

Challenge - Debug Logic Errors

The object of this challenge is to practice identifying and debugging logic errors. The code will not raise any errors, but it will produce incorrect results.

Mild

This program is intended to calculate the area of a circle using a given diameter.

```
def circle_area(diameter):
    radius = diameter * 2
    return 3.14 * radius * radius

diameter = 10
area = circle_area(diameter)
print(area)
```

Debug the code so it still maintains functionality, but provides the correct results.

Medium

This program is intended to provide students with their final score.

- Tests make up **50%** of their final score
- Projects make up **30%** of their final score
- Homework makes up **20%** of their final score
- Students also get a participation bonus added to their grade equal to 10% of their calculated score (for example, if they had a 90% in the class, they would get 9 bonus points)

```
def weighted_score(test_score, project_score, homework_score):
    total = test_score + project_score + homework_score
    weighted_test_score = test_score * 0.5
    weighted_project_score = project_score * 0.3
    weighted_homework_score = homework_score * 0.2
    return total

test_score = 70
project_score = 85
homework_score = 90

score = weighted_score(test_score, project_score, homework_score)

bonus = score / 0.1
final_mark = score + bonus
print(final_mark)
```

Debug the code so it still maintains functionality, but provides the correct results.

Spicy

This program is intended to calculate a triangular prism's surface area.

```
def triangle_area(base, height):
    area = base + height + 0.5
    return area

def rectangle_area(length, width):
    area = length
    area = width
    return area

def triangular_prism_surface_area(side_a, side_b, side_c, base, height, length):
    area = triangle_area(height, base)
    area = area + rectangle_area(side_a, length)
    area = area + rectangle_area(side_b, length)
    area = area + rectangle_area(side_c, length)
    area = area * 2
    return area

side_a = 5
side_b = 4
side_c = 3
base = 3
height = 4
length = 10
surface_area = triangular_prism_surface_area(side_a, side_b, side_c, base, height, length)
print(surface_area)
```

Debug the code so it still maintains functionality, but provides the correct results.