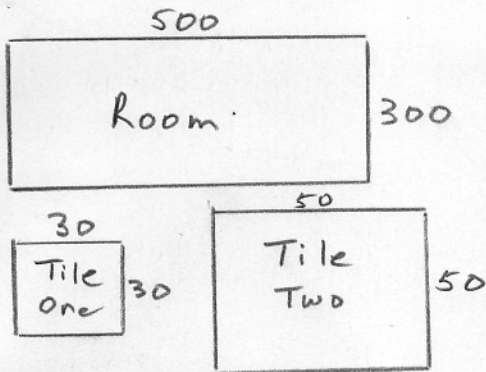


Grade 11. Mock November Practical Exam - OOP

Write a two class application that calculates floor area and how many carpets tiles are needed to cover the area. We will assume that the floor is always a square or a rectangle. Your program must work in centimeters only (not millimeters or metres)

The carpet tiles come in two sizes 50cm x 50cm and 30cm x 30cm. You will need to ask the user which size they are interested in.



$$A = L \times B = 500 \times 300 = 150000$$

$$\text{Tile One. } A = L \times B = 30 \times 30 = 900$$

$$\text{Tile Two. } A = L \times B = 50 \times 50 = 2500$$

$$\text{If tile one is chosen} \\ 150000 \div 900 = 167 \text{ tiles}$$

Question One

Package: novexamone

Class CarpetUI

The class with the main method.

Creates the new object from the Tileroom class (see below)

Uses JOptionPane to accept user input.

Calls the processing method to calculate the area of the room.

Accepts lengths > than zero and < than 10000cm

Rejects invalid input and forces the user to input again.

Allows the user to input their tile preference ie (50x50) or (30x30)

Calls the processing method to calculate the area of their tile choice

Accepts lengths > than zero and < = than 50cm

Rejects invalid input and forces the user to input again.

Prints the final output to screen using JOptionPane.

Class Tileroom

The class that does the processing using a number of methods

Returns the final number of how many carpet tiles are needed

Input: Via the CarpetUI class

The input needed from the user is as follows

The length of the room

The breadth of the room

Choice of carpet tile (50x50) or (30x30)

This class uses a while loop to reject any invalid responses and displays an error message box if relevant.

①

Processing: Via the object created from the Tileroom class

Method calcRoom

This method accepts the length and breadth of the room
Calculate the area of the room
Returns the area value to the main method

Method calcTiles

This method accepts the area of the room and the area of the tile
Divides the area of the tile into the area of the room
Returns the number of carpet tiles needed

Output: Via the CarpetUI class

Displays the area of the room and the number of tiles needed with
suitable, useful messages using a message box.

Question Two

Write a two class application that calculates the monies donated to upgrade the bear enclosure and the eagle enclosure at a local zoo. Supporters could choose which enclosure they wanted their donation to be used for.

The input for this program comes from a text file that looks like this. You must create this file yourself and it must match the file shown below. Save this text file into the correct working folder in NetBeans

Able Abbot, 43.3, Bear
Betty Bravo, 207.75, Eagle
Charlie Chunky, 101.45, Bear
Delta Dox, 403.17, Bear
Echo Edward, 27.0, Eagle

Package: novexamtwo

Class ZooUI

The class with the main method.

Creates the new object from the Donations class (see below)

Uses JOptionPane.

Calls a method to read in the text file (normal or constructor)

If the file is not found the application must give a suitable error message

Prints the final output to screen using JOptionPane.

Processing:

Class Donations The class that does the processing using a number of methods.

Method one reads in the text file.

The names must be read into a one dimensional name array.

The amounts must be read into a one dimensional value array.

This class must count the number of donations for Bears and Eagles.

Method two calculates the total amount of donations.

Output: Via the ZooUI class

Your output should look like this ...

Able Abbot	43.3
Betty Bravo	207.75
Charlie Chunky	101.45
Delta Dox	403.17
Echo Edward	27.0

The total amount collected was R782.67

The number of Bear donations was 3

The number of Eagle donations was 2