Test 3 – Practice Problems for the Paper-and-Pencil portion

SOLUTION

1. Consider the code snippet below. The class defined in the box at the bottom is in the module (file) whose name is `stuff1.py`. This code is a contrived example with poor style, but it will run without errors. What does it print when ***main*** runs?

   Write your answer in the box to the right.

```
import stuff1

def main():
    first = stuff1.Foo(3)
    second = stuff1.Foo(7)
    third = stuff1.Foo(3)
    fourth = stuff1.Foo(7)

    print(first.x, first.y, second.x, second.y)
    print(third.x, third.y, fourth.x, fourth.y)

    first.blah1(88)
    first.blah1(77)
    second.blah1(66)
    second.blah1(55)

    print(first.x, first.y, second.x, second.y)
    print(third.x, third.y, fourth.x, fourth.y)

    first.blah2(1)
    first.blah2(2)
    second.blah2(3)
    second.blah2(4)

    print(first.x, first.y, second.x, second.y)
    print(third.x, third.y, fourth.x, fourth.y)
```

Output: (I have put extra spaces in this solution to make it more readable.)

```
300  5    700  5
300  5    700  5

302 77    702 55
300  5    700  5

302 77    702 55
300  5    700  5
```

```
class Foo(object):
    def __init__(self, x):
        self.x = x * 100
        self.y = 5

    def blah1(self, a):
        self.x = self.x + 1
        self.y = a

    def blah2(self, y):
        y = y + 10
```

2. Consider the code snippet below. The classes defined in the box to the right are in the module (file) whose name is `stuff2.py`. This code is a contrived example with poor style, but it will run without errors. What does it print when ***main*** runs?

   Write your answer in the boxes at the bottom.

```
import stuff2

def main():
    t1 = stuff2.One(2)
    t2 = stuff2. Two(3)
    t3 = stuff2.Three()
    t4 = stuff2.Four()
    t5 = stuff2.Five(800, 900)

    print(t1.a, t1.b)
    print(t2.a, t2.b)
    print(t3.a, t3.b)
    print(t4.a, t4.b)
    print(t5.a, t5.b)

    t1.blah()
    t2.blah()
    t3.blah()
    t4.blah()
    t5.blah()

    print(t1.a, t1.b)
    print(t2.a, t2.b)
    print(t3.a, t3.b)
    print(t4.a, t4.b)
    print(t5.a, t5.b)
```

```
class One(object):
    def __init__(self, a):
        self.a = a
        self.b = 8

    def blah(self):
        self.a = self.a + 1
        self.b = 17


class Two(One):
    def __init__(self, s):
        super().__init__(s * 10)


class Three(One):
    def __init__(self):
        self.a = 99
        super().__init__(6)

    def blah(self):
        self.a = self.a * 100
        self.b = self.b * 100


class Four(One):
    def __init__(self):
        self.a = 40
        self.b = 50

    def blah(self):
        super().blah()
        self.a = self.a + 3
        self.b = self.b + 3


class Five(Two):
    def __init__(self, r, s):
        self.a = r
        self.b = s
```

Output from 1st set of *print* statements:

(I have put extra spaces in this solution to make it more readable.)

```
  2    8
 30    8
  6    8
 40   50
800  900
```

Output from 2nd set of *print* statements:

(I have put extra spaces in this solution to make it more readable.)

```
  3   17
 31   17
600  800
 44   20
801   17
```

3. Consider the code snippet below. It is a contrived example with poor style, but it will run without errors. What does it print when ***main*** runs?

   Write your answer in the box to the right.

```
def main():
    for j in range(5):
        for k in range(j):
            print(j, k)
```

Output:

(I have put extra blank lines in this solution to make it more readable.)

```
1 0

2 0
2 1

3 0
3 1
3 2

4 0
4 1
4 2
4 3
```

Output:

(I have put extra blank lines in this solution to make it more readable.)

```
here
there

here
there

here
there
2 2

here
3 1
there
3 2
3 3

here
4 1
4 2
there
4 2
4 3
4 4
```

4. Consider the code snippet below. It is a contrived example with poor style, but it will run without errors. What does it print when ***main*** runs?

   Write your answer in the box to the left.

```
def main():
    for j in range(5):
        print('here')
        for k in range(1, j - 1):
            print(j, k)

        print('there')
        for k in range(2, j + 1):
            print(j, k)
```