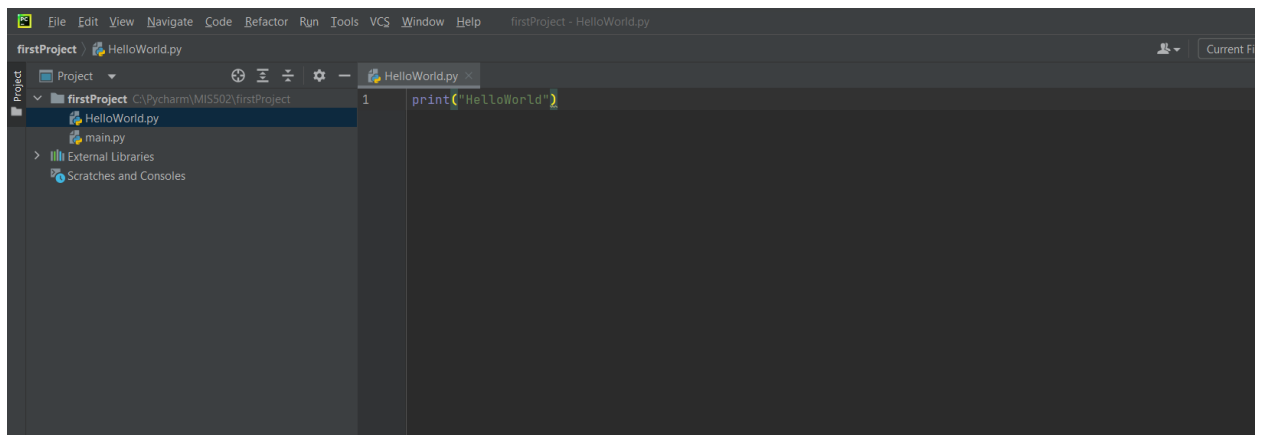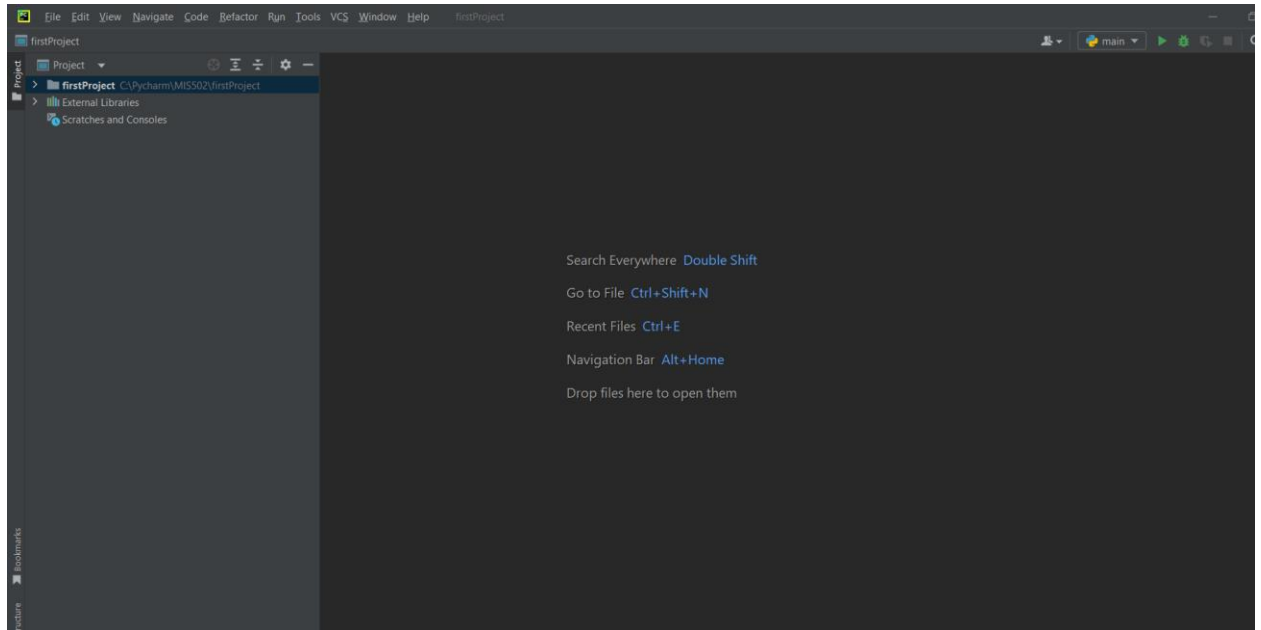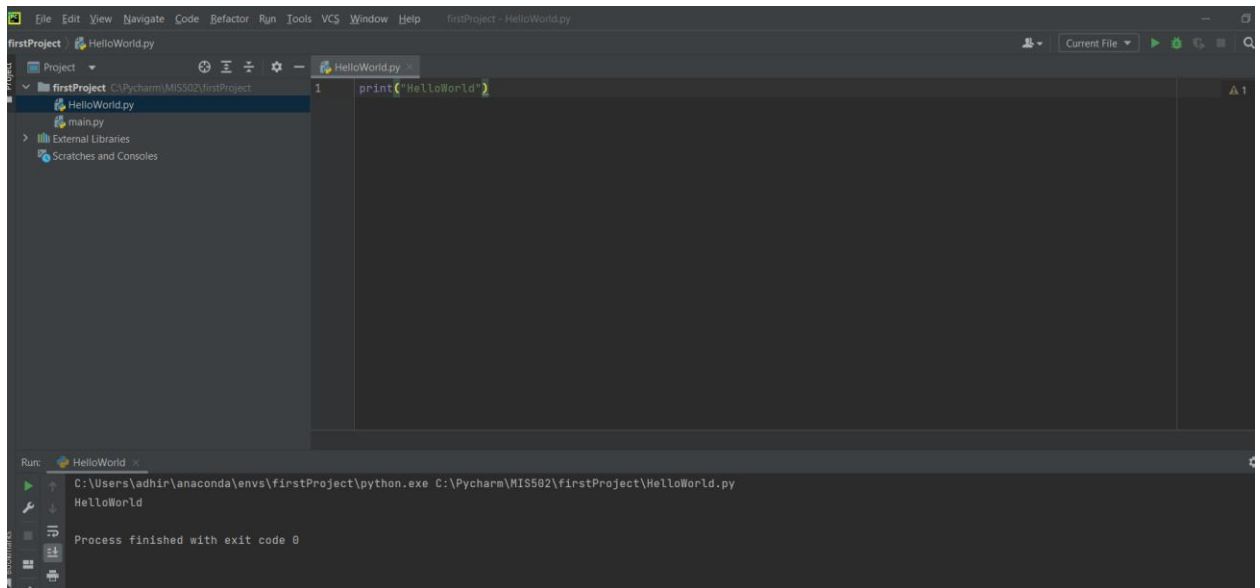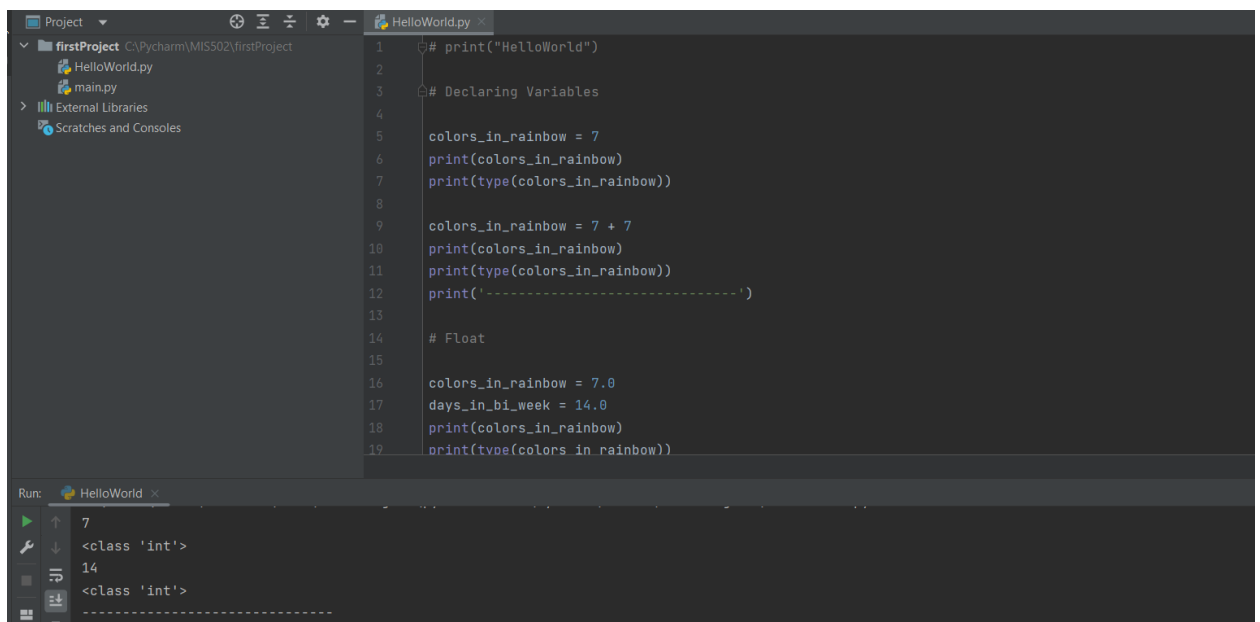# Tutorial 5 :

1. Familiar with Pycharm





HelloWorld.py

2. Declaring variables in Python



#Float

```
13
14   # Float
15
16   colors_in_rainbow = 7.0
17   days_in_bi_week = 14.0
18   print(colors_in_rainbow)
19   print(type(colors_in_rainbow))
20   colors_per_day = days_in_bi_week / colors_in_rainbow
21   print(colors_per_day)
22   print(type(colors_per_day))
23   print('------------------------------')
24   # Booleans
25
26   flag = True
27   print('Flag is :', flag)
28   flag = days_in_bi_week < colors_in_rainbow
29   print('Flag is now :', flag)
30
31
```

```
C:\Users\adhir\anaconda\envs\firstProject\python.exe C:\Pycharm\MIS502\firstProject\HelloWorld.py
7.0
<class 'float'>
2.0
<class 'float'>
------------------------------
```

#Boolean



```
14   # Float
15
16   colors_in_rainbow = 7.0
17   days_in_bi_week = 14.0
18   # print(colors_in_rainbow)
19   # print(type(colors_in_rainbow))
20   colors_per_day = days_in_bi_week / colors_in_rainbow
21   # print(colors_per_day)
22   # print(type(colors_per_day))
23   # Booleans
24
25   flag = True
26   print('Flag is :', flag)
27   flag = days_in_bi_week < colors_in_rainbow
28   print('Flag is now :', flag)
29   print('------------------------------')
30
31
32   def factorial(n):
```

```
C:\Users\adhir\anaconda\envs\firstProject\python.exe C:\Pycharm\MIS502\firstProject\HelloWorld.py
Flag is : True
Flag is now : False
------------------------------
```

#Strings

potter_enemies = 9+1

name = 'Harry'

last_name = 'Potter'

passcode = 'Platform@94/3'

address = 'hogwarts'

```python
level = ''

location = "    "

no_of_enemies = "10"


print(potter_enemies)

print(type(potter_enemies))

print(name)

print(type(name))

print(last_name)

print(type(last_name))

print(passcode)

print(type(passcode))

print(address)

print(type(address))

print(level)

print(type(level))

print(location)

print(type(location))

equality = (potter_enemies == no_of_enemies)

print(equality)

print(type(equality))
```

Output:

```
10
<class 'int'>
Harry
<class 'str'>
Potter
<class 'str'>
Platform@94/3
<class 'str'>
hogwarts
<class 'str'>


<class 'str'>


<class 'str'>
False
<class 'bool'>


Process finished with exit code 0
```
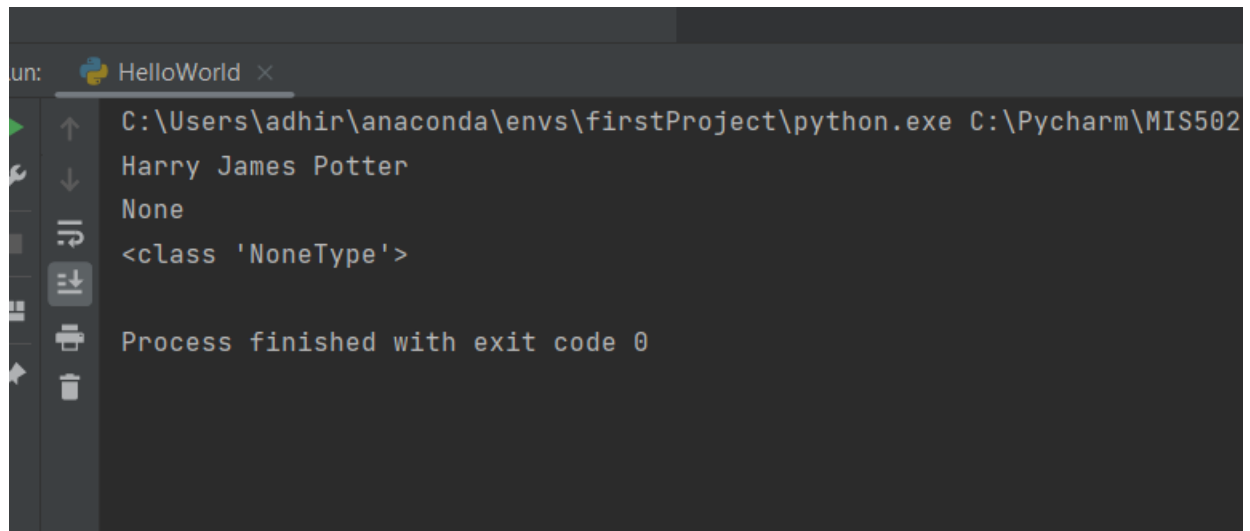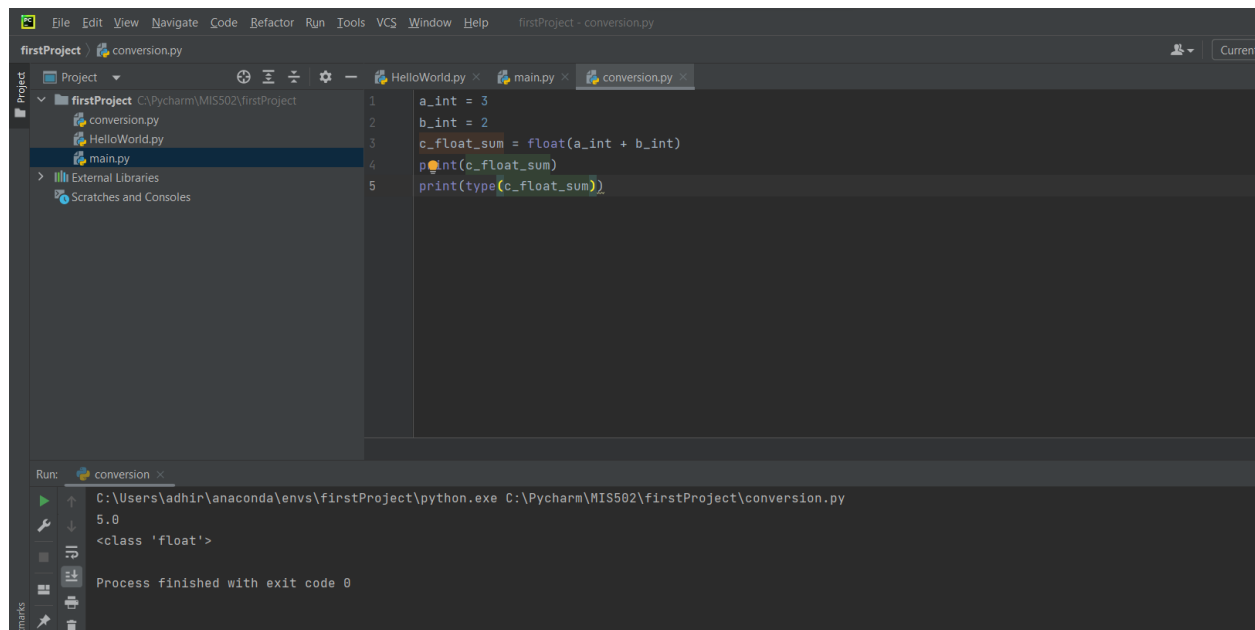
#None :

```python
name = 'Harry '
middle_name = 'James '
last_name = 'Potter'
fullname = name+middle_name+last_name
print(fullname)
middle_name = None
print(middle_name)
print(type(middle_name))
```

```
C:\Users\adhir\anaconda\envs\firstProject\python.exe C:\Pycharm\MIS502
Harry James Potter
None
<class 'NoneType'>

Process finished with exit code 0
```

Variable conversion :

Int to float



```
a_int = 3
b_int = 2
c_float_sum = float(a_int + b_int)
print(c_float_sum)
print(type(c_float_sum))
```

```
C:\Users\adhir\anaconda\envs\firstProject\python.exe C:\Pycharm\MIS502\firstProject\conversion.py
5.0
<class 'float'>

Process finished with exit code 0
```

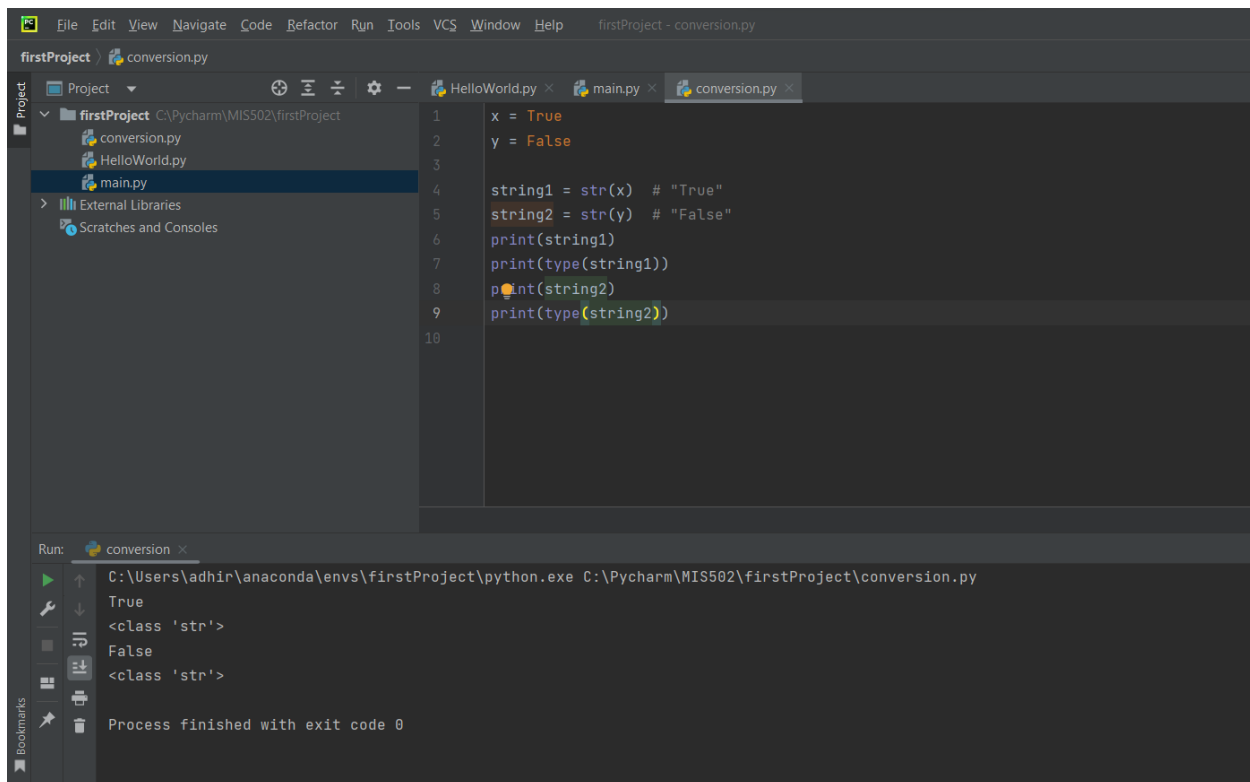## Float to int

```
a_float = 3.0
b_float = 2.0
answer = int(a_float+b_float)

print(answer)
print(type(answer))
```

```
5
<class 'int'>


Process finished with exit code 0
```

## Boolean to string



## Int and float to string

String to int and float



Collections in python :

```python
# List
my_list = [1, 2, 3, 'four', 'five']
my_list.append(6)
print(my_list)
print(type(my_list))

# Tuple
my_tuple = (1, 2, 3, 'four', 'five')
print(my_tuple[3])
print(type(my_tuple))

# Set
my_set = {1, 2, 3, 'four', 'five'}
my_set.add(6)
print(my_set)
print(type(my_set))

# Dictionary
my_dict = {'name': 'harry', 'age': 30, 'city': 'New York'}
my_dict['age'] = 31
print(my_dict)
print(type(my_dict))
```

Output:

```
[1, 2, 3, 'four', 'five', 6]
<class 'list'>
four
<class 'tuple'>
{1, 2, 3, 6, 'four', 'five'}
<class 'set'>
{'name': 'harry', 'age': 31, 'city': 'New York'}
<class 'dict'>

Process finished with exit code 0
```

Operations on collection

```python
my_list = [1, 2, 3, 4, 5]
print(my_list[0])
print(my_list[1:4])
my_list.append(6)
print(my_list)
my_list.remove(3)
print(my_list)

my_tuple = (1, 2, 3, 4, 5)
print(my_tuple[0])
print(my_tuple[1:4])

my_set = {1, 2, 3, 4, 5}
my_set.add(6)
print(my_set)
my_set.remove(3)
print(my_set)
print(3 in my_set)

my_dict = {'apple': 3, 'banana': 2, 'orange': 4}
print(my_dict['apple'])
my_dict['pear'] = 1
print(my_dict)
del my_dict['banana']
print(my_dict)
```
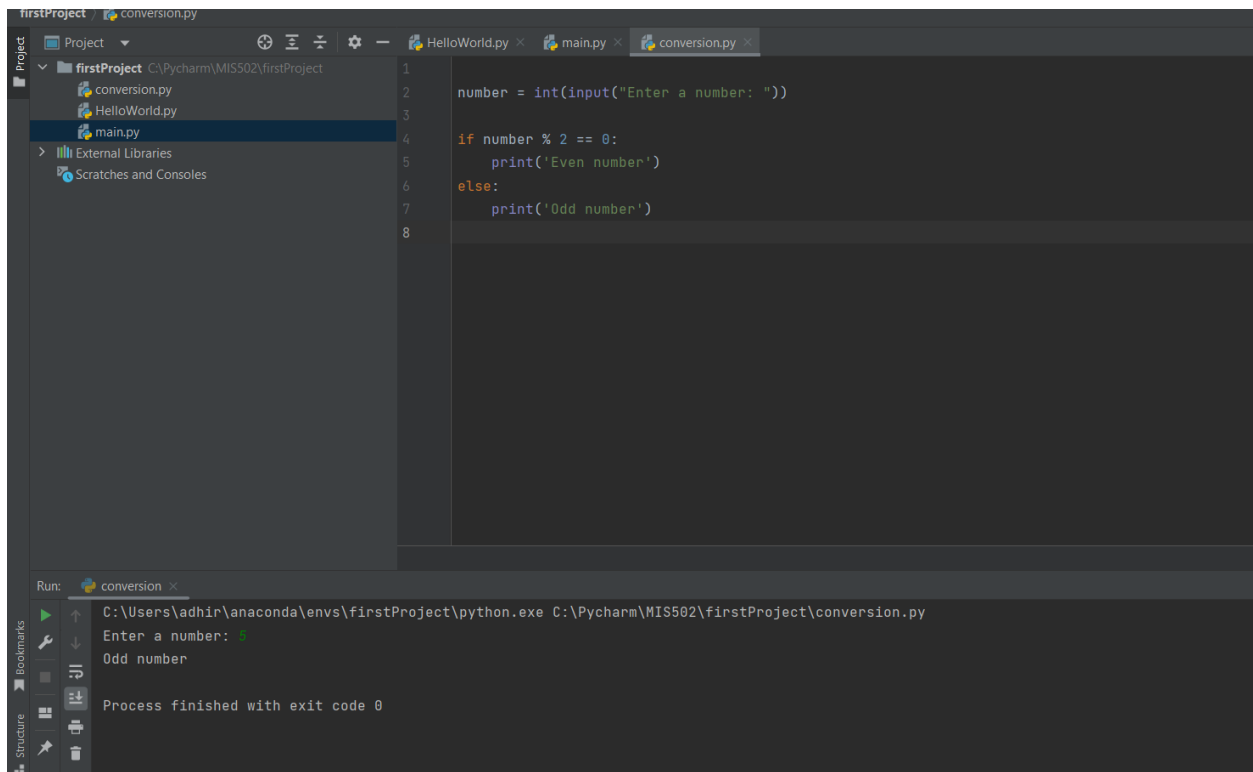
output :

```
1
[2, 3, 4]
[1, 2, 3, 4, 5, 6]
[1, 2, 4, 5, 6]
1
(2, 3, 4)
{1, 2, 3, 4, 5, 6}
{1, 2, 4, 5, 6}
False
3
{'apple': 3, 'banana': 2, 'orange': 4, 'pear': 1}
{'apple': 3, 'orange': 4, 'pear': 1}

Process finished with exit code 0
```

If statement :



While loop :

Small calculator program is used

```python
import math
while True:
    print("Welcome! Which operation would you like to perform?")
    print("+ for addition")
    print("- for subtraction")
    print("* for multiplication")
    print("/ for division")
    print("% for modulus")
    print("** for exponential")
    print("! for factorial")
    print("Enter 0 to exit")

    operation = input("Enter operation: ")

    if operation == '0':
        print("Exiting program...")
        break


    if operation == '+':
        num1 = float(input("Enter first number: "))
```

```python
        num2 = float(input("Enter second number: "))
        result = num1 + num2
        print("Result: ", result)

    elif operation == '-':
        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))
        result = num1 - num2
        print("Result: ", result)

    elif operation == '*':
        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))
        result = num1 * num2
        print("Result: ", result)

    elif operation == '/':
        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))
        result = num1 / num2
        print("Result: ", result)

    elif operation == '%':
        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))
        result = num1 % num2
        print("Result: ", result)

    elif operation == '**':
        num1 = float(input("Enter base number: "))
        num2 = float(input("Enter exponent number: "))
        result = num1 ** num2
        print("Result: ", result)

    elif operation == '!':
        num = int(input("Enter a non-negative integer: "))
        result = math.factorial(num)
        print("Result: ", result)

    else:
        print("Invalid input! Please try again.")
```

sample outputs :

```
+ for addition
- for subtraction
* for multiplication
/ for division
% for modulus
** for exponential
! for factorial
Enter 0 to exit
Enter operation: +
Enter first number: 253
Enter second number: -45
Result:  208.0
Welcome! Which operation would you like to perform?
+ for addition
- for subtraction
* for multiplication
/ for division
% for modulus
** for exponential
! for factorial
Enter 0 to exit
Enter operation: **
Enter base number: 5
Enter exponent number: 3
Result:  125.0
```

For loop :

Small factorial program using for loop

```python
num = int(input("Enter a number: "))
fact = 1

# loop from 1 to num and multiply the factors
for i in range(1, num + 1):
    fact *= i

print("Factorial of", num, "is", fact)
```

output :

```
Enter a number: 4
Factorial of 4 is 24


Process finished with exit code 0
```