|  |
| --- |
| #Brad Jones |
|  |

|  |
| --- |
| #CSC110 - Section 6 |
|  |

|  |
| --- |
| #4/13/2017 |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| # Home Renovation Cost Calculator |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| ###############Example for testing#################### |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #INPUT |
|  |

|  |
| --- |
| #Enter a length of house in feet: 50 |
|  |

|  |
| --- |
| #Enter a width of house in feet: 30 |
|  |

|  |
| --- |
| #Enter a height of house in feet: 10 |
|  |

|  |
| --- |
| #Enter a cost of profile in $: 128.75 |
|  |

|  |
| --- |
| #Enter a cost of siding nails in $: 15.96 |
|  |

|  |
| --- |
| #Enter a cost of side strips in $: 11 |
|  |

|  |
| --- |
| #Enter a cost of a bundle of shingles in $: 24.75 |
|  |

|  |
| --- |
| #Enter a cost of roofing nails in $: 2.98 |
|  |

|  |
| --- |
| # |
|  |

|  |
| --- |
| #OUTPUT |
|  |

|  |
| --- |
| #The house has length = 50, width = 30, height = 10 |
|  |

|  |
| --- |
| #SIDING |
|  |

|  |
| --- |
| #\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #Boxes of siding nails are 40 |
|  |

|  |
| --- |
| #Weather side strips are 54 |
|  |

|  |
| --- |
| #The cost of materials for siding $11532.40 |
|  |

|  |
| --- |
| #\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
|  |

|  |
| --- |
| #ROOF |
|  |

|  |
| --- |
| #\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
|  |

|  |
| --- |
| #Bundles of shingles are 93 |
|  |

|  |
| --- |
| #Boxes of roofing nails are 92.38 |
|  |

|  |
| --- |
| #\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
|  |

|  |
| --- |
| #TOTAL |
|  |

|  |
| --- |
| #\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
|  |

|  |
| --- |
| #The cost of materials for the roof $2394.13 |
|  |

|  |
| --- |
| #Total cost of home renovation $13926.53 |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| ####################################################### |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #USER INPUT |
|  |

|  |
| --- |
| house\_length = int(input("Enter a length of house in feet: ")) |
|  |

|  |
| --- |
| house\_width = int(input("Enter a width of house in feet: ")) |
|  |

|  |
| --- |
| house\_height = int(input("Enter a height of house in feet: ")) |
|  |

|  |
| --- |
| profile\_cost = float(input("Enter a cost of profile in $: ")) |
|  |

|  |
| --- |
| siding\_nails\_cost = float(input("Enter a cost of siding nails in $: ")) |
|  |

|  |
| --- |
| siding\_strips\_cost = float(input("Enter a cost of side strips in $: ")) |
|  |

|  |
| --- |
| bundle\_cost = float(input("Enter a cost of a bundle of shingles in $: ")) |
|  |

|  |
| --- |
| roof\_nails\_cost = float(input("Enter a cost of roofing nails in $: ")) |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #PROCESSING |
|  |

|  |
| --- |
| import math |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #SIDING MATH |
|  |

|  |
| --- |
| house\_area = float((2 \* (house\_length \* house\_height)) + (2 \* (house\_height \* house\_width))) |
|  |

|  |
| --- |
| doorWindow\_mod = house\_area \* 0.2 |
|  |

|  |
| --- |
| siding\_area = house\_area - doorWindow\_mod |
|  |

|  |
| --- |
| ONE\_PROFILE = (1/20) |
|  |

|  |
| --- |
| total\_profile = siding\_area \* ONE\_PROFILE |
|  |

|  |
| --- |
| siding\_nails = float((1 / 2) \* total\_profile) |
|  |

|  |
| --- |
| siding\_strips = float((2 / 3)\* total\_profile) |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #ROOF MATH |
|  |

|  |
| --- |
| #The roof has 4 faces. 2 rectangle faces and 2 triangle faces |
|  |

|  |
| --- |
| #Triangle height determined using Pythagorean Thorem |
|  |

|  |
| --- |
| #1/2Width^2\*Height^2=width^2 |
|  |

|  |
| --- |
| #height^2= width^2 - 1/2width^2 |
|  |

|  |
| --- |
| #sqrt both sides: height = width - 1/2width |
|  |

|  |
| --- |
| roof\_height = float(house\_width - ((1/2) \* house\_width)) |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #Area of a triangle is (base(our width)\*triangle height)/2) |
|  |

|  |
| --- |
| roof\_tri = float(((house\_width + 5) \* roof\_height) / 2 ) |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #Area of a rectangle plus the 5ft overhang on length and width |
|  |

|  |
| --- |
| roof\_box = float(house\_width + 5 \* house\_length + 5) |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #Area of the Roof is area of 2 triangle faces + 2 Box faces |
|  |

|  |
| --- |
| roof\_area = float((2 \* roof\_tri) + (2 \* roof\_box)) |
|  |

|  |
| --- |
| ONE\_BUNDLE = 33.3 |
|  |

|  |
| --- |
| total\_bundle = roof\_area / ONE\_BUNDLE |
|  |

|  |
| --- |
| roof\_nails = float((1 / 3) \* total\_bundle) |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #COST MATH |
|  |

|  |
| --- |
| total\_profile\_cost = total\_profile \* profile\_cost |
|  |

|  |
| --- |
| total\_siding\_nails\_cost = siding\_nails \* siding\_nails\_cost |
|  |

|  |
| --- |
| total\_siding\_strips\_cost = siding\_strips \* siding\_strips\_cost |
|  |

|  |
| --- |
| total\_bundle\_cost = total\_bundle \* bundle\_cost |
|  |

|  |
| --- |
| total\_roof\_nails\_cost = roof\_nails \* roof\_nails\_cost |
|  |

|  |
| --- |
| total\_siding\_cost = total\_profile\_cost + total\_siding\_nails\_cost + total\_siding\_strips\_cost |
|  |

|  |
| --- |
| total\_roof\_cost = total\_bundle\_cost + total\_roof\_nails\_cost |
|  |

|  |
| --- |
| total\_material\_cost = total\_siding\_cost + total\_roof\_cost |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #PROGRAM OUTPUT |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| #TEST OUTPUT: |
|  |

|  |
| --- |
| #print(house\_length, house\_width, house\_height, profile\_cost, siding\_nails\_cost, siding\_strips\_cost, |
|  |

|  |
| --- |
| # bundle\_cost, roof\_nails\_cost, roof\_height, roof\_tri, roof\_box, roof\_area) |
|  |

|  |
| --- |
| #print("The house has length = ", length, ", width = ", width, "height = ", height) |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| print("\n") |
|  |

|  |
| --- |
| print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*") |
|  |

|  |
| --- |
| print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*") |
|  |

|  |
| --- |
| print("SIDING: ") |
|  |

|  |
| --- |
| print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*") |
|  |

|  |
| --- |
| print("Total area of walls is: \t \t \t", format(siding\_area, '.0f')) |
|  |

|  |
| --- |
| print("Total profile is : \t \t \t \t", math.ceil(total\_profile)) |
|  |

|  |
| --- |
| print("Boxes of siding nails needed: \t \t \t", math.ceil(siding\_nails)) |
|  |

|  |
| --- |
| print("Weather side strips needed: \t \t \t", math.ceil(siding\_strips)) |
|  |

|  |
| --- |
| print("TOTAL MATERIAL COST FOR SIDING: \t \t $" + format(total\_siding\_cost, '.2f')) |
|  |

|  |
| --- |
| print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*") |
|  |

|  |
| --- |
| print("ROOF: ") |
|  |

|  |
| --- |
| print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*") |
|  |

|  |
| --- |
| print("Bundles of shingles required: \t \t \t", math.ceil(total\_bundle)) |
|  |

|  |
| --- |
| print("Boxes of roofing nails required: \t \t", math.ceil(roof\_nails)) |
|  |

|  |
| --- |
| print("TOTAL MATERIAL COST FOR ROOF: \t \t \t $" + format(total\_roof\_cost, '.2f')) |
|  |

|  |
| --- |
| print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*") |
|  |

|  |
| --- |
| print("TOTAL: \t \t \t \t \t \t $" + format(total\_material\_cost, '.2f')) |
|  |

|  |
| --- |
| print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*") |
|  |

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*")