Mohammed Haque (62655407)

Jose Alberto Padilla (91945869)

EECS 118

Term Project - Part 1

**Symbolic Geometry Problem Solver**

**Test D128**

**Test 1:**

d.set\_parallel("sb2\_4", "sb1")

d.set\_parallel("sc3\_4", "sc2")

d.set\_parallel("sa1\_4", "sa3")

result = d.get\_all()

print\_result(result)

**Test 2:**

print("Test 3 perpendicular")

d.set\_perpendicular("sa1\_4", "sb1")

d.set\_perpendicular("sc3\_4", "sb1")

d.set\_perpendicular("sb2\_4", "sa2")

result = d.get\_all()

print\_result(result)

**Test 3:**

print("Test set\_sum, set\_fraction, set\_equal")

d.set\_sum\_value("a1", "c1", 90)

d.set\_equal("sa2", "sa3")

d.set\_fraction("sb2\_4", "sc3\_4", 2)

result = d.get\_all()

print\_result(result)

**Test 4:**

print("Test invalid triangle")

d.set\_perpendicular("sc1", "sb1")

d.set\_perpendicular("sa1\_4", "sb1")

d.set\_sum\_value("a1", "b1", 180)

result = d.get\_all()

print\_result(result)

**Results:**

Test 1: making all possible sides parallel

parallel [['sb2\_4', 'sb1'], ['sb2\_4', 'sb3'], ['sc3\_4', 'sc1'], ['sc3\_4', 'sc2'], ['sa1\_4', 'sa2'], ['sa1\_4', 'sa3']]

equal [['c1', 'a4'], ['sc1', 'sc3\_4'], ['sb1', 'sb2\_4'], ['sa1\_4', 'sb1'], ['sb1', 'sc1'], ['a1', 'b1'], ['b1', 'c1'], ['sa2', 'sb2\_4'], ['sb2\_4', 'sc2'], ['a2', 'b2'], ['b2', 'c2'], ['sa3', 'sb3'], ['sb3', 'sc3\_4'], ['a3', 'b3'], ['b3', 'c3'], ['sa1\_4', 'sb2\_4'], ['sb2\_4', 'sc3\_4'], ['a4', 'b4'], ['b4', 'c4'], ['a2', 'b3'], ['b3', 'c1'], ['sa2', 'sa3'], ['sb3', 'sb1'], ['sc1', 'sc2'], ['ar1', 'ar2'], ['ar2', 'ar3'], ['ar3', 'ar4'], ['a1', 'a2'], ['a2', 'a3'], ['a3', 'a4']]

sum\_value [['a1', 'b1', 120], ['b1', 'c1', 120], ['c2', 'c4', 120], ['a2', 'b2', 120], ['a1', 'c4', 120], ['b2', 'c2', 120], ['a3', 'b3', 120], ['b1', 'b4', 120], ['b3', 'c3', 120], ['a4', 'b2', 120], ['a4', 'b4', 120], ['a1', 'c2', 120], ['b4', 'c4', 120], ['a3', 'b2', 120], ['a2', 'b3', 120], ['b3', 'c1', 120], ['a1', 'a2', 120], ['a2', 'a3', 120], ['a3', 'a4', 120], ['a2', 'c2', 120]]

similar [['tr1', 'tr2']]

congruent [['ar1', 'ar2'], ['ar2', 'ar3'], ['ar3', 'ar4']]

Test 3: perpendicular

perpendicular [['sa1\_4', 'sb1'], ['sa1\_4', 'sb3'], ['sc3\_4', 'sb1'], ['sc3\_4', 'sb3'], ['sa2', 'sb2\_4'], ['sa3', 'sb2\_4']]

sum\_value [['b4', 'c3', 90], ['a1', 'c1', 90], ['b1', 'b4', 90], ['a3', 'b3', 90], ['a3', 'a4', 90], ['a2', 'c2', 90]]

Test set\_sum, set\_fraction, set\_equal

perpendicular [['sa1\_4', 'sb1'], ['sa1\_4', 'sb3']]

equal [['sa2', 'sa3']]

fraction [['sb2\_4', 'sc3\_4', 2]]

sum\_value [['a1', 'c1', 90], ['b4', 'c3', 90]]

Test invalid triangle

null

All the results work as expected. We did not test set\_tan because it did not apply to our diagram.

**Test D228**

**Test 1:**

d2.set\_parallel("sb2\_3", "sa1")

d2.set\_parallel("sc1\_2", "sd3")

d2.set\_parallel("sa2\_3", "sb1")

result = d2.get\_all()

print\_result(result)

**Test 2:**

d2.set\_perpendicular("sa2\_3", "sa1")

d2.set\_perpendicular("sc1\_2", "sa1")

d2.set\_perpendicular("sb2\_3", "sb1")

d2.set\_tan("doesnt", "matter")

d2.set\_sum\_value("a1", "b1", 90)

result = d2.get\_all()

print\_result(result)

**Results:**

Test 1: Making all possible sides parallel

parallel [['sb2\_3', 'sa1'], ['sb2\_3', 'se3'], ['sc1\_2', 'sd3'], ['sa2\_3', 'sb1'], ['sa2\_3', 'sc3']]

equal [['sc1\_2', 'sa1'], ['sa1', 'sb1'], ['a1', 'b1'], ['b1', 'c1'], ['sa2\_3', 'sb2\_3'], ['sb2\_3', 'sc1\_2'], ['a2', 'b2'], ['b2', 'c2'], ['a1', 'c3'], ['c3', 'd3'], ['sb1', 'sc3'], ['sa1', 'se3'], ['ar1', 'ar2'], ['a1', 'a2'], ['a2', 'a3'], ['b2', 'b3'], ['b3', 'c3']]

sum\_value [['c2', 'e3', 360], ['a1', 'b1', 120], ['a2', 'a3', 120], ['b1', 'c1', 120], ['a2', 'b2', 120], ['b2', 'c2', 120], ['a3', 'c1', 120], ['a1', 'c3', 120], ['c3', 'd3', 120], ['a1', 'a2', 120], ['b2', 'b3', 120], ['a1', 'c1', 120], ['b3', 'c3', 120]]

similar [['tr1', 'tr2']]

Test 2: Invalid triangle

null

All the results work as expected. We did not test set\_tan because it did not apply to our diagram.