SelfAssessment82

October 25, 2015

1 Exercise 8.2

Write a function to calculate the area and perimeter of a circle with given radius. Return the result using a tuple. Test your function. Retrieve the area and perimeter by unpacking.

Answer appears after one blank page (so you don't peek).

Are you sure you're ready to peek?

2 Possible Solutions

The code will: 1. Take in one argument `rad` 2. Calculate the `area` and `perimeter` 3. Create and `return` a tuple.

```
In [5]: import math

        def area_perim(rad):
            if rad > 0:
                return(rad ** 2 * math.pi, rad * 2 * math.pi)
            else:
                raise ValueError('Radius must be a positive value.')

        # Tests:
        print area_perim(1)
        area, perim = area_perim(1)
        print 'Area:', area, 'Perimeter:', perim
        print area_perim(-1)
```

```
(3.141592653589793, 6.283185307179586)
Area: 3.14159265359 Perimeter: 6.28318530718


        ---------------------------------------------------------------------------

        ValueError                                Traceback (most recent call last)

        <ipython-input-5-52ca137b90c6> in <module>()
         11 area, perim = area_perim(1)
         12 print 'Area:', area, 'Perimeter:', perim
    ---> 13 print area_perim(-1)


        <ipython-input-5-52ca137b90c6> in area_perim(rad)
          5         return(rad ** 2 * math.pi, rad * 2 * math.pi)
          6     else:
    ----> 7         raise ValueError('Radius must be a positive value.')
          8
          9 # Tests:


        ValueError: Radius must be a positive value.
```

This all seems to work as expected. Again, I added in the TypeError. In this case I did it because it would be possible to calculate these values if a negative radius was used, so our function would be giving something that was a wrong answer. I'm not trapping any `type` errors this time because the function will fail anyway if we try to calculate the area of `'a'`.