Getting familiar with PyCharm

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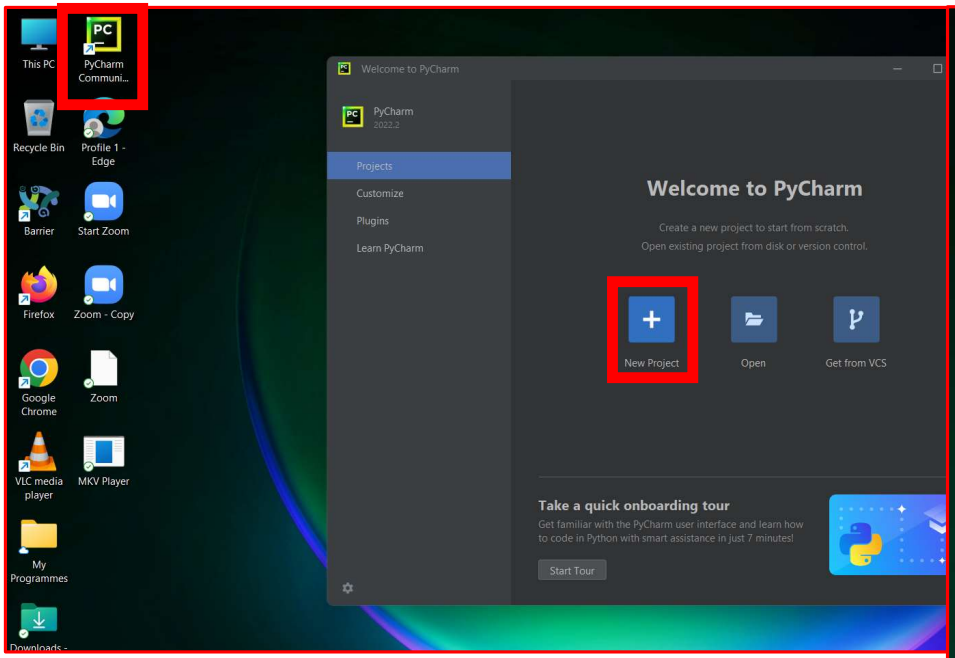

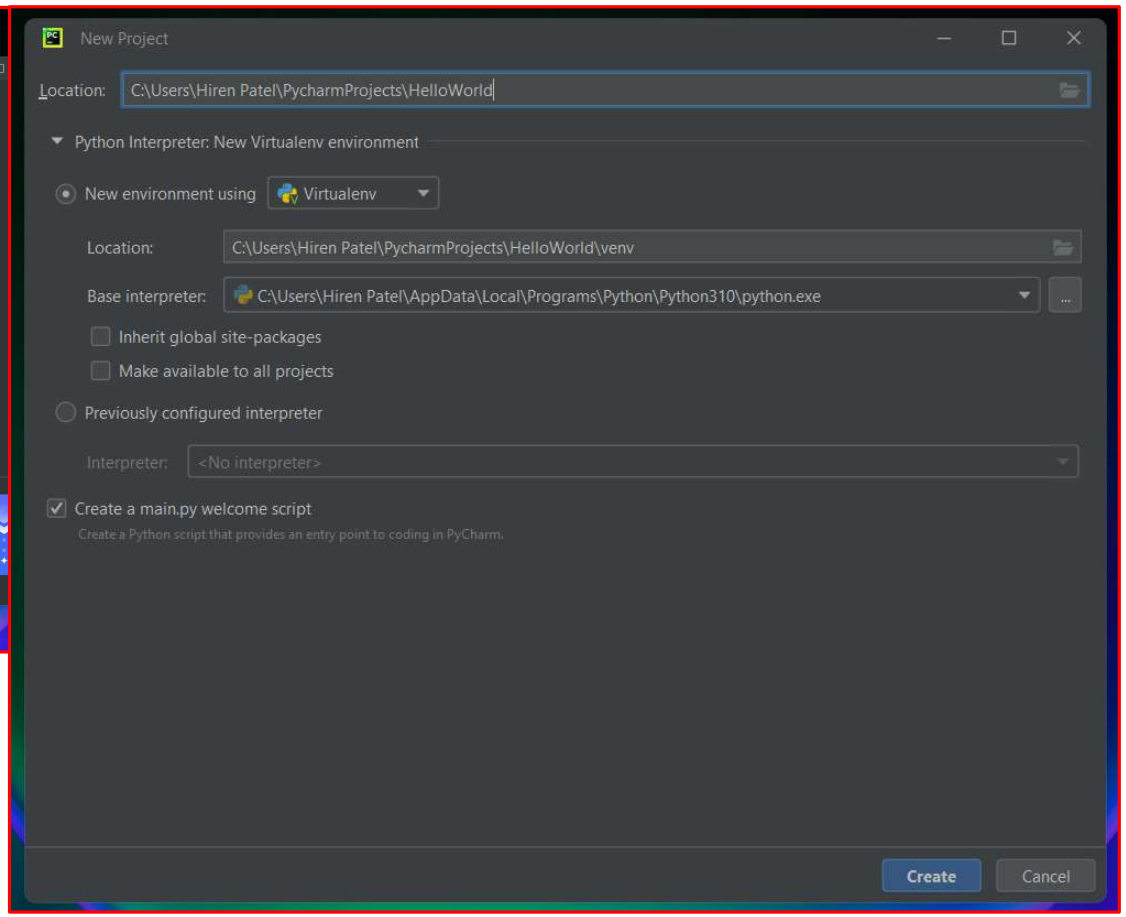

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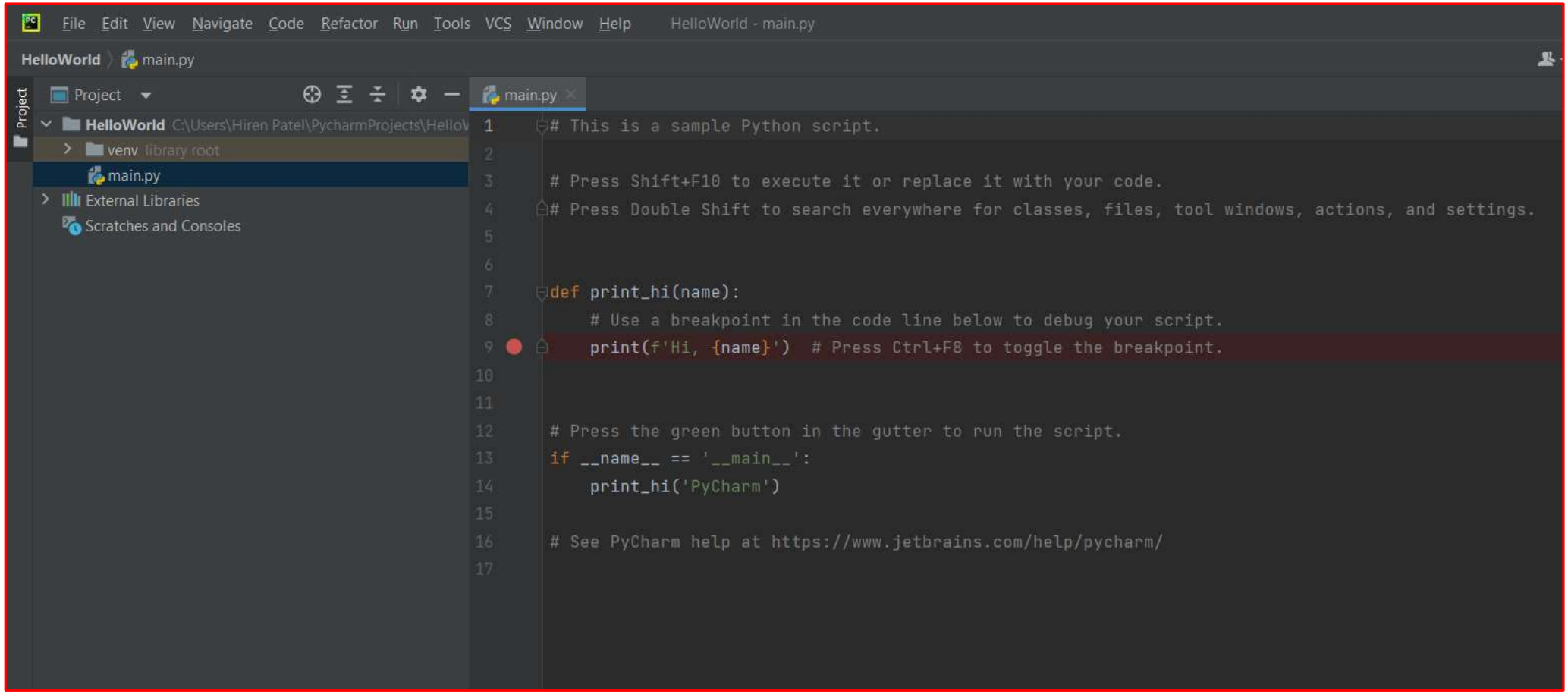

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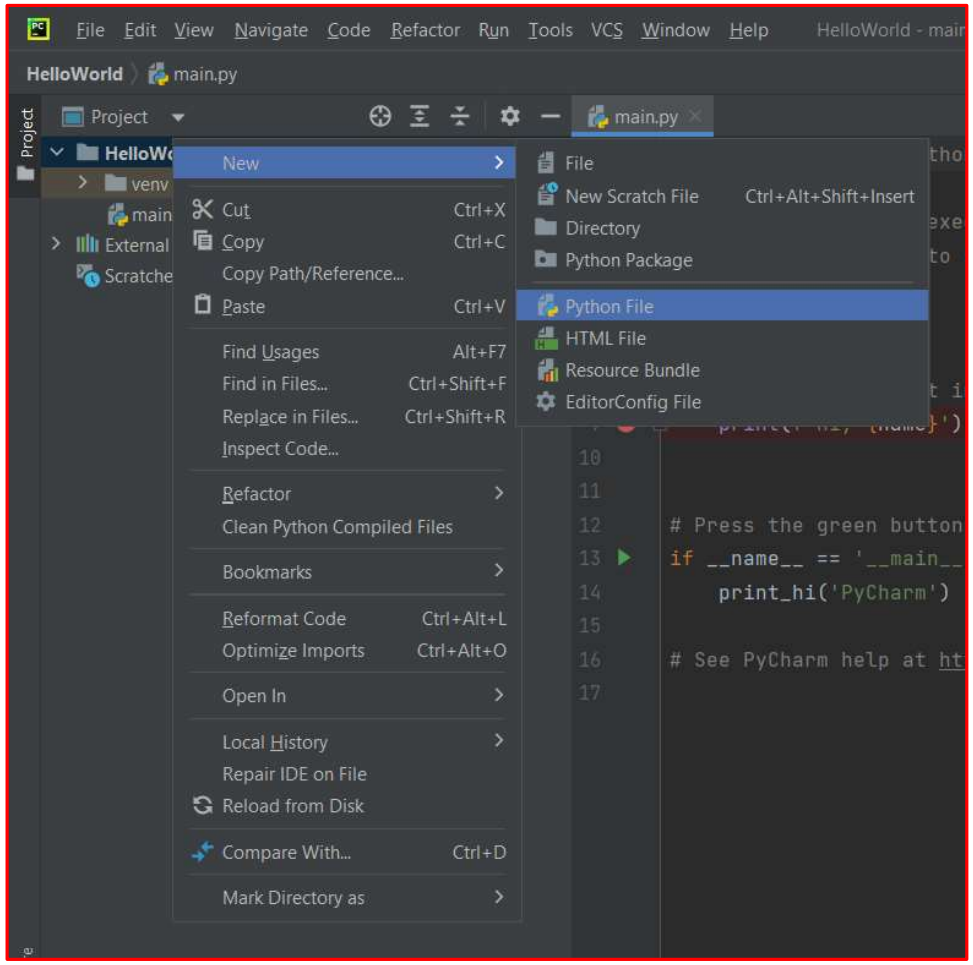

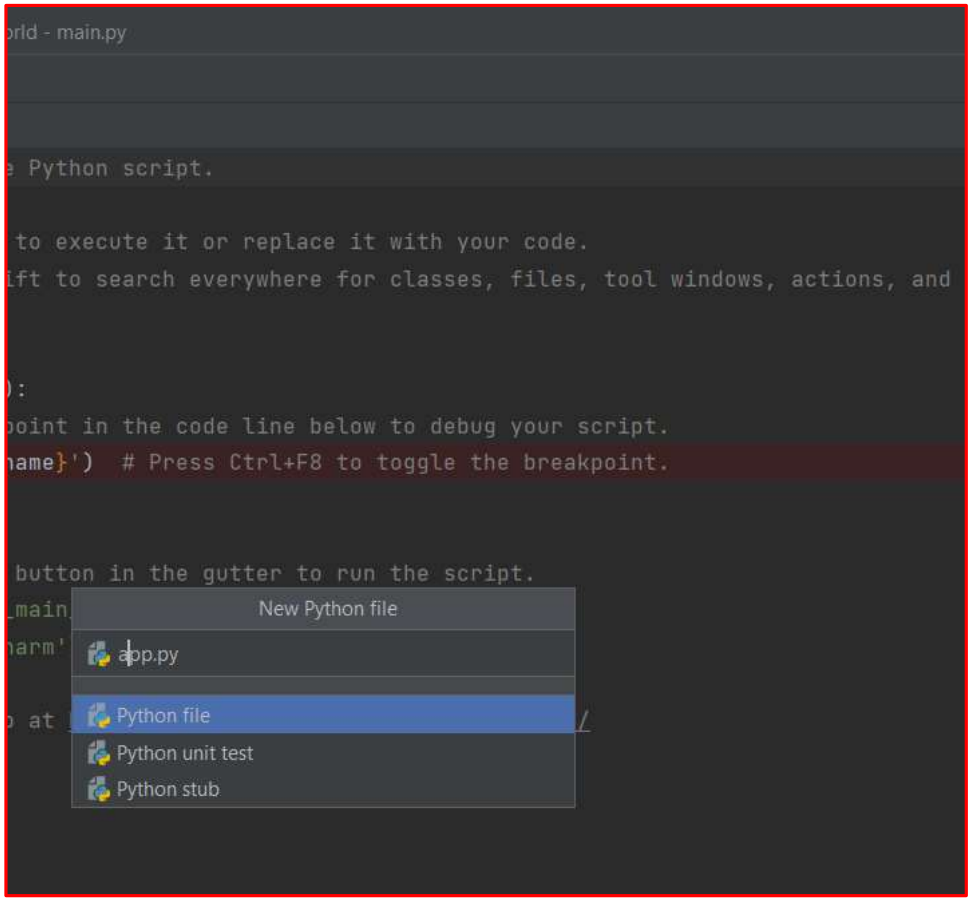

Writing small programs in PyCharm

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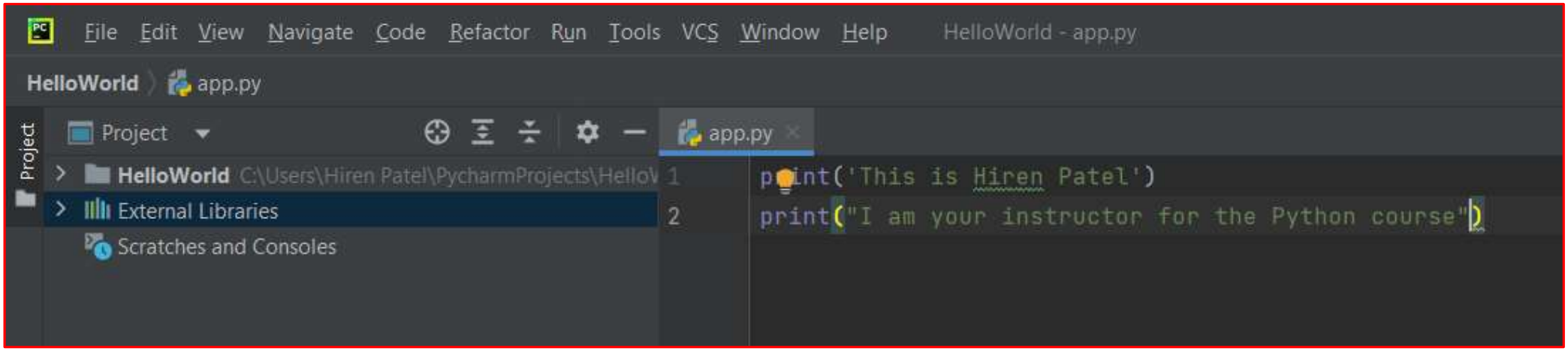

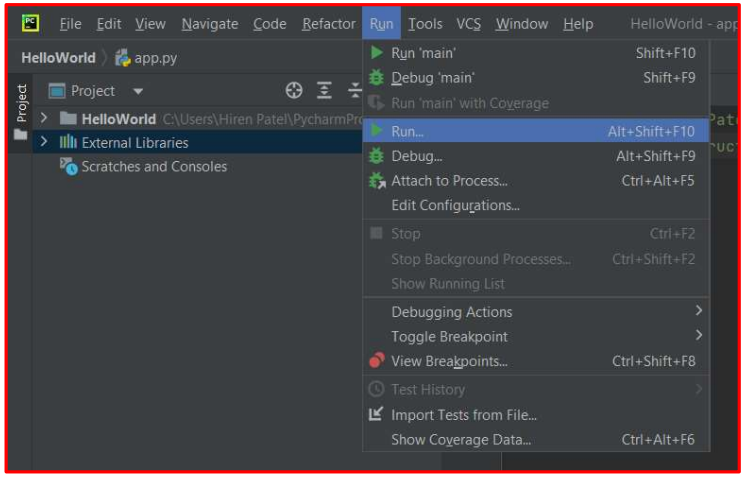

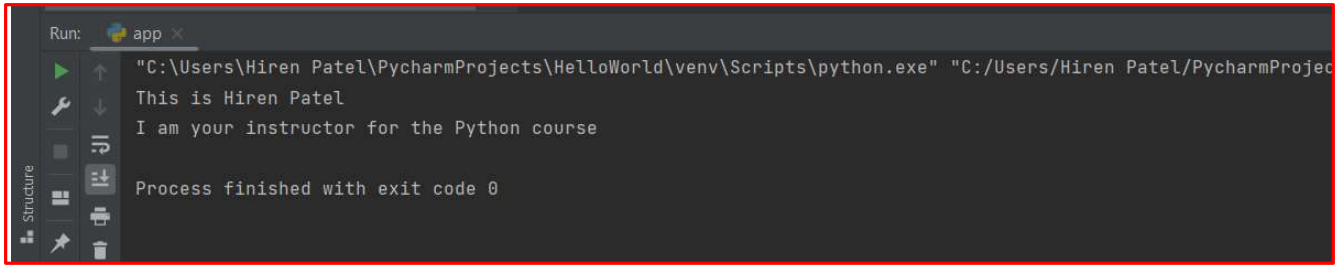

Writing small programs in PyCharm

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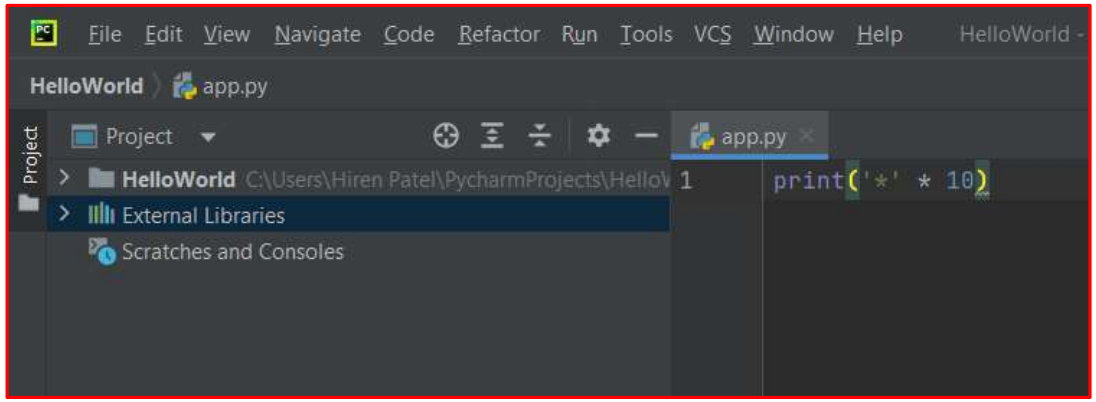
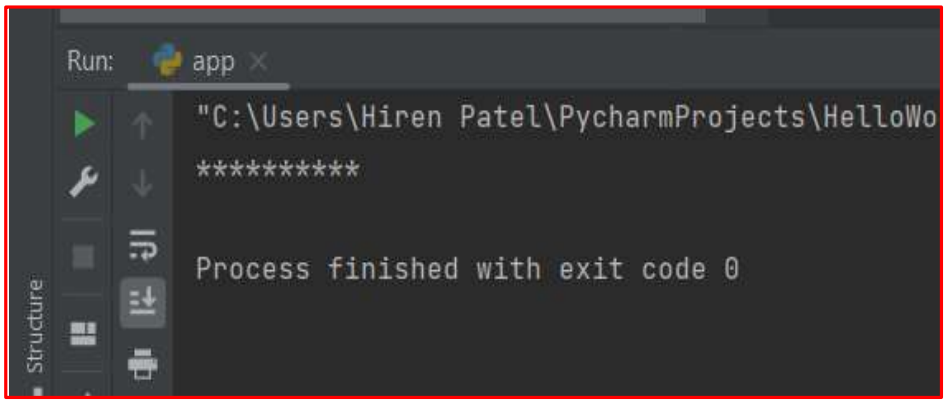
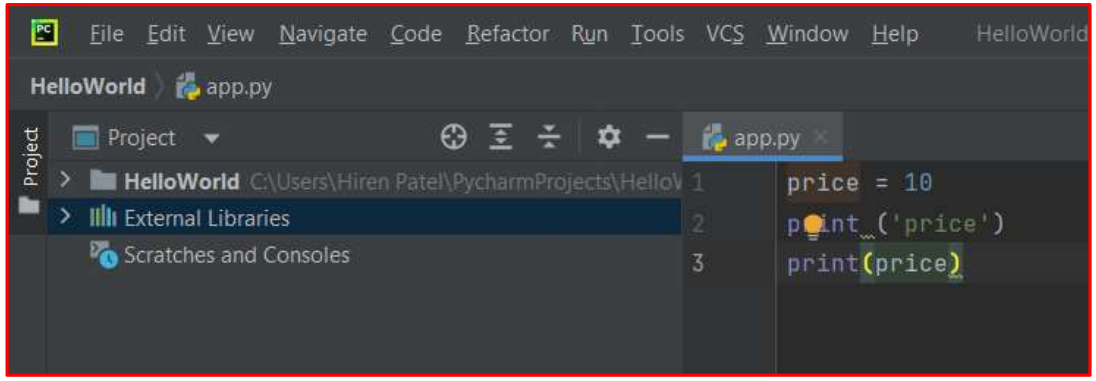
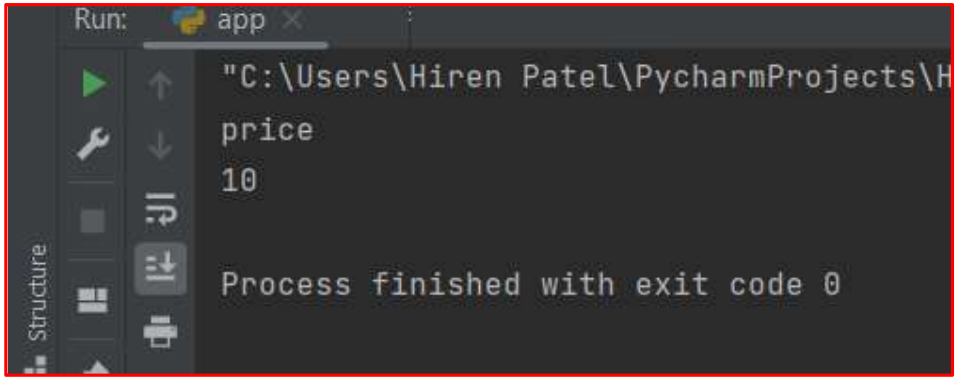






Variables



Variables

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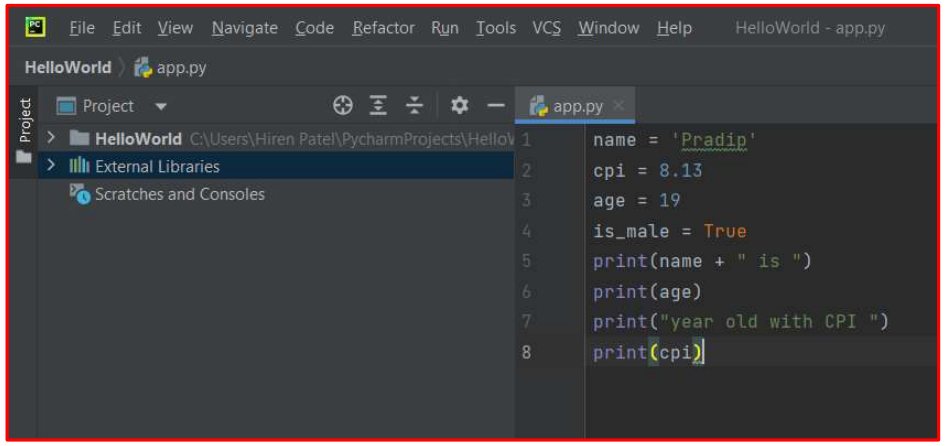

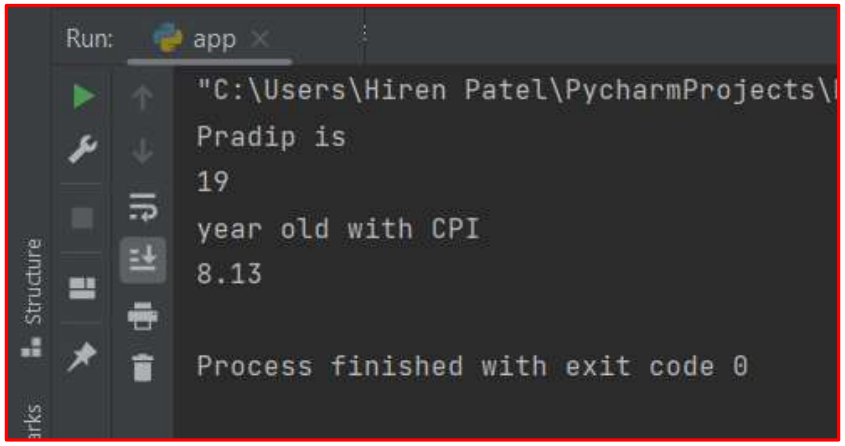

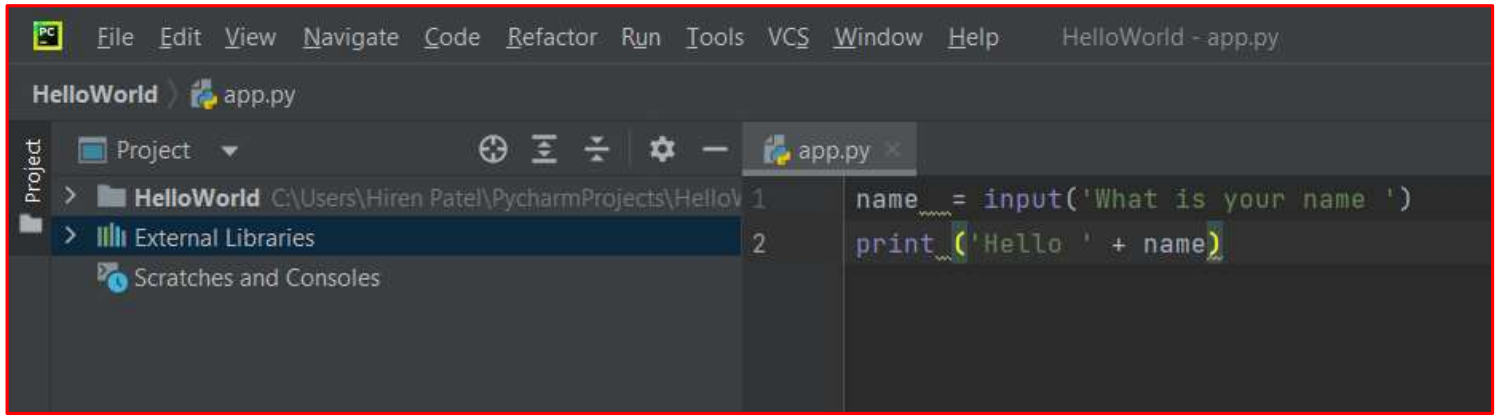

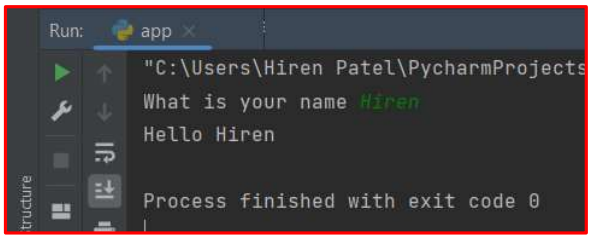

Getting input from the keyboard

Input from Keyboard and Type Casting

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```python
name = input('What is your name ')
food = input('What is your favorite food ')
print(name + ' loves ' + food)
```

```
"C:\Users\Hiren Patel\PycharmProjects\Hell
What is your name Hiren
What is your favorite food Gulab Jamun
Hiren loves Gulab Jamun

Process finished with exit code 0
```

Getting input from the keyboard

```python
birth_year = input('Enter your birth year ')
age = 2022 - birth_year
print(age)
```

```
"C:\Users\Hiren Patel\PycharmProjects\HelloWorld\venv\Scripts\python.exe" "C:/Users/Hiren
Enter your birth year 1976
Traceback (most recent call last):
  File "C:\Users\Hiren Patel\PycharmProjects\HelloWorld\app.py", line 2, in <module>
    age = 2022 - birth_year
TypeError: unsupported operand type(s) for -: 'int' and 'str'

Process finished with exit code 1
```

Type casting / conversion

```python
birth_year = input('Enter your birth year ')
age = 2022 - int(birth_year)
print(age)
```

```
"C:\Users\Hiren Patel\PycharmProjec
Enter your birth year 1976
<class 'str'>
<class 'int'>
46

Process finished with exit code 0
```

Type Casting and Strings

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app.py

```
1  weight_pound = int(input('Enter weight in lbs : '))
2  weight_kg = weight_pound * 0.45
3  print(weight_kg)
```

app

```
"C:\Users\Hiren Patel\PycharmProje
Enter weight in lbs : 100
45.0

Process finished with exit code 0
```

app.py

```
1  subject1 = 'Python Programming'
2  subject2 = "Python Programming"
3  subject3 = "Python's Programming by Hiren Patel"
4  subject4 = '"Python" Programming by Hiren Patel'
5  subject5='''This is a multiline message.
6  Multiple lines are enclosed in three quotes.
7  The three quotes could be single or double.'''
8  print (subject1)
9  print (subject2)
10 print (subject3)
11 print (subject4)
12 print (subject5)
```

app

```
"C:\Users\Hiren Patel\PycharmProjects\HelloWor
Python Programming
Python Programming
Python's Programming by Hiren Patel
"Python" Programming by Hiren Patel
 This is a multiline email.
Multiple lines are enclosed in three quotes.
The three quotes could be single or double.


Process finished with exit code 0
```

Playing with strings

app.py

```
1  first_name = 'Hiren'
2  last_name = 'Patel'
3  msg1 = first_name + ' [' + last_name + '] is an instructor'
4  #formatted string
5  msg2 = f'{first_name} [{last_name}] is an instructor'
6  print(msg1)
7  print(msg2)
```

app

```
"C:\Users\Hiren Patel\PycharmProjec
Hiren [Patel] is an instructor
Hiren [Patel] is an instructor

Process finished with exit code 0
```

app.py

```
1  subject = 'Python programming'
2  print(len(subject))
3  print(subject.upper())
4  print(subject.lower())
5  print(subject.title())
6  print(subject[0].islower())
7  print(subject[0].isupper())
8  print(subject.find('P'))
9  print(subject.find('o'))
10 print(subject.find('p'))
11 print(subject.find('program'))
12 print(subject.replace('programming','coding'))
13 print('program' in subject)
```

app

```
18
PYTHON PROGRAMMING
python programming
Python Programming
False
True
0
4
7
7
Python coding
True
```

PROGRAM

```
s = "hello"
print(s.capitalize())
print(s.upper())
print(s.rjust(7))
print(s.center(7))
print(s.replace('l', '(ell)'))
print('  world '.strip())
```

OUTPUT

```
Hello
HELLO
  hello
 hello
he(ell)(ell)o
world
```

Arithmetic Operators

www.hbpatel.in

app.py

```
1  print (10 + 3)
2  print (10 - 3)
3  print (10 * 3)
4  print(10 / 3)
5  print (10 // 3)
6  print (10 % 3)
7  print (10 ** 3)
```

app

```
"C:\Users\Hiren Patel\
13
7
30
3.3333333333333335
3
1
1000
```

app.py

```
1  x = 10
2  x = x+3
3  print(x)
4  x += 3
5  print(x)
6  x -= 3
7  print(x)
8  x *= 3
9  print(x)
10 x /= 3
11 print(x)
```

app

```
"C:\Users\
13
16
13
39
13.0
```

Arithmetic Operations
(Precedence and In-built functions)

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app.py

```
1  x = 10 + 3 * 2 ** 4
2  print(x)
3  x = (10 + 3) * 2 ** 4
4  print(x)
```

app

```
"C:\Users\Hi
58
208
```

app.py

```
1  x = 3.6
2  print(x)
3  print(round(x))
4  x = -3.6
5  print(abs(x))
```

app

```
"C:\Users\Hi
3.6
4
3.6
```

Arithmetic Operations
(In-built mathematical functions)


```
import math
x = 3.6
print(x)
print(math.ceil(x))
print(math.floor(x))
print(math.factorial(5))
print(math.isfinite(100))
print(math.sqrt(100))
print(math.lcm(50, 40))
print(math.gcd(50, 40))
print(math.exp(10))
print(math.log(100,2))
```

app

```
"C:\Users\Hiren Patel
3.6
4
3
120
True
10.0
200
10
22026.465794806718
6.643856189774725
```

Bitwise Operators

OPERATOR	DESCRIPTION	SYNTAX
&	Bitwise AND	x & y
|	Bitwise OR	x | y
~	Bitwise NOT	~x
^	Bitwise XOR	x ^ y
>>	Bitwise right shift	x>>
<<	Bitwise left shift	x<<

PROGRAM

```
a = 10
b = 4

# Print bitwise AND operation
print("a & b =", a & b)

# Print bitwise OR operation
print("a | b =", a | b)

# Print bitwise NOT operation
print("~a =", ~a)

# print bitwise XOR operation
print("a ^ b =", a ^ b)
```

OUTPUT

```
a & b = 0
a | b = 14
~a = -11
a ^ b = 14
==========
```

Explanation

```
a      = 1010 (10)
b      = 0100 (04)
a & b = 0000 (00)
a | b = 1110 (14)
~a     = 0101 (-11, 2's complement)
a ^ b = 1110 (14)
```

Bitwise Operators

OPERATOR	DESCRIPTION	SYNTAX
&	Bitwise AND	x & y
|	Bitwise OR	x | y
~	Bitwise NOT	~x
^	Bitwise XOR	x ^ y
>>	Bitwise right shift	x>>
<<	Bitwise left shift	x<<

PROGRAM

```
a = 10


# print bitwise right shift
operator
print("a >> 1 =", a >> 1)


a = 9


# print bitwise left shift
operator
print("a << 1 =", a << 1)
```

OUTPUT

```
a >> 1 = 5
a << 1 = 18
======================
```

Explanation

```
a = 00001010 (10)
a >> 1 = 00000101 (5)


a = 00001001(5)
a << 1 = 00010010 (18)
```