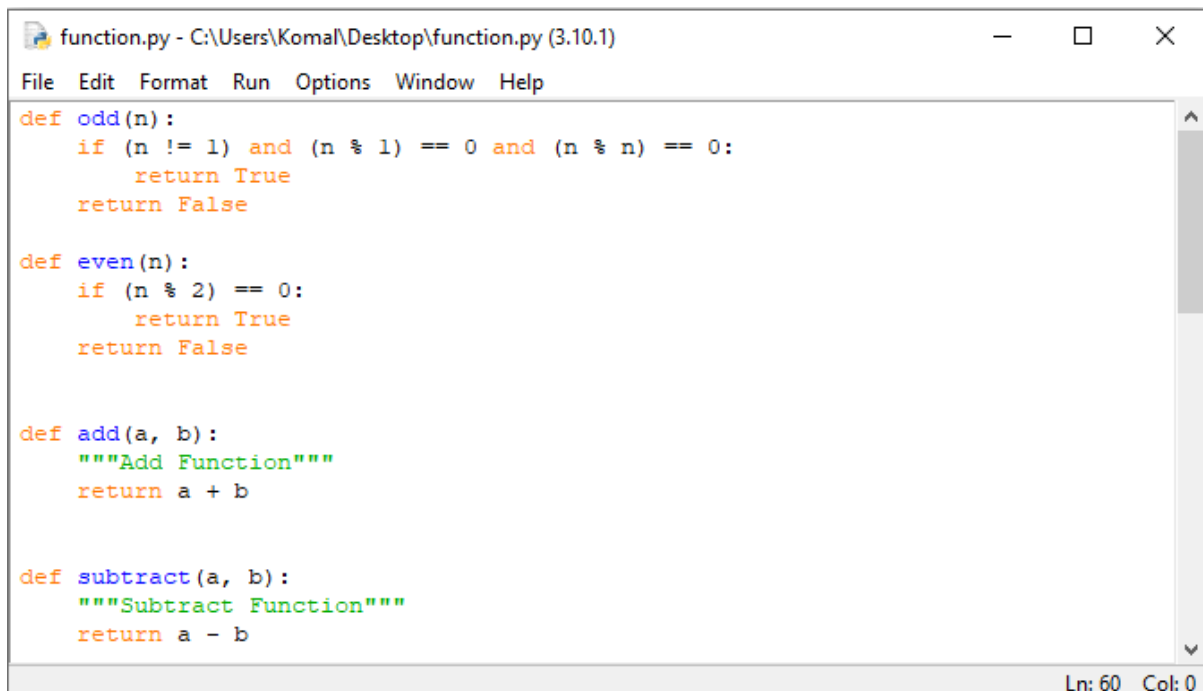


Report

DESCRIPTION:

- Write at least five automated test cases using any unit testing framework.
⇒ **Eight** automated unit tests implemented
- You also need to create a testing suite.
⇒ Test Suite Created
- All the test cases should be successfully executed individually and also under one test suite.
⇒ All tests being successfully executed individually and under one test suite
- You can use any programs / software system of your choice for testing e.g. Junit for Java code, PYunit for Python code, PHPUnit for PHP code, etc.
⇒ PYunit used

Screenshots of Functions:



```
function.py - C:\Users\Komal\Desktop\function.py (3.10.1)
File Edit Format Run Options Window Help

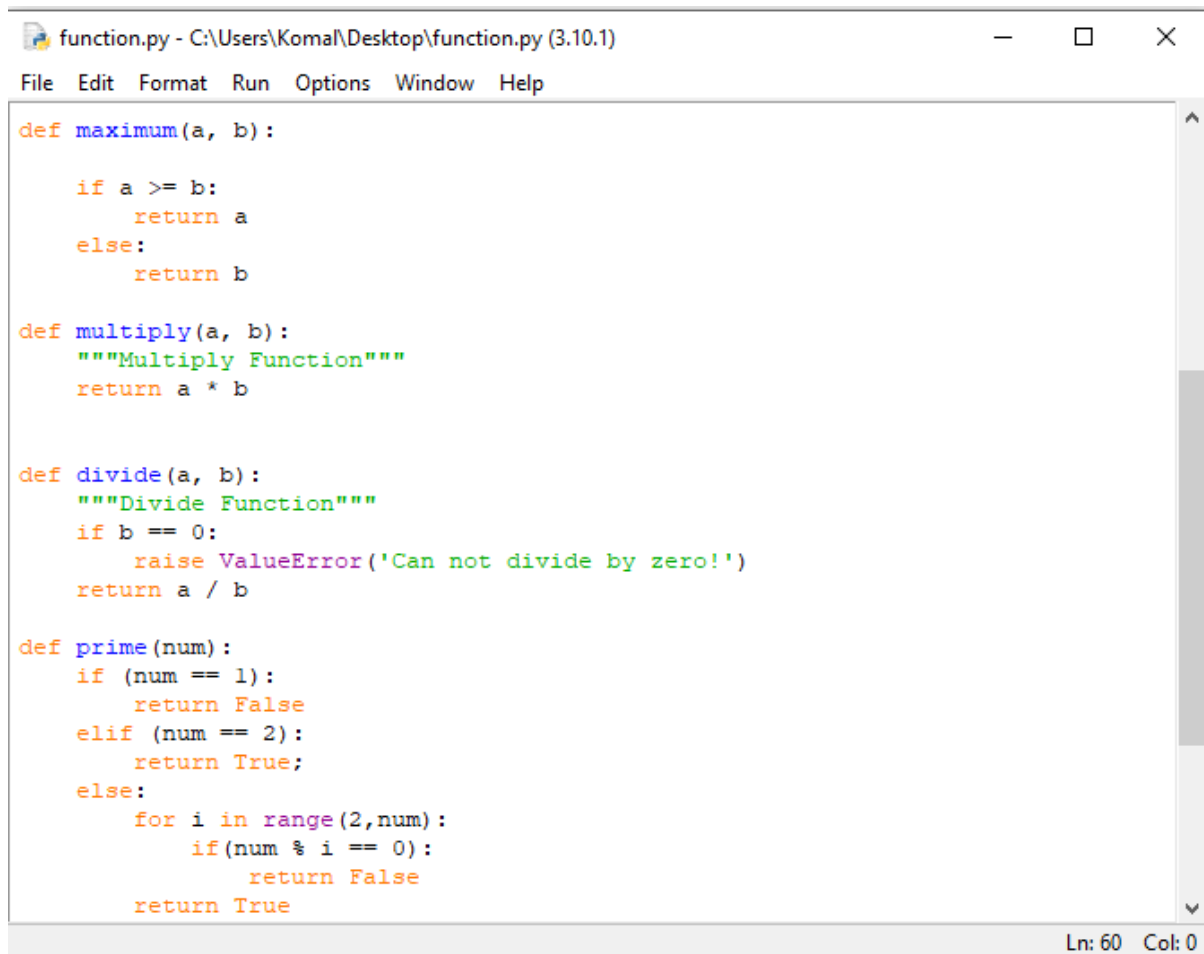
def odd(n):
    if (n != 1) and (n % 1) == 0 and (n % n) == 0:
        return True
    return False

def even(n):
    if (n % 2) == 0:
        return True
    return False

def add(a, b):
    """Add Function"""
    return a + b

def subtract(a, b):
    """Subtract Function"""
    return a - b

Ln: 60 Col: 0
```



```
function.py - C:\Users\Komal\Desktop\function.py (3.10.1)
File Edit Format Run Options Window Help

def maximum(a, b):
    if a >= b:
        return a
    else:
        return b

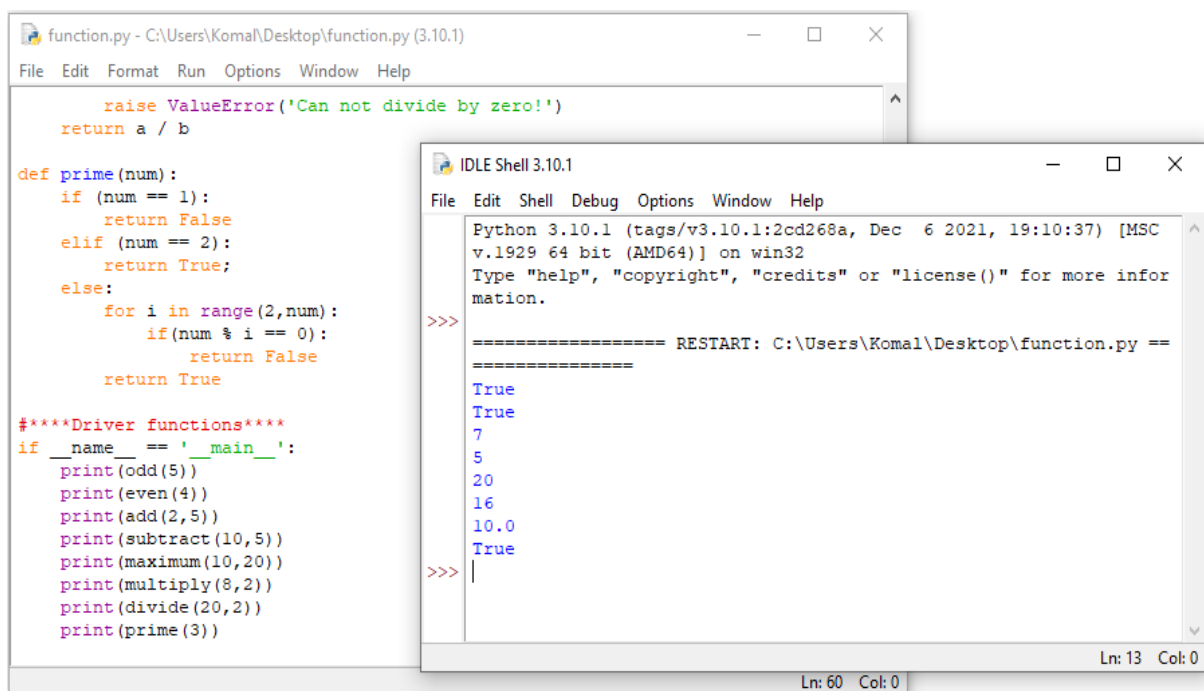
def multiply(a, b):
    """Multiply Function"""
    return a * b

def divide(a, b):
    """Divide Function"""
    if b == 0:
        raise ValueError('Can not divide by zero!')
    return a / b

def prime(num):
    if (num == 1):
        return False
    elif (num == 2):
        return True;
    else:
        for i in range(2,num):
            if(num % i == 0):
                return False
        return True

Ln: 60 Col: 0
```

Outcome/Result of the Functions:



```
function.py - C:\Users\Komal\Desktop\function.py (3.10.1)
File Edit Format Run Options Window Help

    raise ValueError('Can not divide by zero!')
    return a / b

def prime(num):
    if (num == 1):
        return False
    elif (num == 2):
        return True;
    else:
        for i in range(2,num):
            if(num % i == 0):
                return False
        return True

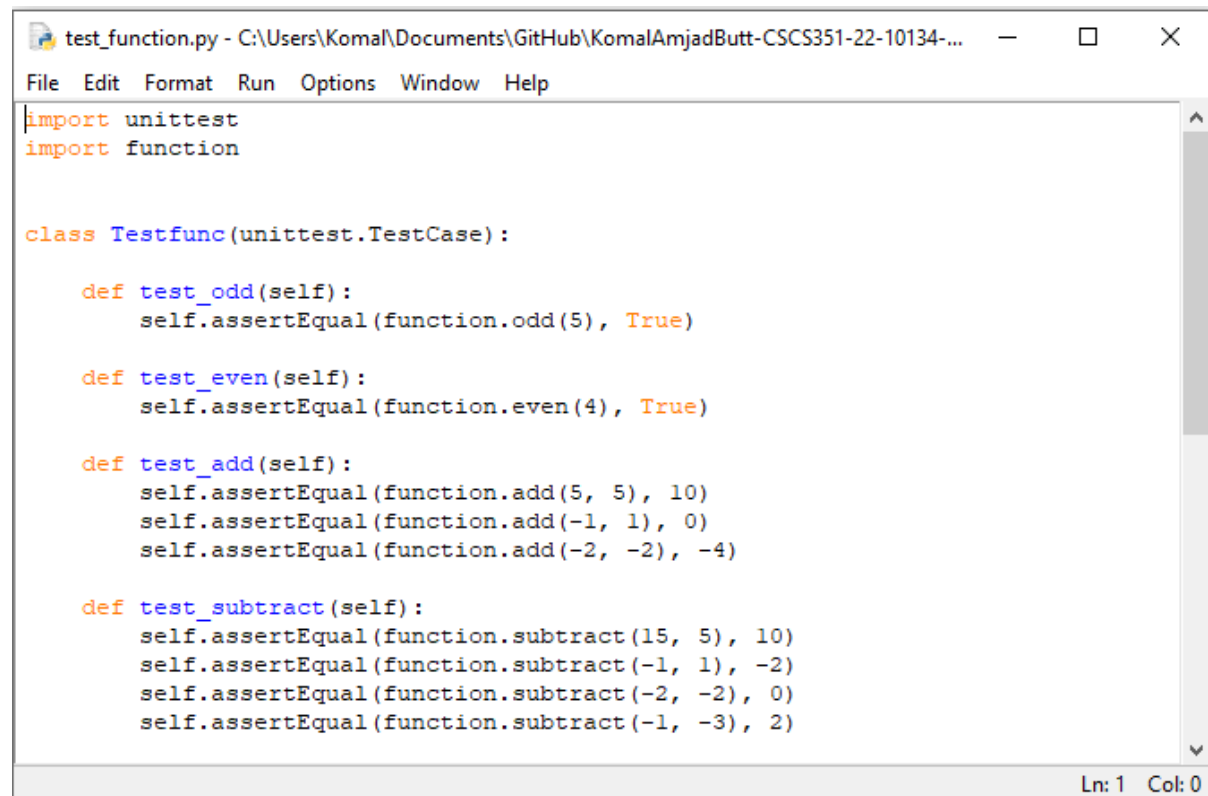
#****Driver functions****
if __name__ == '__main__':
    print(odd(5))
    print(even(4))
    print(add(2,5))
    print(subtract(10,5))
    print(maximum(10,20))
    print(multiply(8,2))
    print(divide(20,2))
    print(prime(3))

IDLE Shell 3.10.1
File Edit Shell Debug Options Window Help

Python 3.10.1 (tags/v3.10.1:2cd268a, Dec 6 2021, 19:10:37) [MSC
v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more infor
mation.
>>>
===== RESTART: C:\Users\Komal\Desktop\function.py ==
=====
True
True
7
5
20
16
10.0
True
>>>

Ln: 13 Col: 0
```

Screenshots of Testcases:



The screenshot shows a code editor window titled 'test_function.py - C:\Users\Komal\Documents\GitHub\KomalAmjadButt-CSCS351-22-10134-...'. The editor contains the following Python code:

```
import unittest
import function

class Testfunc(unittest.TestCase):

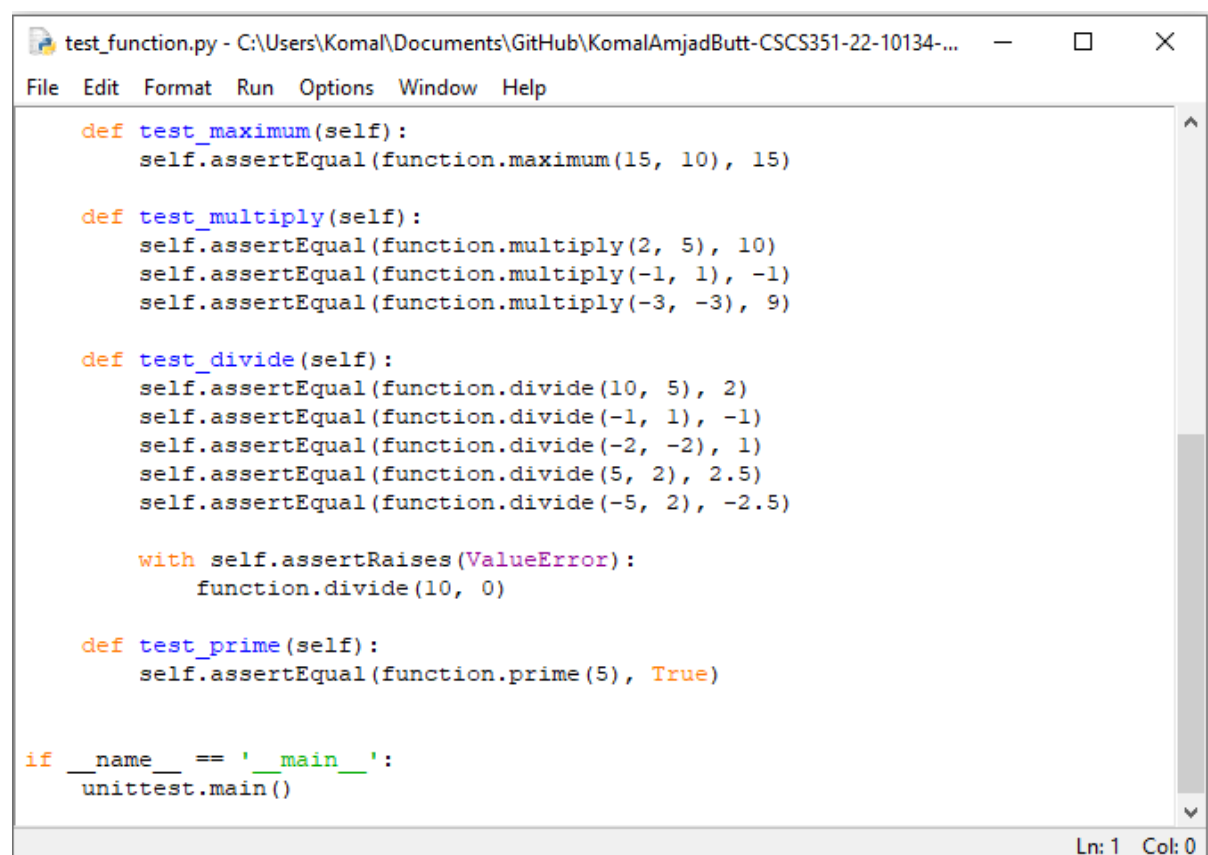
    def test_odd(self):
        self.assertEqual(function.odd(5), True)

    def test_even(self):
        self.assertEqual(function.even(4), True)

    def test_add(self):
        self.assertEqual(function.add(5, 5), 10)
        self.assertEqual(function.add(-1, 1), 0)
        self.assertEqual(function.add(-2, -2), -4)

    def test_subtract(self):
        self.assertEqual(function.subtract(15, 5), 10)
        self.assertEqual(function.subtract(-1, 1), -2)
        self.assertEqual(function.subtract(-2, -2), 0)
        self.assertEqual(function.subtract(-1, -3), 2)
```

The status bar at the bottom right indicates 'Ln: 1 Col: 0'.



The screenshot shows the same code editor window, displaying the continuation of the Python code:

```
    def test_maximum(self):
        self.assertEqual(function.maximum(15, 10), 15)

    def test_multiply(self):
        self.assertEqual(function.multiply(2, 5), 10)
        self.assertEqual(function.multiply(-1, 1), -1)
        self.assertEqual(function.multiply(-3, -3), 9)

    def test_divide(self):
        self.assertEqual(function.divide(10, 5), 2)
        self.assertEqual(function.divide(-1, 1), -1)
        self.assertEqual(function.divide(-2, -2), 1)
        self.assertEqual(function.divide(5, 2), 2.5)
        self.assertEqual(function.divide(-5, 2), -2.5)

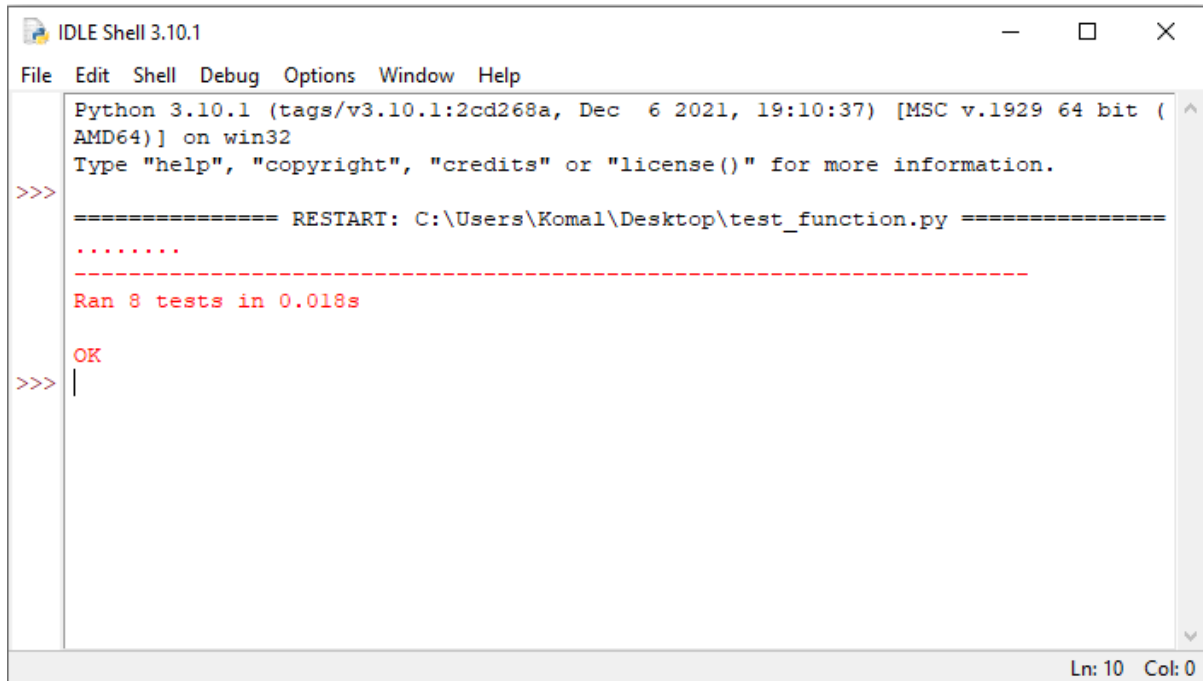
        with self.assertRaises(ValueError):
            function.divide(10, 0)

    def test_prime(self):
        self.assertEqual(function.prime(5), True)

if __name__ == '__main__':
    unittest.main()
```

The status bar at the bottom right indicates 'Ln: 1 Col: 0'.

Running the Testcases successfully to show pass/fail:



The screenshot shows the IDLE Shell 3.10.1 window. The title bar reads "IDLE Shell 3.10.1". The menu bar includes "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The shell area displays the following text:

```
Python 3.10.1 (tags/v3.10.1:2cd268a, Dec 6 2021, 19:10:37) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Komal\Desktop\test_function.py =====
.....
-----
Ran 8 tests in 0.018s
OK
>>> |
```

The status bar at the bottom right indicates "Ln: 10 Col: 0".