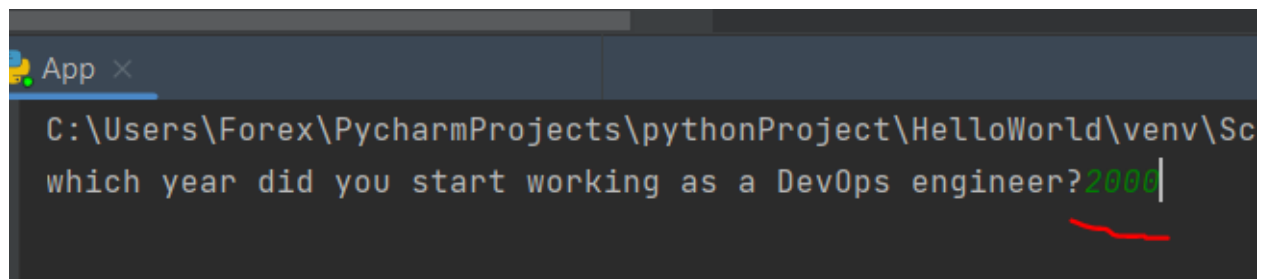
Let practice one more time

Input



A screenshot of a code editor with two tabs: 'main.py' and 'App.py'. The 'App.py' tab is active, showing a Python script with three lines. Line 2 contains the code `input("which year did you start working as a DevOps engineer?")`. A red squiggly line is drawn above the code on line 2.

Output



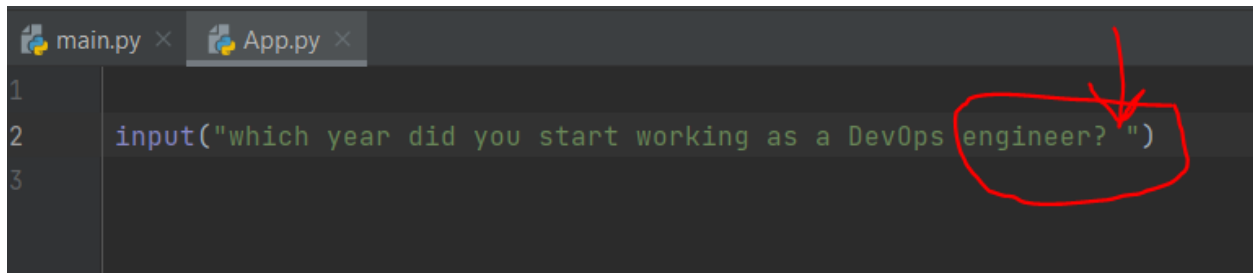
A screenshot of a terminal window with a single tab labeled 'App'. The terminal shows the command prompt path `C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Sc` followed by the prompt `which year did you start working as a DevOps engineer?` and the user input `2008`. A red squiggly line is drawn under the input '2008'.

Notice the position of the cursor

- ⇒ How we add a space between the question mark and the position where we shall type the first character of the name or number?

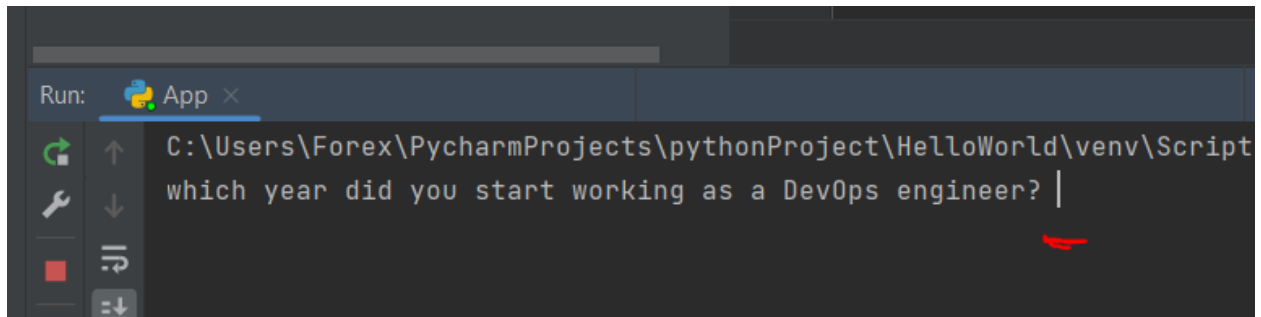
To do this, add a space after the question mark in the input code as shown below

Python Scripting – Session 2



```
main.py × App.py ×  
1  
2 input("which year did you start working as a DevOps engineer? ")  
3
```

Output



```
Run: App ×  
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Script  
which year did you start working as a DevOps engineer? |
```

Python String Concatenation

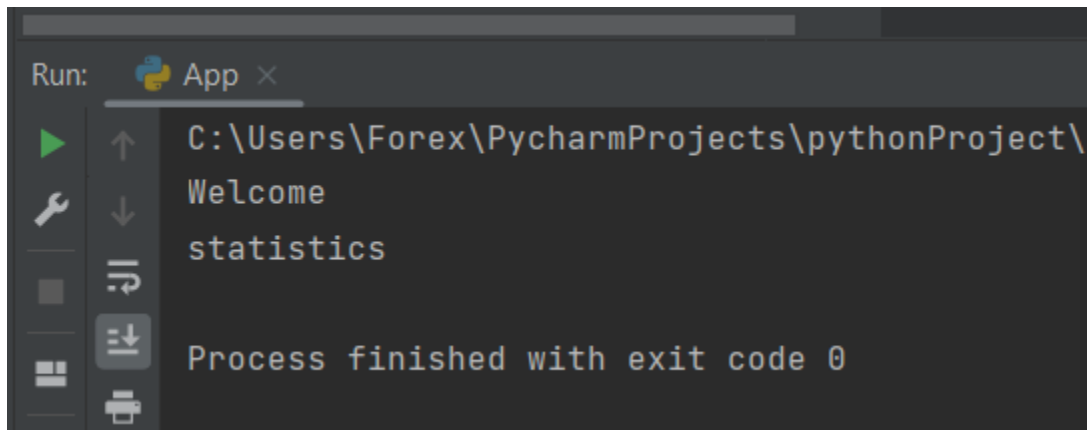
The ability to combine two or more strings in python

Input

```
# Assign Welcome string to the variable var1  
var1 = "Welcome"  
  
# Assign statistics string to the variable var2  
var2 = "statistics"  
  
# print the result  
print(var1)  
print(var2)
```

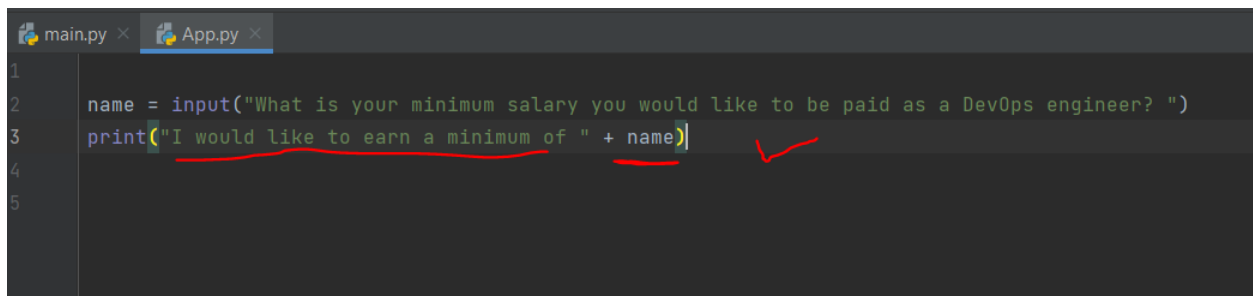
Output

Python Scripting – Session 2



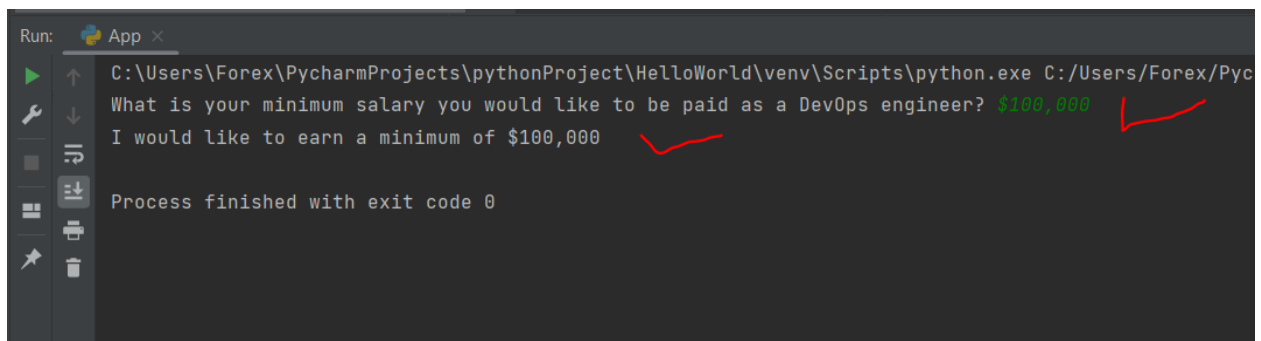
```
Run: App ×  
Welcome  
statistics  
Process finished with exit code 0
```

Input code/program



```
main.py × App.py ×  
1  
2 name = input("What is your minimum salary you would like to be paid as a DevOps engineer? ")  
3 print("I would like to earn a minimum of " + name)  
4  
5
```

Terminal Output



```
Run: App ×  
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Scripts\python.exe C:/Users/Forex/Pyc  
What is your minimum salary you would like to be paid as a DevOps engineer? $100,000  
I would like to earn a minimum of $100,000  
Process finished with exit code 0
```

Python Scripting – Session 2

Type Conversion

Built in functions such as `int()`, `bool()`, `str()`, `float()`

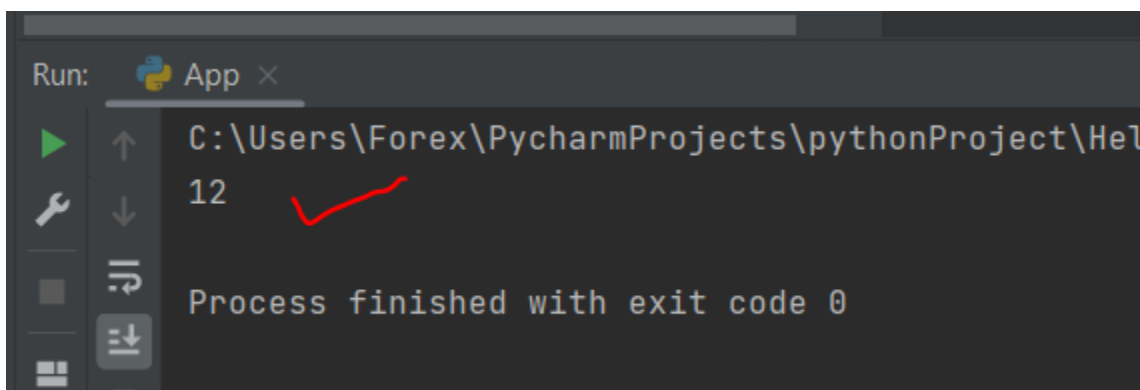
There are three types of data in python that you have been able to learn

Number

Input program

```
1
2   x = 4
3
4   y = 3
5
6   print(x*y)
```

Output from the terminal



```
Run: App x
C:\Users\Forex\PycharmProjects\pythonProject\He1
12
Process finished with exit code 0
```

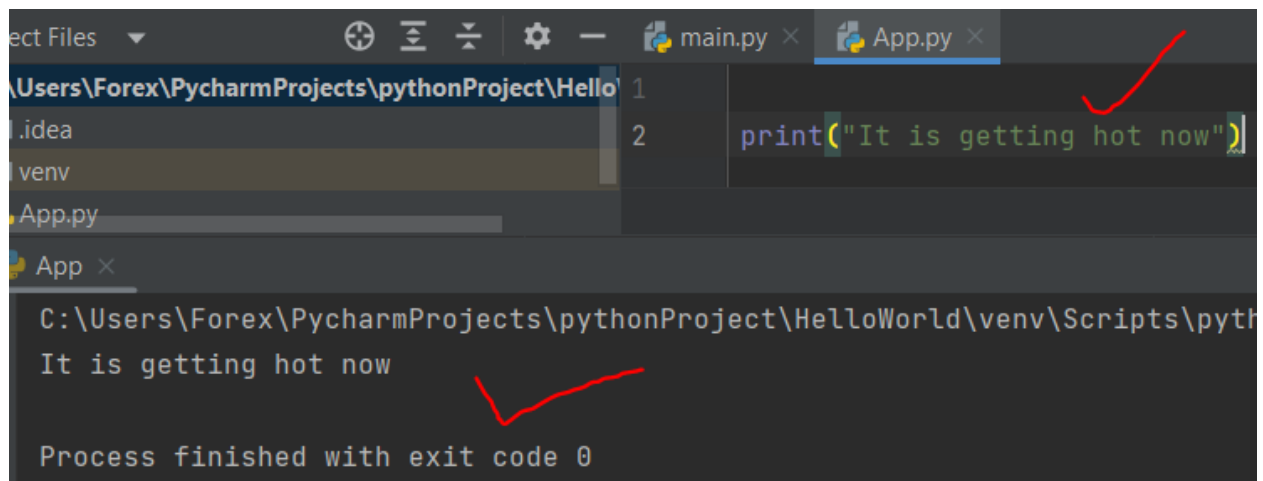
Simple projects

Python Scripting – Session 2

Practice how to

- ⇒ Add two or more variables
- ⇒ Subtract two or more variables
- ⇒ Divide two or more variables

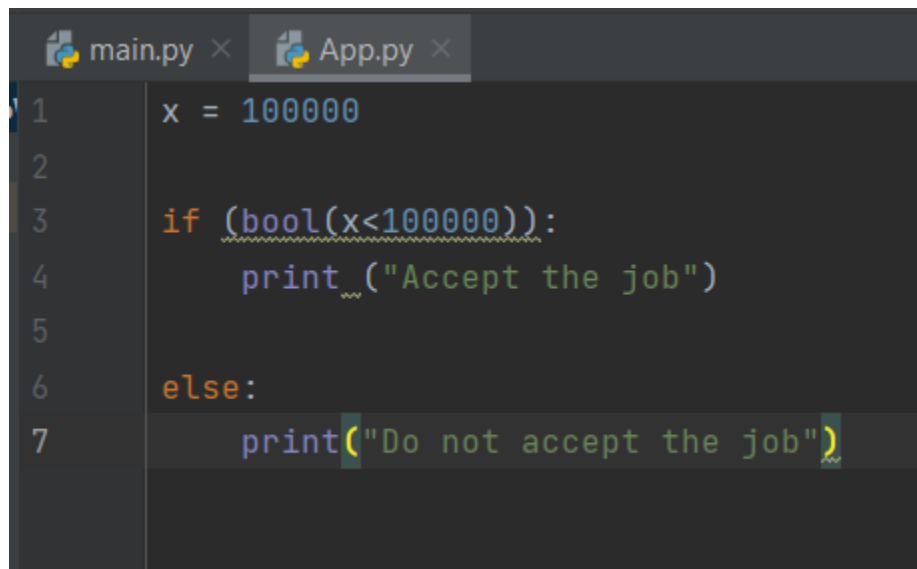
Strings ()



The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for file operations (add, remove, split) and settings. The file explorer on the left shows the project structure: `Users\Forex\PycharmProjects\pythonProject\HelloWorld`, `.idea`, `venv`, and `App.py`. The editor window displays `App.py` with two lines of code: `1` and `2`. Line 2 contains the code `print("It is getting hot now")`, which is marked with a red checkmark. The bottom console window shows the execution path `C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Scripts\python.exe`, the output `It is getting hot now` (also marked with a red checkmark), and the message `Process finished with exit code 0`.

Boolean

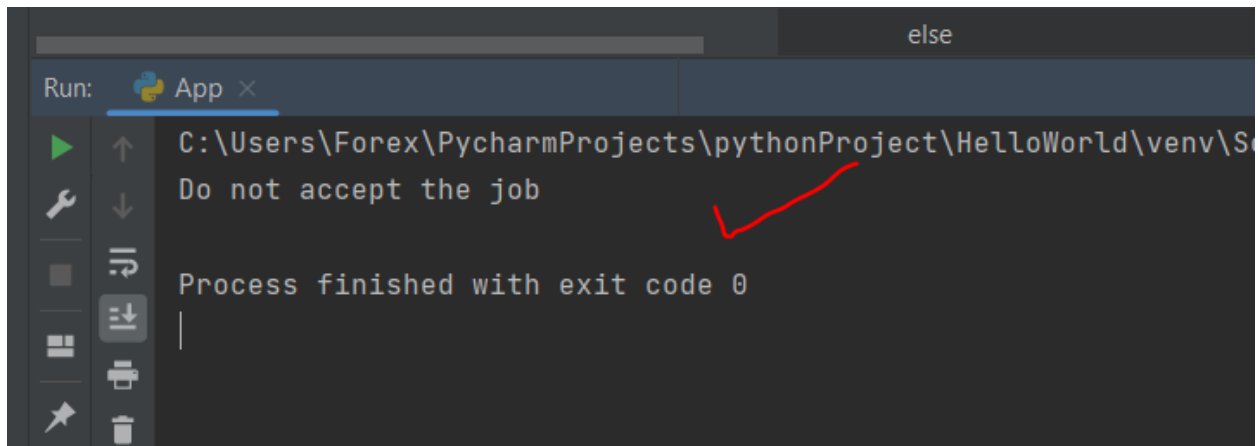
Input



The screenshot shows the PyCharm IDE with two tabs: `main.py` and `App.py`. The `App.py` tab is active, showing a script with the following code: `1 x = 100000`, `2` (blank line), `3 if (bool(x<100000)):`, `4 print("Accept the job")`, `5` (blank line), `6 else:`, and `7 print("Do not accept the job")`. The code is syntax-highlighted, with keywords in orange and strings in green.

Output

Python Scripting – Session 2



```
Run: App x
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Scripts\python.exe C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\main.py
Do not accept the job
Process finished with exit code 0
```

More Boolean

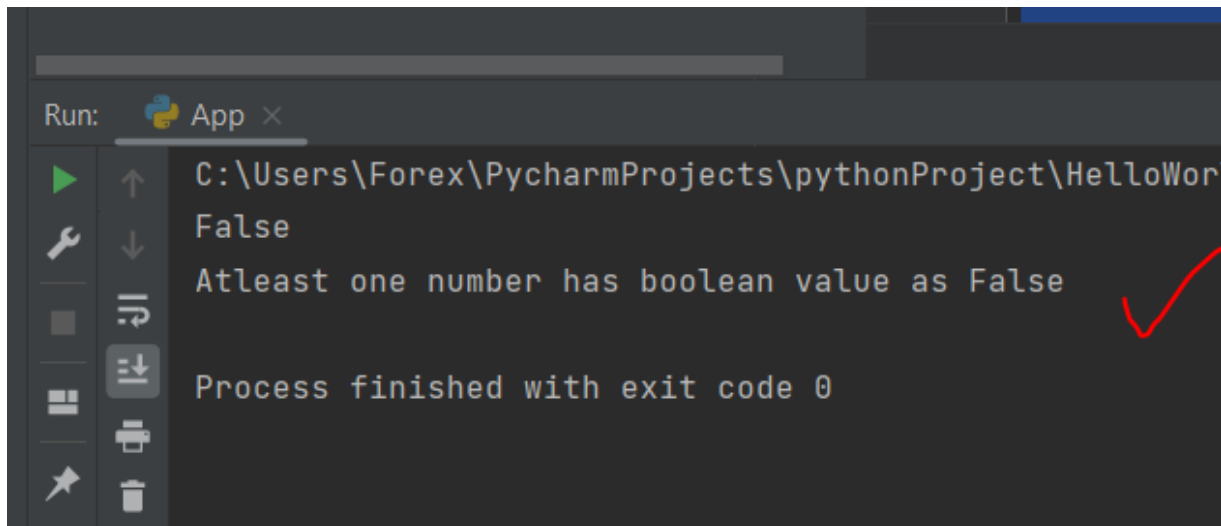
```
a = 0
b = 2
c = 4

if a > b and b < c:
    print(True)
else:
    print(False)

if a and b and c:
    print("All the numbers has boolean value as True")
else:
    print("Atleast one number has boolean value as False")
```

Output from the terminal

Python Scripting – Session 2



```
Run: App ×  
C:\Users\Forex\PycharmProjects\pythonProject\HelloWor  
False  
Atleast one number has boolean value as False  
Process finished with exit code 0
```

In python, there are times you are going to convert the value of variable from one type to the other.

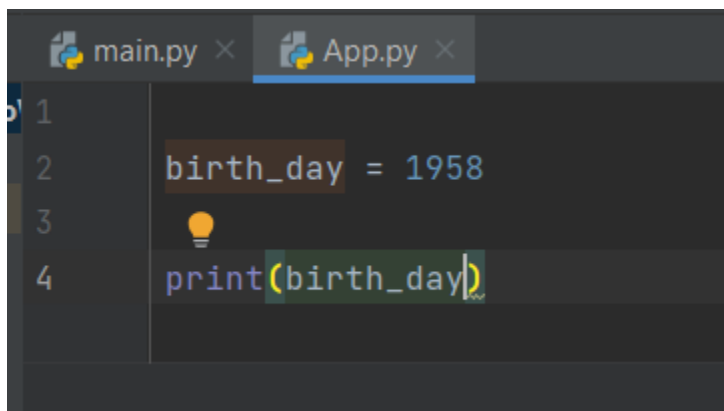
In this exercise, we are going to use INPUT function in python to read the birth year for a client

Remember we practiced how to create variables and store information such as price, age etc

Birth_Day = 1958

Print(Birth_Day)

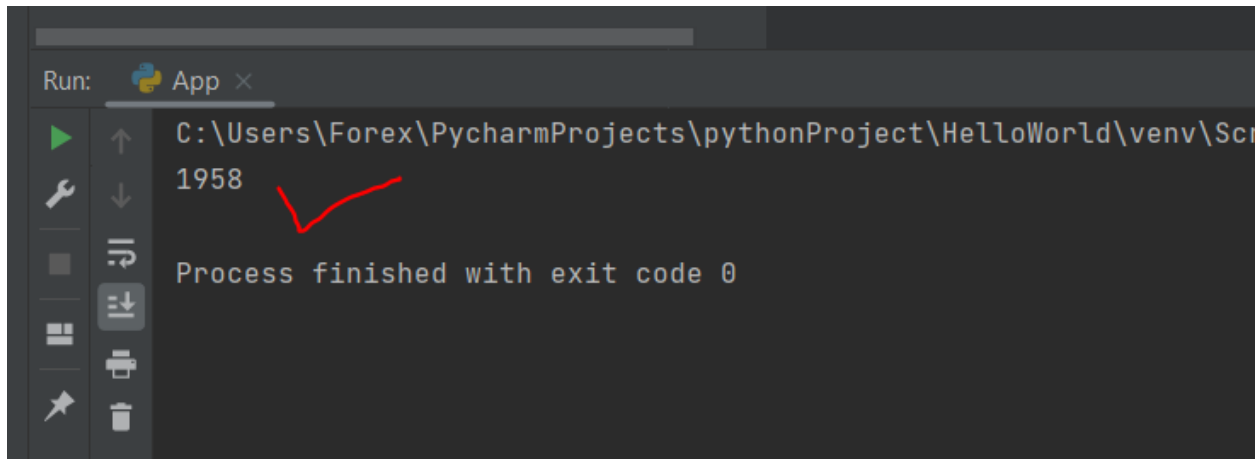
Program input



```
main.py × App.py ×  
1  
2 birth_day = 1958  
3  
4 print(birth_day)
```

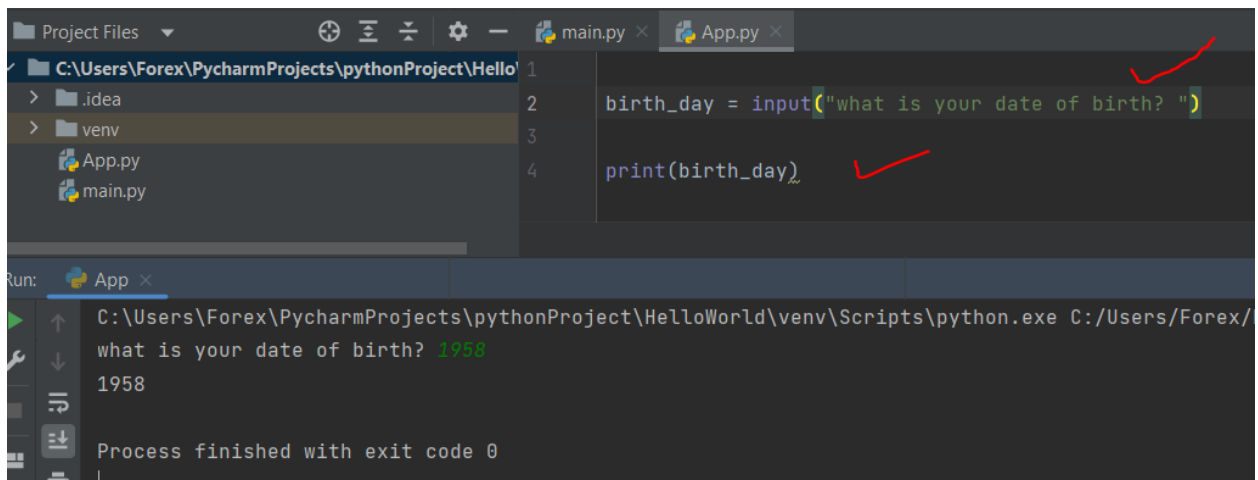
Program output

Python Scripting – Session 2



```
Run: App ×
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Scripts\python.exe C:/Users/Forex/
1958
Process finished with exit code 0
```

Another Example



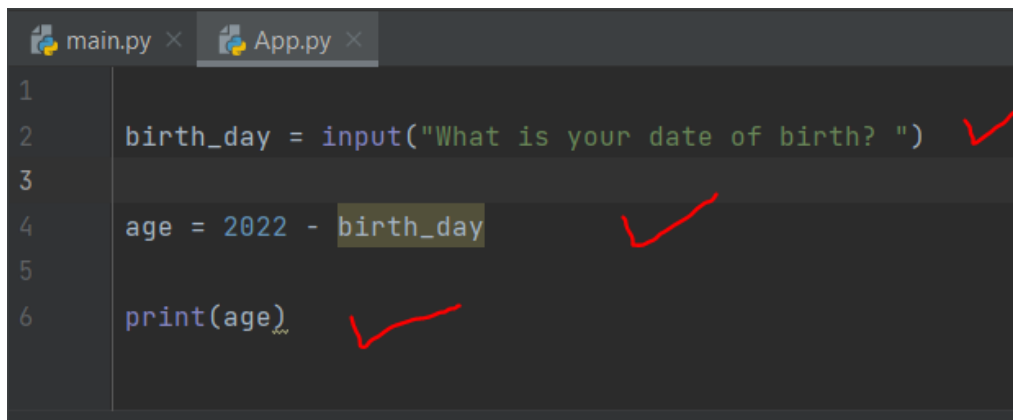
```
Project Files
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld
  .idea
  venv
  App.py
  main.py

main.py × App.py ×
1
2 birth_day = input("what is your date of birth? ")
3
4 print(birth_day)

Run: App ×
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Scripts\python.exe C:/Users/Forex/
what is your date of birth? 1958
1958
Process finished with exit code 0
```

Let us take this to the next level

Program input

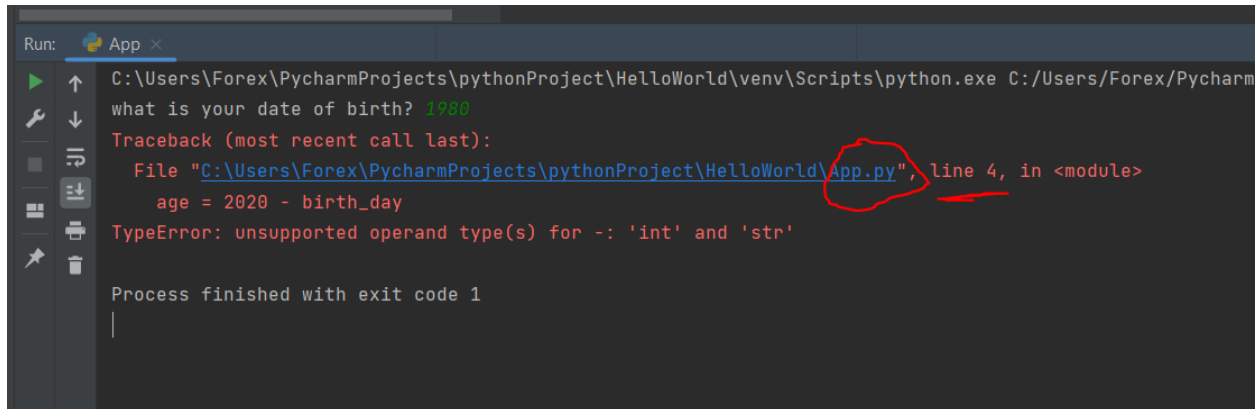


```
main.py × App.py ×
1
2 birth_day = input("What is your date of birth? ")
3
4 age = 2022 - birth_day
5
6 print(age)
```


Python Scripting – Session 2

Program output

Let us run this program and see what happens



```
Run: App x
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Scripts\python.exe C:/Users/Forex/Pycharm
what is your date of birth? 1980
Traceback (most recent call last):
  File "C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\app.py", line 4, in <module>
    age = 2020 - birth_day
TypeError: unsupported operand type(s) for -: 'int' and 'str'

Process finished with exit code 1
```

The program we are running is going to crash

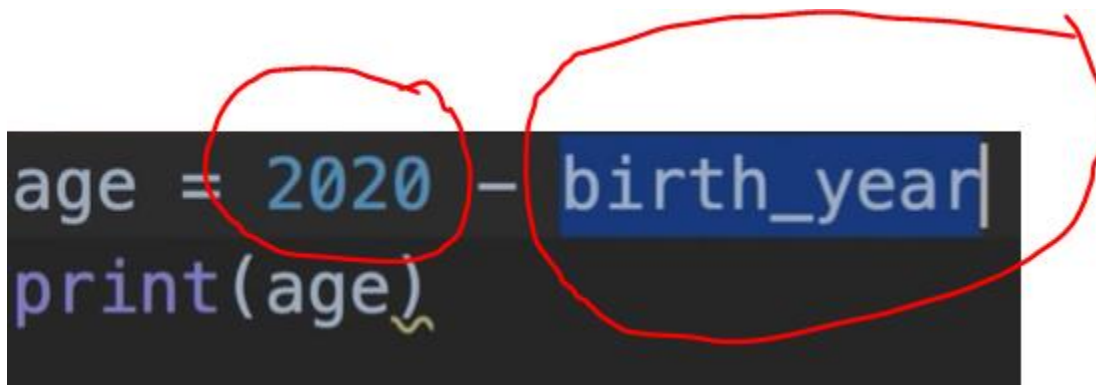
Python is going to display the file where the error occurred and even mention the line.

As you can see, it happened in a file called App.py

The piece of code that generated the error is also highlighted

Then the type of error that occurred is also highlighted

⇒ Let analyze the error



```
age = 2020 - birth_year
print(age)
```

2020 is an integer (int)

An integer is any whole number we run in python programs, like 10, 20, 11, 30, 2 etc

Strings (str) – a sequence of characters usually inside the double quotations marks

Python Scripting – Session 2

Birth_year is a variable that was used to store a string



“1982” is not the same as 1982

Because of double quotation marks, “1982” is a string(str) while 1982 is an integer(int)

That is the difference between the the numbers.

Why did this error occur?

```
age = 2020 - birth_day
TypeError: unsupported operand type(s) for -: 'int' and 'str'
```

This error occurred because we are subtracting **a string (str)** from an **integer (int)**.

To solve this problem, we are going to convert the birthday which is a string(str) into integer(int).

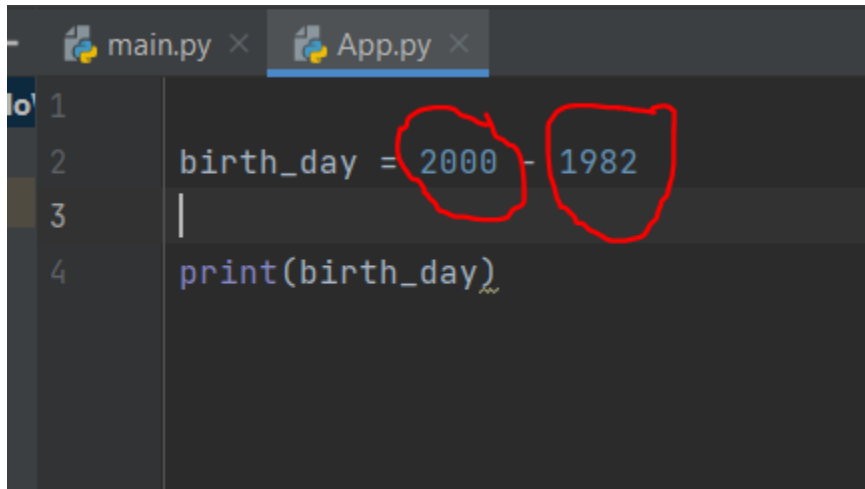
How do we achieve this?

Python has a built-in function called int(), which helps us to convert **strings to integers** so that we can **subtract integers from an integer**.

Example of an input integers program

Integers(int)

Python Scripting – Session 2

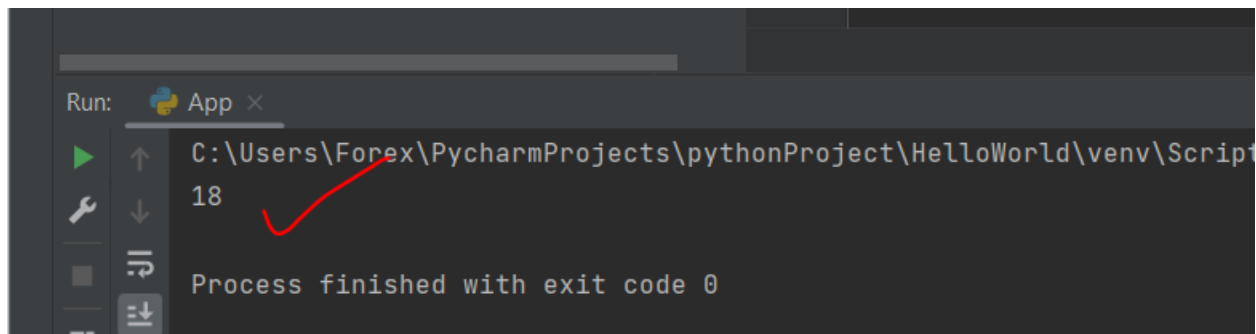


```
1  
2 birth_day = 2000 - 1982  
3  
4 print(birth_day)
```

2000 is an integer (int)

1982 is an integer (int)

Output program



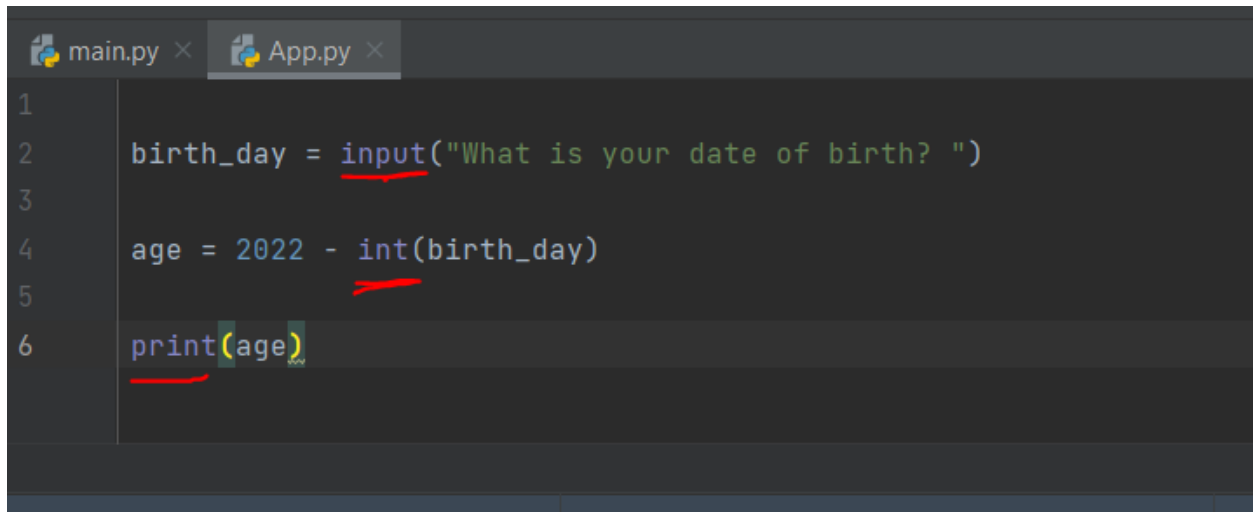
```
Run: App ×  
C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Script  
18  
Process finished with exit code 0
```

Worked!!!

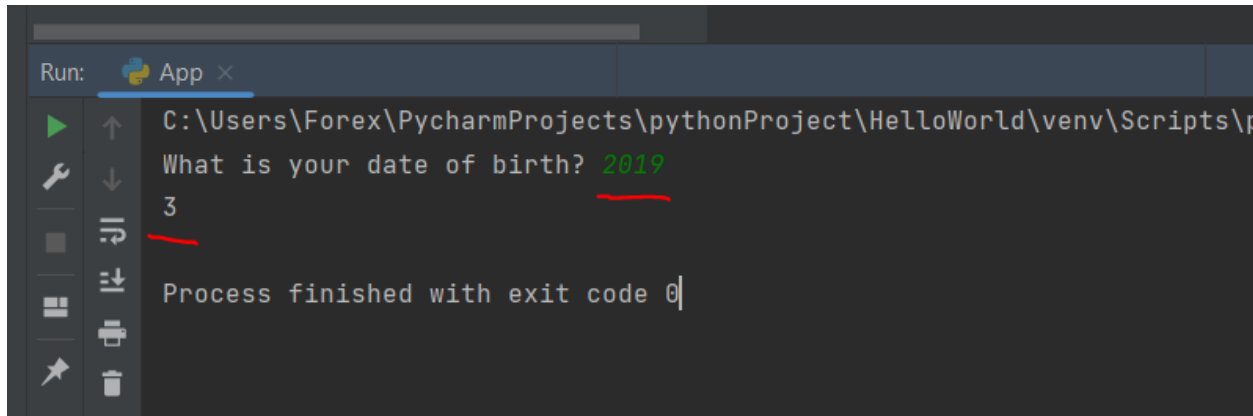
Let now solve the error

Input program

Python Scripting – Session 2

A screenshot of a code editor showing a Python script in a file named 'App.py'. The script consists of six lines of code. Line 1 is a blank line. Line 2 is 'birth_day = input("What is your date of birth? ")'. Line 3 is a blank line. Line 4 is 'age = 2022 - int(birth_day)'. Line 5 is a blank line. Line 6 is 'print(age)'. There are red underlines under the 'input' function in line 2 and the 'print' function in line 6. The IDE tabs at the top show 'main.py' and 'App.py'.

Output program running on the terminal

A screenshot of a terminal window titled 'Run: App'. The terminal shows the command prompt 'C:\Users\Forex\PycharmProjects\pythonProject\HelloWorld\venv\Scripts\p' followed by the prompt 'What is your date of birth?'. The user has entered '2019', which is underlined in red. Below this, the number '3' is displayed, also underlined in red. At the bottom, it says 'Process finished with exit code 0'. On the left side of the terminal, there is a vertical toolbar with various icons for running and debugging the code.

Let see how this worked

In the first line of code, we called the built in function INPUT which was able to collect the information about the date of birth.

However, we must be very careful here.

The date of birth was collected in the form of a string(str)

We use the following line to convert the birthday entered in the first line in the form of a string into an integer (int)

We use the final line we are going to print the variable called age.

We have another built in functions in python called float()

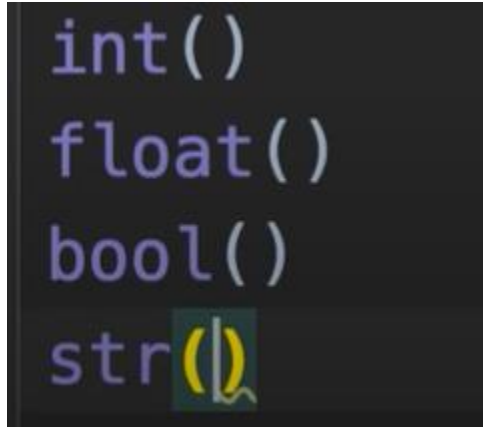
It is used to convert a value to a float, which is a number with decimal

Python Scripting – Session 2

10 is an integer()

10.4 is a float()

Built in functions in python for converting one type of data to the other.



Int() is used to convert data to integers

Float() is used to convert numbers to decimal

Bool() is used to convert data to bool

Str() is used to convert data to strings(str)

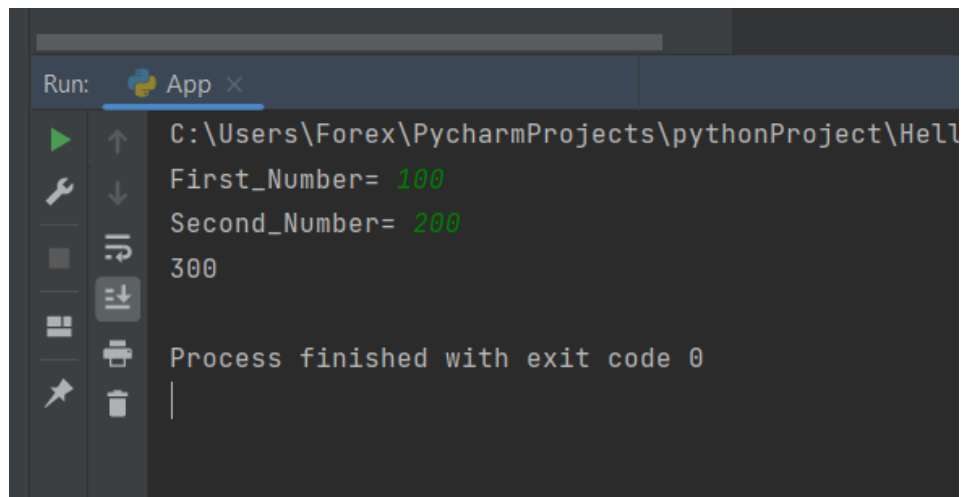
Let run a simple calculator program that will add two values

Input program

```
App.py ×
1
2 First_Number = input("First_Number= ")
3
4 Second_Number = input("Second_Number= ")
5
6 sum = int(First_Number) + int(Second_Number)
7
8 print(sum)
9
10
```

Output program

Python Scripting – Session 2



The screenshot shows the 'Run' console in PyCharm. The title bar indicates the application is running. The console output shows the file path, variable assignments for 'First_Number' and 'Second_Number', and the final sum '300'. A message at the bottom states 'Process finished with exit code 0'.

```
Run: App ×  
C:\Users\Forex\PycharmProjects\pythonProject\Hell  
First_Number= 100  
Second_Number= 200  
300  
Process finished with exit code 0
```