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# Course------CS1213-01

# Project-----Project #8

# Due---------November 28,2018

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# This program uses the distance function to compute and

# print the results of a stone slung from a slingshot

# to try and hit a pig a certain distance away.

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# Factorial Function; For Sine Function

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def fact(n):

factorial = 1

count = 2

while count <= n:

factorial \*= count

count += 1

return factorial

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# Sine Function; For Distance Function

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def sin(x,n):

sine = 0

for count in range(n+1):

sign = (-1)\*\*count

sine += sign\*((x\*\*((2\*count)+1))/(fact((2\*count)+1)))

return sine

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# Distance Function

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def dist(draw,angle):

velocity = draw \* 10

g = 32.2

pi = 22/7

radians = angle \* (pi/180)

distance = ((velocity\*\*2)\*sin(2\*radians,20))/g

return distance

# ---------------------------------------------------------

# Result Function

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def res(far,distance):

under = far - 2

over = far + 2

if distance >= under and distance <= over:

result = "Result of shot ---------------- OINK!!"

elif distance > over:

off = abs(over - distance)

result = "Result of shot ---------------- %d feet too long"%off

elif distance < under:

off = under - distance

result = "Result of shot ---------------- %d feet too short"%off

return result

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# \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_MAIN PROGRAM\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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far = int(input("Distance to pig (feet) -------- "))

print()

elevation = float(input("Angle of elevation (degrees) -- "))

length = float(input("Draw length (inches) ---------- "))

print()

end = res(far,dist(length,elevation))

print(end)

while end != "Result of shot ---------------- OINK!!":

print()

elevation = float(input("Angle of elevation (degrees) -- "))

length = float(input("Draw length (inches) ---------- "))

print()

end = res(far,dist(length,elevation))

print(end)