Metropolitan State University, Saint Paul, Minnesota

ICS 140 Computational Thinking with Programming

Lab 9

**Triangle Geometry**

You have been tasked with writing a program to perform some basic geometry functions related to triangles. It should calculate and display the following:

* The triangle area
* The triangle perimeter

See an example of what the program output should look like:

Text

Description automatically generated

For the problem below, complete the following steps:

* Run the provided test cases in test\_lab8.py and make sure they fail.
* Create Python Code for the triangle\_area and triangle\_perimeter functions.
  + You calculate the triangle area by multiplying the base times the height and dividing the result in half
  + You calculate the triangle perimeter by adding the length of each side.
* Rerun the test cases in test\_lab8.py and make sure they pass.
* Create the main function to prompt users for the base, height, and remaining sides of the triangle. The main function should call the other functions to calculate the area and perimeter to be printed.
* Copy and paste the python code in the python code section or upload the python file along with this file.
* Take a screenshot of passed automated tests and paste it in the section below
* Take a screenshot of the program output and paste it below.

**Python Code**

def triangle\_area(*base*, *height*):

area = *base* \* *height* \* .5

*return* area

def triangle\_perimeter(*a*, *b*, *c*):

perimeter = *a* + *b* + *c*

*return* perimeter

def main():

base = float(input("Enter the base of the traingle : "))

height = float(input("Enter the height of the traingle : "))

side2 = float(input("Enter the second side of the triangle : "))

side3 = float(input("Enter the third side of the triangle : "))

print(f"The area of the traingle is {triangle\_area(base,height)}")

print(f"The perimeter of the triangle is {triangle\_perimeter(base,side2,side3)}")

*# The main function should prompt the user for the base, height and other 2 sides of the triangle.*

*# It should print out the area and peremeter of the triangle.*

*if* \_\_name\_\_ == '\_\_main\_\_':

main()

**Screenshot of Passed Automated Tests OR your own manual test cases**

**Text

Description automatically generated**

**Screenshot of Program Output**

Text

Description automatically generated