Assessment: 01

Student Name: Harpreet Singh

Lab Professor Name:

Lab Section Number: 343

Due Date: 6/10/2024

Understand the problem

**Volume of cylinder** =(V = πr²h) [1]

**1.solution**

V=[π×(12)×2]+[π×(0.82)×2]+[π×(0.642)×2] [ pi = π]

=6.2832+4.021+2.5744= 12.8786

**2. Solution**

V=[π×(22)×3]+[π×(1.62)×3]+[π×(1.282)×3]

Volume total​=37.6991+24.1697+15.2557=77.1245

**3. Solution**

V=[π×(32)×4]+[π×(2.42)×4]+[π×(1.922)×4]

Vtotal​=113.097+72.346+46.045=231.488

Here the value of radius is reduced by 80 percent according to the question in all the cases

UML Class Diagram(s)

UMLClass

360

160

380

210

CylinderPyramid -- - radius: double - height: double - volume: double -- + CylinderPyramid(radius: double,height: double):double + volumeCylinder(radius: double,height: double):double + volumePyramid(radius: double,height: double):double

UMLClass

850

150

210

220

Main -- -- +main(args:String[]:void

Screenshot

A close-up of a box

Description automatically generated

Pseudocode

**START**

double volumeCylinder (double radius, double height)

double volume

volume = PI\*(radius^2)\*height

volume += PI\*((radius\*0.8)^2)height

volume += PI((radius\*0.64)^2)\*height

output volume

**STOP**

(Main method)

**START**

Declarations

double radius

double height

double volume

output "Enter in the radius:"

input radius

output "Enter in the height:"

input height

volume = myCylinder.voulumePyramid(radius, height)

output "The volume of your pyramid is: ", volume (formatted to 3 decimal places)

**STOP**

Algorithm Test Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **INPUTS**  **Radius and height** | **VOLUME CALCULATIONS**  **EXPECTED** | **TOTAL VOLUME (OUTPUT)**  **EXPECTED** | **ACTUAL OUTPUT** | **DESCRITION** |
| R= 1  H=2 | [π×(12)×2]+[π×(0.82)×2]+[π×(0.642)×2] | 12.8786 | 12.878 | The output given is has one less number as expected |
| R= 2  H=3 | [π×(22)×3]+[π×(1.62)×3]+[π×(1.282)×3] | 77.1245 | 77.124 | The output given is has one less number as expected |
| R= 3  H=4 | [π×(32)×4]+[π×(2.42)×4]+[π×(1.922)×4] | 231.488 | 231.488 | The output given is same as expected |

Here is the calculation same as the step 1 as per the question.

Program Test Table

| Input | Expected Output | Actual Output | Description |
| --- | --- | --- | --- |
| 10  8 | Enter in the radius: Enter in the height: The volume of your pyramid is: 5151.207 | Enter in the radius: Enter in the height: The volume of your pyramid is: 5151.207 | Testing the method's main logic, it should ask for two inputs, and then output the volume. |
| 9.17  3.16 | Enter in the radius: Enter in the height: The volume of your pyramid is:1710.979 | Enter in the radius: Enter in the height: The volume of your pyramid is: 1710.979 | Testing the method's main logic, it should ask for two inputs, and then output the volume. |
| 400  250  257560332.112 | Enter in the radius: Enter in the height: The volume of your pyramid is:257560332.112 | Enter in the radius: Enter in the height: The volume of your pyramid is: 257560332.112 | Testing the method's main logic, it should ask for two inputs, and then output the volume. |
| 77r  6r | Enter in the radius: Enter in the height: The volume of your pyramid is: 63r | error | Testing the methods main logic by putting string value but showed a error |
| -10  -0.7777777777277272772727272 | Enter in the radius: Enter in the height: The volume of your pyramid is: -500.8122222288882222 | Enter in the radius: Enter in the height: The volume of your pyramid is: -500.812 | Testing the methods by putting the large number after point which is memory loss |

References / Sources Cited

# References

|  |  |
| --- | --- |
| [1] | "BYJU'S," [Online]. Available: [https://byjus.com/maths/cylinder/#:~:text=In%20mathematics,%20a%20cylinder%20is%20a](https://byjus.com/maths/cylinder/%23:~:text=In%20mathematics,%20a%20cylinder%20is%20a). [Accessed 5 10 2024]. |